SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Partner organizations

CDP DISCLOSURE INSIGHT ACTION

UN GLOBAL COMPACT

WORLD RESOURCES INSTITUTE

WWF

Foundations for Science-Based Net-Zero Target Setting in the Financial Sector:

Draft for Public Comment

Version 0

November 2021

Version	Release date	Purpose	Updates on earlier version
0, SBTi FI Net-Zero Foundations Draft	10/11/21	Draft for public comment	

Foundations for Science-Based Net-Zero Target Setting in the Financial Sector

Financial institutions have started to focus on net-zero as the guiding principle for their climate mitigation ambition. However, the lack of consistent principles, definitions, metrics, and evidence of effective strategies to meet net-zero targets limits the ability of financial institutions to support the reduction of emissions in the real economy that is needed to stabilize temperatures at 1.5°C above pre-industrial levels. In this foundations paper, the Science Based Targets initiative (SBTi) provides principles, definitions, metrics, and target formulation considerations for financial institutions to set quantitative net-zero targets linked with emissions reductions in the real economy.

Contents

Executive Summary

Context

The Intergovernmental Panel on Climate Change (IPCC) Special Report on 1.5°C provided a widely accepted warning that in pathways that limit global warming to 1.5°C, the world needs to halve carbon dioxide (CO_2) emissions by around 2030 and reach net-zero CO_2 emissions by mid-century, accompanied by deep cuts to non-CO_2 greenhouse gas (GHG) emissions. The report defined the net-zero state as the point when "anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period."

To decarbonize the global economy in alignment with the goals established by the Paris Agreement, all economic actors in the real economy need to reduce their GHG emissions at a rate sufficient to remain aligned with the mitigation pathways established by climate science. The central enabling role of the finance sector is recognized in the Paris Agreement, which contains language in Article 2.1(c) on "making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development." Financial institutions (FIs) have a unique influence over other actors in that they provide capital and services to companies with responsibility for reducing their GHG emissions, rather than exercise direct control over any major sources of GHG emissions reductions. It is thus critical for FIs to help drive Paris-aligned systemic decarbonization by leveraging their shared influence and responsibility for aligning incentives and eliminating barriers to emission reductions.

Recent research has found that 77 percent of global emissions and 80 percent of global GDP are covered by net-zero commitments (Hale, et al. 2021). The Glasgow Financial Alliance for Net-Zero (GFANZ) has brought together several net-zero alliances to help drive high-level net-zero commitments. As of September 2021, these net-zero alliances have helped shape many of the initial commitments of FIs, bringing together over 160 firms (together responsible for assets in excess of US$70 trillion).

Our review of the financial net-zero landscape to date finds that approaches differ across dimensions such as the range of financial services that are covered and how FIs are planning to achieve their target. FIs are using a combination of different strategies to decarbonize their portfolios and invest in new climate solutions such as renewable energy and carbon dioxide removal technologies. However, without a common understanding, today's varied net-zero target setting landscape makes it difficult for stakeholders to compare goals and to evaluate whether the actions being taken by FIs are sufficient to achieve a global net-zero economy by 2050 in line with limiting global warming to 1.5ºC this century.

About This Paper

In 2020, the SBTi published criteria and guidance for FIs to set near-term science-based targets (SBTs) that cover their investment and lending portfolios. FIs are now using the

guidance and criteria to develop their SBTs and have them validated by the SBTi. In October 2021, the SBTi published the SBTi Corporate Net-Zero Standard which provides guidance, criteria, and recommendations for companies to set net-zero targets through the SBTi. This foundations paper builds on the SBTi Finance Guidance and Criteria as well as the SBTi Corporate Net-Zero Standard by presenting guiding principles, definitions of net-zero for FIs, metrics for developing targets, and tracking performance, and target formulation considerations such as fossil-fuel financing and use of carbon credits.

This paper aims to create alignment across the financial community with common language and concepts for net-zero target-setting. The goal is to build a growing group of FIs that transparently, quantitatively, and robustly support the emissions reductions in the real economy needed for climate stabilization. The paper does not represent a definitive set of criteria or guidance but, rather, a first step in the process of developing a Net-Zero Standard for FIs.

Key Questions

What does it mean to reach net-zero for an FI?

The SBTi is exploring three broad approaches for how FIs can reach a state of net-zero emissions, consistent with achieving the 1.5°C goal of the Paris Agreement and contributing to the Sustainable Development Goals (SDGs). The three approaches are summarized below:

1. Financed emissions: net-zero claims are based on reducing financed emissions to zero or to a residual level that is consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C-aligned pathways. Any remaining residual emissions are neutralized by permanently removing and storing an equivalent amount of atmospheric carbon dioxide.
2. Portfolio alignment: net-zero claims are based on FIs aligning all relevant financing activities such that each individual asset achieves a state of net-zero consistent with the SBTi Corporate Net-Zero Standard.
3. Contribution to the net-zero economy: net-zero claims are based on FIs both financing decarbonization activities and explicitly reallocating financing activities to climate solutions at a rate consistent with global climate goals.

These approaches are not mutually exclusive, and through its target-development process the SBTi plans to establish requirements for how one or more of these approaches can be used to set FI net-zero targets.

How should FIs address their financed emissions?

Companies setting science-based net-zero targets are expected to reduce value-chain emissions to a level consistent with the amount of abatement achieved at the point of reaching global or sector-level net-zero in scenarios that limit warming to 1.5°C with no or

limited overshoot. For most companies this means emissions are reduced by at least 90% before reaching net-zero. FIs' financed activity emissions are expected to align with the same 1.5°C-aligned abatement levels when reaching net-zero.

Reducing financed emissions should not occur at the expense of financing the transition in the wider economy. Rather than simply reducing portfolio exposure to GHG emissions, net-zero targets for FIs should incentivize engagement with portfolio companies to reduce their own emissions consistently with relevant 1.5°C pathways by setting science-based net-zero targets. This engagement is intended to support financing of GHG reductions in the real economy.

A forward-looking approach can help ensure the necessary transition finance to all companies that have signaled their intention to decarbonize, regardless of their sector or current GHG emission footprint. For companies that are unable or unwilling to transition, however, FIs can discontinue the relationship by divesting.

What role do carbon credits play?

Companies are not able to purchase carbon credits as a replacement for reducing value chain emissions in line with their science-based targets - this is often referred to as “offsetting”. However, under the SBTi Corporate Net-Zero Standard framework, investment in mitigation outside the corporate value chain (“beyond value chain mitigation”) is recommended to support societal net-zero goals, and high-quality carbon credits may contribute towards this. In addition, any residual emissions that remain when reaching corporate long-term science-based targets must be neutralized with permanent removals to reach net-zero; these removals may be sourced from carbon credits.

As a general rule, FIs are not expected to purchase carbon credits on behalf of companies to balance unabated emissions on the path to net-zero or neutralize residual emissions from companies in their portfolios at the state of net-zero. The net-zero “burden” is then placed on the companies themselves, rather than the FI. This incentivizes the companies to reduce their own value chain emissions, rather than relying on the FI.

FIs should prioritize opportunities within their core business to accelerate the transition beyond their SBTs and contribute to the wider societal net-zero goal. Rather than reaching societal net-zero goals through the purchase of carbon credits, SBTi is focused on FIs’ ability to achieve mitigation through direct financing.

How should climate solutions be addressed in net-zero targets?

FIs have an important role to play in scaling up investments in new climate solutions such as renewable energy, sustainable mobility and infrastructure. Recognizing the importance of finance in the coming decade in addressing climate change, options for directing finance towards nature-based climate solutions that secure and enhance carbon sinks to avoid the emissions that arise from their degradation will be explored as part of the standard development process. There is also a critical need for FIs to invest in nascent GHG removal

technologies, for example direct air capture (DAC) and geological storage, so that the technology is available to neutralize residual emissions to reach net-zero.

The definition, quantification, and ambition associated with the financing of climate solutions remain to be developed. Ambition is usually defined in terms of the rate of change of emissions reductions, and not the rate of change of deployment of financing for new solutions. Questions around whether and how climate-solution financing can be included with net-zero targets will continue to be examined as part of the standard development process.

How should SBTs complement NZ targets?

Science-based emissions reduction targets ensure that FIs address relevant sources of financed emissions through sector-based physical intensity or engagement-oriented methods in the near-term. Science-based net-zero targets are expected to go beyond FIs' near-term SBTs to define the state of net-zero and clarify how FIs can do their part to achieve a net-zero economy.

Process to develop the SBTi Finance Net-Zero Standard

This paper represents the first step in developing a science-based, net-zero standard for FIs. The SBTi plans to build on this paper with a transparent and inclusive multi-stakeholder process for developing target validation criteria, detailed guidance, and technical resources to support FIs with the development and implementation of science-based net-zero targets.

While the financial sector plays a different role than the corporate sector in achieving net-zero emissions, the forthcoming standard will be informed by, and aligned with, the SBTi Corporate Net-Zero Standard. As part of the standard development process, further research and consultation is planned to address the following key technical topics:

- How net-zero definitions can apply to different types of FIs, given their different abilities to influence and drive reductions in the real economy.
- Clarify the role of climate solutions in net-zero targets, specifically relating to metrics and whether and how the rate of climate-solution financing should be tied to science-based scenarios.
- Determine the role of emissions removals within asset classes to effectively counterbalance remaining residual emissions and stipulating the conditions for FIs to claim net-zero emissions across their operations and financing activities.
- How to integrate the FI net-zero framework with the corporate target-setting pathways used by real economy companies.

1 Glossary

Term	Definition
1.5°C mitigation pathway (or net-zero pathway)	Term used to describe the emissions, policy, technology, behavior, investment, and other trajectories that will be needed to achieve a halving of global GHG emissions by 2030 and net-zero emissions by no later than 2050. The analysis presented in this paper is based on pathways that limit warming to 1.5°C above pre-industrial levels with no or limited overshoot (overshoot <0.1°C) and limited reliance on the deployment of GHG removals at scale.
Abatement	Measures taken to prevent, reduce, or eliminate sources of GHG emissions within their value chains.
Absolute emissions	GHG emissions attributed to an FI's operational and financing activities, expressed in metric tons of CO_2 equivalent (tCO_2e).
Alignment (with a 1.5°C mitigation pathway or net-zero pathway)	A state where a company is on track to achieve net-zero such that an escalation of actions (e.g., abatement levels) will not be required in the future in order to remain in line with a 1.5°C mitigation pathway.
Asset class	A group of financial instruments that have similar financial characteristics.
Avoided emissions	Emission reductions that the financed project produces versus what would have been emitted in the absence of the project (the counterfactual baseline emissions); avoided emissions are not included in SBTs.
Beyond value chain mitigation	Mitigation actions that fall outside a company's value chain. This includes activities outside of a company's value chain that avoid or reduce GHG emissions, or that GHGs from the atmosphere and permanently store them. For more information, see the SBTi FAQ.
Carbon credit	An emissions unit that is issued by a carbon crediting program and represents an emissions reduction or removal of GHGs. Carbon credits are uniquely serialized, issued, tracked, and cancelled by means of an electronic registry.
Carbon removal (or carbon sequestration, CO_2 removal, emissions removal)	The action of removing GHG emissions from the atmosphere and storing it through various means, such as in soils, trees, underground reservoirs, rocks, the ocean, and even products like concrete and carbon fiber.
Climate solutions	Covers a broad range of activities that actively contribute to global climate goals and can be broadly defined as green technologies such as renewable

	energy and sustainable mobility (e.g., electric vehicles), and carbon removal activities such as nature-based solutions, direct air capture, and BECCS.
CO_2-equivalent (CO_2e)	The amount of CO_2 that would cause the same integrated radiative forcing (a measure for the strength of climate-change drivers) over a given time horizon as an emitted amount of another GHG or mixture of GHGs. Conversion factors vary, based on the underlying assumptions and as the science advances.
Corporate sector	A broad term referring to companies other than FIs.
Decarbonization	Process of reducing emissions with the objective of their elimination. This paper broadly uses the term to include all GHGs (i.e., in CO_2 equivalent terms).
Emission intensity metric	Emissions per a specific unit, for example: tCO_2e/$million invested, tCO_2e/MWh, tCO_2e/ton produced, tCO_2e/$million company revenue.
Financing activities	For the purposes of this foundations paper, financing activities refers to all business activities undertaken by FIs with the expectation of making a profit and over which the FI has some influence. This includes investment and lending activities; securities underwriting; and advisory, insurance, and other services although methods may not be currently available for all asset classes or services. Specific coverage thresholds will be established in subsequent criteria and guidance.
Financed emissions (or portfolio emissions)	Absolute emissions that banks and investors finance through their loans and investments.
Financial institutions (FIs)	The SBTi defines FIs as companies whose business involves the dealing of financial and monetary transactions, including e.g., deposits, loans, investments, currency exchange, and insurance. If 5 percent or more of a company's revenue or assets comes from activities such as those described here, it is considered to be an FI.
Greenhouse gas (GHG) accounting	Greenhouse gas accounting techniques that include two primary approaches to tracking GHG emissions resulting from a company's operations: corporate accounting through an annual GHG inventory, which involves financed emissions as part of the accounting; and project accounting through estimating net emission reductions or increases from individual projects or activities relative to a baseline scenario.
Greenhouse gas (GHG) emissions	The seven gases covered by the United Nations Framework Convention on Climate Change (UNFCCC) - carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

Green House Gas Protocol (GHGP)	Comprehensive global standardized frameworks to measure and manage GHG emissions from private and public sector operations, value chains, and mitigation actions. The GHG Protocol supplies the world's most widely used GHG accounting standards. The Corporate Accounting and Reporting Standard provides the accounting platform for virtually every corporate GHG reporting program in the world.
Green financing	Financial flows (such as lending, equity positions, or underwriting and advisory services) associated with zero- or low-carbon assets or activities. This term is often used to reflect non-climate-specific green activities as well, such as green bonds, which can support climate-relevant activities or water, conservation, and other related activities.
Impact	A quantitative result. The SBTi uses reduction of GHG emissions from a historical baseline as its impact metric. Other potential impact metrics include SBT target adoption by portfolio companies, physical asset distribution (e.g., electricity generation capacity by fuel type), and green investment ratio per the EU Taxonomy.
Investment	Broadly defined as “putting money into activities or organizations with the expectation of making a profit.” Most forms of investment involve some form of risk taking, such as investment in equities, debt, property, projects, and even fixed interest securities, which are subject to inflation risk, among other risks.
Lending	A financing instrument that provides borrowers with a sum of money under an agreement that requires future repayment based on predetermined terms.
Long-term science-based target (long-term SBT)	The collective of net-zero targets (when multiple metrics are used) for a specific FI. An FI will be considered as reaching net-zero when it has achieved its long-term SBT.
Near-term science-based target (near-term SBT)	A specific level or threshold of a metric that an FI intends to meet over a defined near-term time horizon (five to ten years) such that an escalation of actions (e.g., abatement levels) will not be required in the future in order to remain on track of achieving a net-zero target.
Net-zero emissions	Net-zero emissions are achieved when anthropogenic emissions of GHGs to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple GHGs are involved, the quantification of net-zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, chosen time horizon, and others).
Net-zero metric	A quantitative measure that is used to assess, compare, and track progress against net-zero targets.

Net-zero target (corporate)	Setting corporate net-zero targets aligned with meeting societal climate goals means (1) achieving a scale of value chain emissions reductions consistent with the depth of abatement at the point of reaching global net-zero in 1.5˚C pathways and (2) neutralizing the impact of any residual emissions by permanently removing an equivalent volume of CO_2.
Net-zero target (financial institution)	A specific level or threshold of a metric that an FI intends to meet over a defined long-term time horizon (anticipated to be more than 10 years) in order to achieve net-zero.
Mitigation	A human intervention to reduce emissions or enhance the sinks of greenhouse gases (IPCC).
Neutralization	Measures that companies take to remove carbon from the atmosphere and permanently store it to counterbalance the impact of emissions that remains unabated.
Operational emissions	Scope 1 and 2 emissions.
Portfolio companies (or portfolio exposures)	The underlying companies or projects that are the sources of GHG emissions that make up an FI's financed emissions. They are also the counterparties (e.g., borrower, investee, underwriting client) to an FI's financing activities.
Portfolio decarbonization	Process of reducing financed emissions with the objective of their elimination.
Real economy	The part of the global economy that produces non-financial goods and services.
Residual emissions	Emissions sources that remain unabated by the time net-zero is reached in scenarios that limit warming to 1.5°C with low or no overshoot.
Sector-specific metrics	Energy or carbon-intensity metrics that use a physical unit denominator and are applicable to a specific sector. Examples include $kgCO_2/MWh$ (power), MWh/m^2 (real estate), etc.
Sustainable Development Goals (SDGs)	The 17 global goals for development for all countries established by the United Nations through a participatory process and elaborated in the 2030 Agenda for Sustainable Development, including ending poverty and hunger; ensuring health and well-being, education, gender equality, clean water and energy, and decent work; building and ensuring resilient and sustainable infrastructure, cities, and consumption; reducing inequalities; protecting land and water ecosystems; promoting peace, justice, and partnerships; and taking urgent action on climate change.
Value chain	All the activities and entities involved in the provision and usage of products or services supplied by a company. This includes upstream and

	downstream as well as operational activities. Value-chain emissions thus refer to Scope 1, 2, and 3 emissions.

2 Introduction

The scientific community has consistently warned that the accumulation of anthropogenic GHG emissions in the atmosphere is the main cause of observed and projected increases in global mean surface temperature (IPCC 2019). As such, to reach a state in which human activity no longer contributes to global warming means achieving a state in which anthropogenic GHG emissions no longer accumulate in the atmosphere.

To decarbonize the global economy in alignment with the goals established by the Paris Agreement, all economic actors in the real economy must reduce their GHG emissions at a rate sufficient to remain aligned with the mitigation pathways established by climate science. Corporate emissions do not occur in a vacuum, but rather within a broader economic and regulatory system that creates a complex web of incentives and disincentives for economic actors to reduce emissions. In many ways, all actors across a given value chain and those connected through policy and other incentives share influence over the direct emissions of each actor and, therefore, share responsibility for reducing them.

FIs have a unique influence over other actors in that they provide capital and services to companies that have a responsibility for reducing their own value chain GHG emissions. Because of this, they do not exercise direct control over any major sources of GHG emissions reductions but do possess great influence over companies that do.

It is critical for FIs to help drive Paris-aligned systemic decarbonization by leveraging their shared influence and responsibility for aligning incentives and eliminating barriers to emission reductions. FIs can have a real impact on limiting climate change by providing capital, guidance, and climate-linked products to support transition activities. In fact, the central enabling role of finance is recognized in the Paris Agreement, which contains language in Article 2.1(c) on “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”

2.1 The need for a common understanding of net-zero in the financial sector

The importance of limiting global temperature rise to 1.5°C above pre-industrial levels and reaching net-zero CO_2 emissions by 2050 for the best chance of avoiding catastrophic climate breakdown has become increasingly clear in recent years. Against this backdrop, there has been a significant response from corporations, countries, cities, and other actors by making public net-zero commitments.

Under the Race to Zero campaign, the Glasgow Financial Alliance for Net-Zero (GFANZ) has brought together a number of new net-zero alliances to help drive high-level commitments as well as to derive some ground rules of what net-zero targets should mean for particular types of FIs. These net-zero alliances have helped shape many of the initial commitments of FIs, bringing together over 160 firms (together responsible for assets in excess of $70 trillion) from across the financial system to accelerate the transition to net-zero emissions by 2050 or earlier.

Over 100 FIs have also now committed to setting SBTs through the SBTi. These institutions will begin with setting near-term, Paris-aligned targets across their operations and portfolios that place them on the pathway to net-zero. There is now a need to clarify how these near-term targets relate to the state of net-zero.

The number of FIs committing to reach net-zero emissions has grown rapidly, but without adhering to a common definition, net-zero targets can be inconsistent, and their collective impact is limited. A common understanding is now needed as the current varied net-zero target-setting landscape makes it difficult for stakeholders to compare goals, assess progress, and evaluate the credibility of FIs' efforts to achieve net-zero.

2.2 Audience for this paper

The SBTi defines an FI as a company whose business involves the arrangement and execution of financial and monetary transactions, including deposits, loans, investments, currency exchange, and insurance. More specifically, the SBTi deems a company to be an FI if 5 percent or more of its revenue or assets comes from activities such as those just described.

As the paper seeks to create alignment across the financial community, the primary audience of this net-zero foundation paper includes banks, asset managers, asset owners, insurance companies, and the wider climate finance ecosystem. The net-zero framework is also relevant for other FIs, for example, mortgage real estate investment trusts (REITS), that have holdings in asset classes where methods are available under the current SBTi framework.

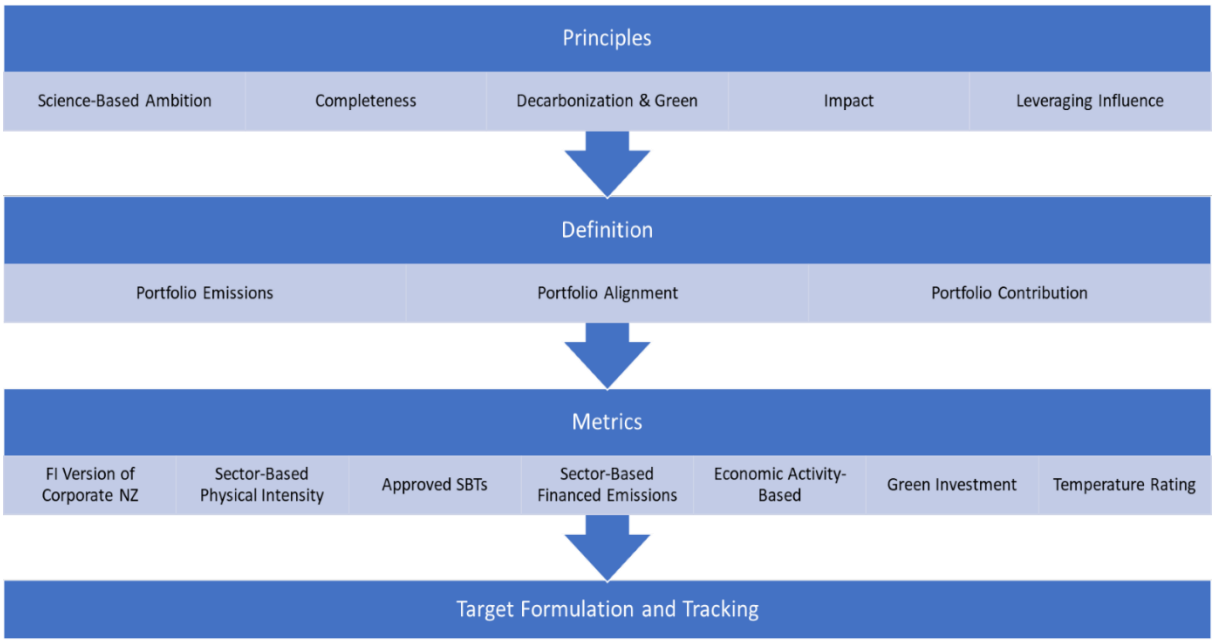
2.3 Purpose of this paper

This paper intends to provide a conceptual foundation and clarity on key concepts, rather than a definitive set of criteria or detailed guidance for financial net-zero targets. The SBTi will provide definitions for what net-zero can mean for FIs that will be explored through the forthcoming standard development process. In addition, this paper will provide an overview of the principles and transition metrics that can be used to construct long-term net-zero targets. Target formulation and tracking elements, such as the treatment of fossil-fuel financing and carbon credits, are also addressed in a wider discussion of key topics.

This work builds on earlier work by the SBTi for defining net-zero for companies in the real economy through the SBTi Corporate Net-Zero Standard. The net-zero framework for corporates has helped establish the fundamental knowledge for net-zero target setting that is used in this paper. For the net-zero framework for FIs, the SBTi is taking a holistic look at all aspects of target setting to establish best practices for principles, definitions, metrics, and target components specific to the financial sector. Figure 1 presents the four-level framework

used in this paper to construct a clear and consistent foundation for understanding net-zero targets for FIs.

Figure 1. Approaches to Net-Zero for Financial Institutions



Source: Authors

Developing a science-based net-zero standard for target setting at the level of an individual FI requires some normative decisions that do not directly emerge from climate science. Recognizing this, the SBTi will build on this paper with a transparent and inclusive multi-stakeholder process to develop actionable target validation criteria, detailed guidance, and technical resources to support FIs with the formulation and implementation of science-based net-zero targets.

3 The Net-Zero Finance Landscape

Since the IPCC released the *Special Report on Global Warming of 1.5°C* in 2018, there has been a surge in the number of net-zero targets from national and sub-national actors. A growing number of companies are publicly committing to net-zero, and the number of pledges from FIs has risen rapidly. This landscape assessment reviews existing approaches to facilitate the understanding of net-zero targets in the financial sector.

3.1 How different financial services influence target setting

FIs have the ability to use their relationships with clients and influence as shareholders or creditors of companies, projects, and consumers to drive decarbonization across the economy and help provide the financing necessary for the net-zero transition. However, one reason for the varied approach to net-zero thus far has been the different roles and services offered by different types of FIs. Banks, asset owners, asset managers, and insurance companies all have different abilities to influence the real economy, based on the types of relationships and financial services they offer. The activities and structure of an FI can therefore affect the manner in which the FI can set transition plans and achieve a net-zero goal.

For example, banks may only be able to transition their loan portfolios slowly, at least in the near term, since this service may anchor client relationships and enable the offering of additional products or services over the longer term. Declining to roll over loans to aid portfolio decarbonization may end the client relationship and preclude any further engagement to support the client's decarbonization journey.

Investors, on the other hand, may have the ability to transition their portfolios more quickly due to the ability to buy and sell investments based on the portfolio companies' transition plans, although this would only transfer responsibility to another investor. The amount of control (e.g., voting rights) and investment time horizon can also contribute to the level and time frame of net-zero goals that are pursued. Moreover, FIs deal with different mixes of asset classes, sectors, geographies, and individual companies, each of which may follow different decarbonization trajectories.

3.2 Deconstructing current approaches to net-zero

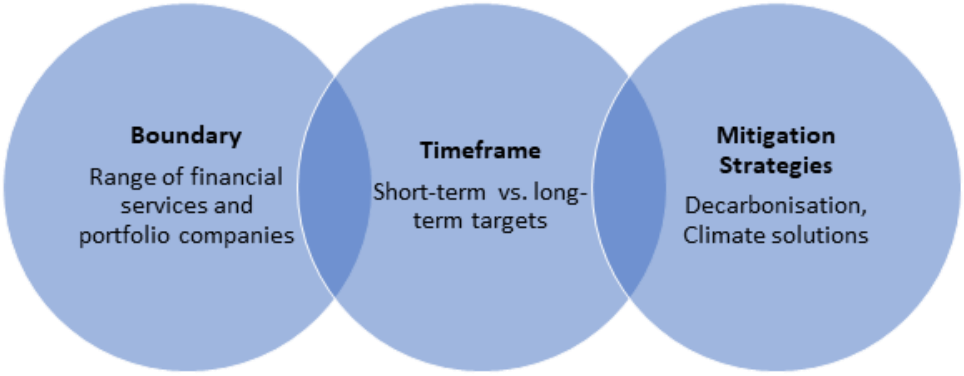
While the momentum around net-zero commitments and the mobilization of ambitious action in the financial sector are encouraging, the concept of net-zero has not been crystallized, and there remain differences in approaches to setting net-zero targets. Currently, there is no consistent definition based on the available science of what net-zero means for FIs.

While most guidance to date mandates a net-zero portfolio by 2050, there are varying principles that guide the path to achieve this. In their current state, it is unclear what the

implications of these principles will be for the real economy and whether the culmination will be enough to align with the goals of the Paris Agreement.

The landscape assessment conducted by the SBTi found that approaches to net-zero targets for FIs differ across three key dimensions. These three dimensions are: the boundary of the target; the time frame to achieve the target; and the mitigation strategy that the FI will follow to attain the target (Figure 2). Each of these dimensions is explored in the following subsections.

Figure 2. Differing dimensions of financial institution net-zero targets



Source: Authors

3.3 Boundary (scope of activities)

The first key aspect of net-zero targets is the range of activities covered within the boundary of the target. The target boundary determines whether a FI is committing to address all relevant sources of emissions across its financing activities. The current net-zero landscape reveals significant inconsistencies in the scope of activities covered by targets. An overview of the four key areas of diversity in net-zero target boundaries, is presented in Table 1.

Table 1. Boundary components of net-zero target formulations

Boundary Issue	Description
Scope coverage of the FI	Targets can cover Scope 1 and 2, and various categories of Scope 3, including Scope 3, Category 15 financed emissions. Many FIs set separate net-zero goals for different scopes, e.g., net-zero in Scope 1 and 2 by 2030 and across all operations (including financing) by 2050.

GHG coverage	FIs are setting net-zero, climate neutral, and carbon-neutral targets. The range of GHGs included in the commitments is typically not clear in net-zero targets.
Financing activities coverage	The range of financing activities and asset classes that are covered is not consistent across existing net-zero targets. The creation of various net-zero aligned financial products and services are also being considered for inclusion in net-zero targets.
Scope coverage of the portfolio companies	When FIs include net-zero emissions within their portfolios, this can include covering just the Scope 1 and 2 emissions of portfolio companies or all Scope 1, 2, and 3 emissions of the portfolio companies. Many targets are unclear about the coverage of the portfolio companies' GHG inventory. The inclusion of Scope 3 is often only included for a subset of sectors (e.g., oil and gas, transportation). Other formulations simply focus on covering the most material assets or a significant majority of emissions in the portfolio.

Source: Authors

3.4 Time Frame

With the understanding that global GHG emissions need to reach net-zero by mid-century in order to limit warming to 1.5ºC, financial-sector net-zero targets are often formulated as long-term targets aiming to reach a state of net-zero emissions by no later than 2050.

FIs are setting both long-term net-zero (before 2050) and near-term targets. Many of the existing net-zero initiatives highlight the need to have shorter-term targets focused on emissions abatement. For example, the Net Zero Banking Alliance signatories' pledge sets a 2030 (or sooner) target (UNEP-FI 2021). Similarly, the Net Zero Asset Owner Alliance commitment requires members to publish interim targets every five years starting in 2025 (NZAOA 2021).

3.5 Mitigation Strategies

The most important aspect that differentiates financial-sector targets is the strategy that FIs intend to use to achieve their targets, that is, the strategy to mitigate their impacts on the climate, and to contribute to society's transition to net-zero.

FIs currently use a number of strategies to achieve their net-zero goals, the combination of which determines whether the FI is effectively eliminating the impact of its financing activities on climate and the extent to which it is actively contributing to our collective ability to reach net-zero emissions at the global level. The mitigation strategies and associated levers are described in Table 2.

Table 2. Financial Institution Strategies and Levers for Achieving Net-Zero

Mitigation Strategy	Levers
Decarbonization: exposure to GHG emissions is seen as a key transition risk, and hence the primary strategy for many FIs is to reduce exposure to GHGs within their portfolios by reducing their financed emissions over time.	***Exclusion policies*** such as not financing any company or project involved in the extraction of fossil fuels, or that derives a certain percentage of revenue from thermal coal.
	Divestment of persistently high-emitting companies, and/or emitting companies without credible transition plans, to reduce exposure to GHG emissions and stranded asset risk.
	Engagement with portfolio companies to influence them to set targets and transition plans to reduce their emissions over time.
Climate-solution financing: actively contributing to global goals by investing in technologies needed for the real economy to reach net-zero emissions.	Climate solution financing shifts financing by increasing exposure to green activities, often following established taxonomies, such as the EU Taxonomy for Sustainable Activities. There are many options for climate solution financing. Three common examples are: ***Renewable energy financing***, which includes investments in companies and projects to generate renewable energy. FIs sometimes use the avoided emissions from these activities to claim compensation for other financed emissions. ***Green infrastructure financing***, which includes investments in companies and projects that reduce energy demand by providing shared access to transportation, improvements to building efficiency, and other actions. ***Carbon removal financing***: FIs help finance efforts to permanently remove carbon. Removal activities include direct air capture (DAC), bioenergy with carbon capture and storage (BECCS), and nature-based solutions (NBS). These focus on carbon dioxide removal and not avoided emissions.

Source: Authors

3.6 Decarbonization

Portfolio decarbonization corresponds to measures that aim to reduce emissions associated with financing activities. There are two important considerations when evaluating portfolio decarbonization measures: if the abatement just occurs within the portfolio by reducing exposure to GHG emissions or if the abatement measures also promote decarbonization in the wider economy.

Option 1: Reducing Portfolio Emissions Exposure. This strategy involves the reduction of portfolio emissions via the shifting of the portfolio toward lower-emitting constituents. It is a measure that effectively relies on gradually reducing the exposure to GHGs via rebalancing of the portfolio. This can occur at a portfolio-wide level via the shift to lower-emitting sectors, or within sectors by tilting to more efficient companies. This shift towards lower-emitting sectors/companies is often the result of adopting exclusion and divestment levers to lower portfolio emissions. Maintaining sector constraints can help to avoid the simple shifting of capital from high carbon-intensity sectors, such as materials and energy, to lower carbon-intensity sectors like services. Several FIs have developed specific methods to pursue this sector approach, including JP Morgan's Carbon Compass, ING Bank's Terra methodology, and Barclays BlueTrack focus on reducing portfolio intensity using sector-based approaches.

There is a risk that these approaches would reduce emissions exposure over time without actually achieving any wider decarbonization of the global economy. This effectively means meeting net-zero in the portfolio without the constituents actually decarbonizing. Further research is required to determine the impact of these strategies and whether sector specific methods can effectively protect against these risks.

Option 2: Increasing Portfolio Alignment. Portfolio alignment relies on assessing the relative level of alignment of portfolio constituents against net-zero goals. This strategy encourages engagement and highlights the value of companies signaling the alignment of their own activities with net-zero goals. It requires companies to develop and disclose forward-looking ambitious reduction targets and ultimately to reduce emissions in line with global or sector goals.

Portfolio alignment also helps to alleviate some of the risks inherent in the first strategy of reducing portfolio emissions exposure. It can ensure that companies who need to decarbonize and have signaled their intention to do so can receive the necessary financing and are not constrained by their current emissions profile. The TCFD's Portfolio Alignment report of the Task Force on Climate-Related Financial Disclosures (TCFD) emphasizes the critical role of forward-looking portfolio alignment metrics for target setting, which can effectively be used to "incentivize institutions to engage with counterparties and achieve targets by facilitating their transition, instead of by divesting" (PAT 2020).

Alignment approaches present their own set of risks. Current alignment metrics focus heavily on decarbonization, setting out how companies should be reducing their emissions along science-based pathways, but do not adequately address how to define alignment for climate solutions. There is also the risk that the portfolio companies do not set or achieve targets at the scale required for alignment approaches to become effective for achieving targets.

3.7 Climate-Solution Financing

Climate-solution financing covers a broad range of activities that actively contribute to global climate goals. Essentially, FIs aim to shift financing toward technologies needed for the real economy to reach net-zero emissions. In addition to serving as viable investment

opportunities in high-growth sectors, financing of climate solutions has two key benefits in the context of FI net-zero strategies:

1. To reduce financed emissions: This strategy shifts financing to low-impact companies or sectors to reduce exposure to high-impact activities and increases exposure to green activities. This, in turn, can be used to meet financed emissions-reduction targets by shifting finance from the most high-intensity sectors and companies to more efficient companies, for example, by shifting finance from fossil fuel-based power generation to renewable energy.

2. To increase availability of climate solutions: This strategy is necessary for the real economy to achieve net-zero emissions. For FIs to achieve their net-zero targets, they will have to ensure that their portfolio companies can reduce their own value-chain emissions and effectively neutralize their unabatable emissions. With this in mind, FIs are helping to finance GHG removal approaches, as these technologies can be used by their portfolio companies to achieve net-zero.

At COP26, for example, more than 30 financial institutions committed to help end deforestation and support nature-based solutions. Swiss Re's partnership with carbon dioxide removal (CDR) company Climeworks also demonstrates FIs' direct financing of CDR technologies to help achieve their own net-zero goals.

3.8 Common FI Net-Zero Strategies

Financial-sector net-zero strategies usually consist of a combination of tactics that mitigate the impact that can lead to different outcomes for the FI itself, but also for society, and the climate. Table 3 below describes six FI net-zero strategies that are common across today's financial target-setting landscape.

As a part of the four-level framework used in this paper (Figure 1), each FI net-zero strategy will be assessed later in this paper against the guiding principles outlined in Section 3 to help develop high-level recommendations for the formulation of science-based net-zero target definitions for the financial sector. The strategies presented in this section do not represent recommendations from the SBTi but, rather, reflect various configurations of portfolio mitigation approaches currently being used.

Table 3. Examples of FI Net-Zero Strategies

Strategy	Description
Replacing portfolio-wide abatement with avoided emissions	In this strategy, financed emissions are reduced at a scale that falls short of what can be considered Paris-aligned, and unmitigated financed emissions are intended to be addressed by avoided

	emissions associated with portfolio company products. This can occur within and across different asset classes.
Replacing portfolio-wide abatement with negative emissions	In this strategy, financed emissions are reduced at a scale that falls short of what can be considered Paris-aligned, and unmitigated financed emissions are balanced by an appropriate amount of GHG removal via financing of net-negative assets, e.g., negative emission technologies (CDR), net-negative companies or projects, or qualified nature-based solution projects.
Portfolio-wide abatement along 1.5°C pathways with neutralization at portfolio level	In this strategy, financed emissions are reduced along 1.5°C pathways, and unmitigated financed emissions are balanced by an appropriate amount of GHG removals via financing of net-negative assets, e.g., negative emission technologies (CDR), net-negative companies, projects, or qualified nature-based solution projects.
Sector-based reductions with neutralization at portfolio level	In this strategy, financed emissions are reduced along 1.5°C pathways within sectors using appropriate sector pathways. Unmitigated financed emissions are balanced by an appropriate amount of GHG removals via financing of net-negative assets, e.g., negative emission technologies (CDR), net-negative companies, projects, or qualified nature-based solution projects.
Alignment of portfolio companies with net-zero standards	In this strategy, all constituents are aligned with a relevant net-zero pathway or standard, i.e., each portfolio company has transitioned to a net-zero status by aligning to a relevant 1.5°C pathway and neutralizing remaining residual emissions by an appropriate amount of CO_2 removal.
Climate-solution financing	In this strategy, financed emissions are reduced by actively investing in solutions that contribute to meeting economy-wide net-zero goals.

Source: Authors

Treatment of Residual Emissions

The hypothetical strategies have different means of addressing residual financed emissions, which can be summarized in the following approaches:

- **Individual company neutralization**: Strategies can focus on each portfolio company achieving net-zero emissions through reaching a state of decarbonization consistent with net-zero at the global or sector level, and neutralizing any residual emissions with permanent removals. This approach relies on FIs engaging their portfolio companies to ensure that each company's residual emissions are uniquely neutralized, following the recommendations of the SBTi's Corporate Net-Zero Standard.
- **Balancing of emissions *within* asset classes**: The asset class as a whole achieves net-zero via the balancing of emissions between net-positive and net-negative

companies. Both avoided emissions and emission removals are being proposed as means of achieving net-zero. Examples include FIs engaging portfolio companies to reach a state of decarbonization consistent with net-zero at the global or sector level, and financing negative emissions assets (e.g., net-negative companies or GHG emissions-removal technologies) to bring the overall asset class to net-zero. Aviva (Aviva, 2021) and Barclays are among FIs who have highlighted that they will pursue this approach with Barclays Bank expecting to "use some level of negative emissions to offset any residual gap-to-net-zero" (Barclays 2020). Amalgamated Bank is also pursuing a similar approach by "*exploring opportunities to invest in clients delivering emissions removal in order to meet our net zero ambition" (*Amalgamated Bank, 2021).

- **Balancing of emissions *across* asset classes**: The overall portfolio achieves net-zero via the balancing of emissions across various asset classes, e.g., using financing of net-negative assets in an equity class to balance remaining positive emissions from a mortgage asset class.

4 SBTi Net-Zero Guiding Principles

Acknowledging the current diversity in net-zero commitments, this section proposes a set of principles to guide the formulation and assessment of net-zero targets in a way that ensures that these targets lead to a state compatible with achieving a net-zero economy by incentivizing and driving the action needed to meet societal climate and sustainability goals.

4.1 Completeness: Inclusion of all relevant financial services

Achieving a state of net-zero GHG emissions at the global level implies achieving a balance between the amount of GHGs released into and removed from the atmosphere, as a result of human activity. To ensure that FI net-zero targets lead to a state that is compatible with reaching net-zero emissions at the global level, all operational and financing activities at a parent-level, over which FIs have influence, should be addressed.

Specific coverage thresholds will not be established in this paper but broadly, an asset class or service becomes relevant for an FI when it can establish some influence over the underlying asset. This includes investment and lending activities as well as facilitated financing (i.e., securities underwriting). In terms of emissions-reduction targets, specifically, Scope 1, Scope 2, and all Scope 3 GHG emissions, including category 15 emissions (which cover portfolio companies' Scope 1, 2, and 3 emissions) should be covered.

> Guiding Principle 1: Reaching net-zero emissions for an FI involves achieving a state in which all relevant and material operational and financing activities, result in no net accumulation of GHG emissions in the atmosphere.

4.2 Science-based Ambition: Transition to align financing with global climate goals

Different system transformations in 1.5°C mitigation pathways occur concurrently, and all of them are needed for society to reach net-zero emissions and limit warming to 1.5°C. An understanding of the synergies and trade-offs between different climate change mitigation pathways and sustainable development should also guide climate action.

Many such interactions exist. For example, different approaches to CO_2 removal are associated with sustainability trade-offs and in some cases opposition from civil society. To minimize these trade-offs, it is expected that FIs transition towards net-zero in line with mitigation pathways that are consistent with limiting warming to 1.5°C with no or low overshoot (e.g., P1 or P2 pathways of the IPCC special report on 1.5°C warming) and limited reliance on the deployment of carbon removals at scale. The SBTi's Foundations of Science-based Target Setting provides supplementary technical information on how science-based target-setting methods have been developed in accordance with the best available climate science (SBTi 2019). Pathways used by the SBTi aim to steer voluntary climate action and contribute to achieving the aims of the Paris Agreement and the Sustainable Development

Goals (SDGs), reaching net-zero CO_2 emissions at the global level by 2050 and net-zero GHG emissions by 2050 or earlier.

Guiding Principle 2: In accordance with the best available climate science, FIs should transition their financing activities toward net-zero in line with pathways that contribute to achieving the 1.5°C goal of the Paris Agreement and the Sustainable Development Goals (SDGs) mitigation pathways that are consistent with limiting warming to 1.5°C with no or limited overshoot.

4.3 Impact

The actions that an FI takes to achieve the necessary emission reductions can have different outcomes on real world emissions depending how they are implemented. While evidence of various strategies' impacts is limited, real economy emissions reductions are a persistent end goal and guiding principle of net-zero target setting. FIs should incentivize and drive emission reductions in the real economy, achieved in synergy with other social and environmental goals, to reach a state of net-zero emissions before 2050. The aim is to support and ensure that the users of financing (i.e., portfolio companies), which make up the real economy, transition to net-zero emissions. Net-zero targets should therefore try to enable real economy impact by providing the transition finance to the companies that need this capital to decarbonize their business models.

Guiding Principle 3: The mitigation strategy used by an FI should focus its financing activities to help achieve economy-wide decarbonization and not simply reduce portfolio exposure to GHG emissions.

4.4 Decarbonization and Green Solutions

A net-zero emissions economy cannot be achieved solely through decarbonization nor solely through financing climate solutions. It will require both the decarbonization of existing assets and the development of a range of climate solutions. Accordingly, net-zero targets should incentivize the financing of both types of activities according to the levers of influence available to them. For example, this could include investments or lending to decommission fossil-fuel activities or transition them to zero-carbon alternatives as well as investments or lending to existing and new green technologies or activities. In fact, energy price shocks in 2021 highlight the need for financing of renewable energy to accelerate significantly as the world transitions away from fossil fuels to meet global energy demand. This will be discussed further in the Target Formulation and Tracking section that follows.

Guiding Principle 4: The mitigation strategy used by an FI should prioritize the financing of both decarbonization efforts and the climate solutions necessary for a net-zero economy.

4.5 Influence

FIs have different abilities to influence and engage the real economy, given the different roles and services of different types of institutions. They will need to leverage these unique positions to incentivize and drive other relevant actions that accelerate a net-zero transition in the real economy.

- **Banks** arrange financing to companies through loans or from capital markets. They can consider net-zero alignment in their decision-making process and proactively direct financing toward projects or companies with alignment plans. Because banks typically maintain client relationships over a period of time and generate revenue from multiple products or services, they also have an opportunity to engage with companies and support their transition.
- **Asset managers** direct financing through their selection of investments. They can consider the net-zero alignment of companies in their investment decision-making process as well as proactively steer clients towards any net-zero aligned funds and investment products or services. Because asset managers may hold large pooled investment positions, they also have an opportunity to use shareholder pressure and voting rights to compel change and endorse actions that drive decarbonization. Private equity firms, in particular, have longer-term investment strategies and considerable influence over their portfolio companies.
- **Asset owners** direct financing through their selection of investments and/or asset managers. They can incorporate net-zero targets into their investments portfolios and mandates awarded to asset managers. Because asset owners make investment decisions and/or set investment mandates, they also have an opportunity to use shareholder pressure and voting rights to compel change and endorse actions of the portfolio companies that drive decarbonization.

Although the main levers of influence may vary among FIs, they can be amplified when used together. For example, FIs can discontinue financing companies that are unable or unwilling to transition, with clear public messaging such that the companies would find it increasingly difficult to access financing. Moreover, all types of FIs have a role in engaging policymakers to push and support policies and regulations that help drive broader climate actions across governments and industries to achieve a just transition.

Guiding Principle 5: The mitigation strategies used should incentivize FIs to effectively influence and engage their portfolio constituents using their unique roles and relationships with the real economy.

5 Definitions of Net-Zero for Financial Institutions

To inform the definition of net-zero for FIs, it is useful to start with the planetary and corporate definitions developed by the IPCC and SBTi. In its 2019 report, the IPCC confirmed that in pathways that limit global warming to 1.5°C, CO_2 emissions are halved by around 2030 and reach net-zero by mid-century, accompanied by deep reductions in non-CO_2 GHGs (IPCC 2019).

Box 1. IPPC Definition of Net-Zero

The IPCC defines net-zero as that point when "anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period" (IPCC 2019). The Paris Agreement sets out the need to achieve this balance by the second half of this century.

The SBTi has translated this economy-wide net-zero goal into a definition for real economy companies. This was based on the three guiding principles developed through an open consultative process. This process concluded that reaching a state of net-zero emissions consistent with limiting warming to 1.5°C for companies in the real economy required deep emissions abatement and permanent removal of any residual emissions.

Box 2. SBTi Definition of Corporate Net-Zero

Setting corporate net-zero targets aligned with meeting societal climate goals means (1) achieving a scale of value chain emissions reductions consistent with the depth of abatement at the point of reaching global or sector net-zero in 1.5˚C pathways and (2) neutralizing the impact of any residual emissions by permanently removing an equivalent volume of CO_2 (SBTi 2021a).

The five guiding principles introduced in the previous section can inform the definition of FI net-zero targets consistent with the action needed to reach net-zero emissions at the planetary level. We identify three approaches for defining net-zero for FIs. These formulations are not mutually exclusive and are based on looking at net-zero for FIs through the lens of 1) financed emissions, 2) the alignment of financing to net-zero goals, 3) the contribution of FIs financing to global net-zero goals.

1. **A financed emissions approach:** net-zero claims are based on financed emissions, requiring FIs to reduce financed emissions to zero or to a residual level that is consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C-aligned pathways. Any remaining residual emissions are neutralized by permanently removing and storing an equivalent amount of atmospheric carbon dioxide.

2. **A portfolio alignment approach:** net-zero claims are based on FIs aligning all relevant financing activities such that each individual asset achieves a state of net-zero consistent with the SBTi Corporate Net-Zero Standard.
3. **A portfolio contribution approach**: net-zero claims are based on FIs financing both decarbonization activities and explicitly reallocating financing activities to climate solutions at a rate that is consistent with global climate goals.

The different formulations of the net-zero definitions also result in different means of addressing residual emissions at a state of net-zero. As a priority, FIs should strive to engage their portfolio companies to ensure that the companies' residual emissions are uniquely neutralized, following the recommendations of the SBTi's Corporate Net-Zero standard. Other approaches to balancing net-positive and net-negative assets will be explored as part of the net-zero framework development.

5.1 Strategies vs. principles

The six FI net-zero strategies that mirror common approaches in today's financial target-setting landscape were introduced in Section 2. The strategies presented do not represent recommendations from the SBTi but, rather, a possible configuration of portfolio-mitigation approaches currently being used.

As a part of the four-level framework used in this paper (Figure 1), each of the strategies is assessed against the guiding principles outlined in Section 3. Based on this analysis, high-level recommendations for the formulation of science-based net-zero target definitions for the financial sector are developed.

Table 4. Assessment of Net-Zero Strategies Against Key Principles

Strategy	Portfolio emissions abatement	Measures to balance unabated financed emissions	Principle 1: Completeness	Principle 2: Science-based ambition	Principle 3: Impact	Principle 4: Decarbonization and Green	Principle 5: Influence
Replacing portfolio wide abatement with avoided emissions	Portfolio financed emissions are reduced by an uncertain amount	Unabated financed emissions are balanced by avoided emissions from other financing activities	No, avoided emissions accounting measures should not replace emission reductions	No, it's not clear that emissions are reduced at a sufficient rate	No, it's not clear that emissions are reduced at a sufficient rate	Limited incentive to finance decarbonization activities	Lack of focus on decarbonization, does not position FIs to use full leverage potential
Replacing portfolio-wide abatement with negative emissions		Unabated financed emissions are balanced by an appropriate amount of CO_2 removal	Yes, if CO_2 sequestration is permanent	No, emissions are not reduced at sufficient rates and lead to overreliance on negative emissions			
Portfolio-wide abatement along 1.5°C pathways	Portfolio financed emissions are reduced at a rate consistent with Paris-aligned climate-change mitigation scenarios	Unabated financed emissions are balanced by an appropriate amount of CO_2 removal	Yes, if CO_2 sequestration is permanent	Yes	Uncertain, as portfolios can be rebalanced away from high-impact sectors without any real-world impact	Uncertain, can be achieved if capital is redirected to climate solutions	Uncertain, as portfolios can be rebalanced away from high-impact sectors, reducing the need to engage directly with high-impact companies

Sector-based reductions along 1.5°C pathways	Sector financed emissions are abated at a rate consistent with Paris-aligned climate-change mitigation scenarios	Unabated financed emissions are balanced by an appropriate amount of CO_2 removal	Yes, if CO_2 sequestration is permanent	Yes	Yes, rebalance to best performers and companies who have signaled their decarbonization goals	Uncertain, sector approaches are most suited to decarbonization and not financing climate solutions	Yes, incentive to engage companies in each sector
Alignment of portfolio companies with net-zero standards	Portfolio financed emissions are aligned to 1.5°C goals	Unabated financed emissions are balanced by an appropriate amount of CO_2 removal	Yes, if CO_2 sequestration is permanent	Yes	Yes, rebalance to best performers and companies who have signaled their decarbonization goals	Uncertain, alignment approaches are most suited to decarbonization and not financing climate solutions	Yes, FIs must engage companies to disclose their own alignment goals
Financing Climate Solutions	Portfolio financed emissions are reduced by an arbitrary amount	Unabated financed emissions are balanced by an appropriate amount of CO_2 removal	Yes, if CO_2 sequestration is permanent	Yes, if emissions are reduced along 1.5°C pathways	Uncertain, as portfolios could be rebalanced away from high-impact sectors without any real-world impact	Yes, rebalance to greener activities and companies who have signaled their decarbonization goals	Uncertain, as portfolios can be rebalanced away from high-impact sectors, reducing the need to engage directly with high-impact companies

Source: Authors

The evaluation of net-zero strategies against the guiding principles reveals a number of important takeaways which can be used to help construct a science-based definition of net-zero for the financial sector:

- FIs should avoid strategies that rely on carbon credits or avoided emissions from investments as a substitute for emissions abatement to claim net-zero status. Using carbon credits or avoided-emissions accounting does not effectively incentivize the financing of needed decarbonization efforts.
- GHG emissions-based strategies are most credible on a sector basis, as sector-based decarbonization helps to better ensure transition financing for companies in all sectors. A sector-based approach can also effectively encourage engagement with the key companies across sectors, avoiding the simple rebalancing to lower-emitting sectors and companies.

6 Metrics of Net-Zero for Financial Institutions

As highlighted in the landscape assessment, many levers are being used by FIs as part of their net-zero investment strategies. Each of these ultimately relies on metrics to track the progress toward net-zero. This section presents the most common metrics that are being used and evaluates their suitability for science-based net-zero target setting.

A range of different metrics are currently being used to track progress within these strategies (Table 5). Based on the net-zero strategies and definitions discussed earlier, we have categorized the key metrics that can be used, in terms of GHG emissions metrics, portfolio alignment metrics, and portfolio contribution metrics. In addition, we evaluate these metrics based on their ability to be easily quantified and if science-based targets can be constructed to track them over time to ensure that the ambition of the Paris Agreement is maintained.

Table 5. Assessment of Net-zero Strategies Against Key Principles

Categories	Metric	Description
Emissions-based: tracks an FI's financed emissions	Absolute portfolio emissions (tCO_2e)	Total amount of CO_2-equivalent emissions that is attributed to a FI's operational and financing activities. Tracks the absolute amount of GHG emissions in a portfolio.
	Portfolio-wide intensity, e.g., Weighted average carbon intensity (tCO_2e/revenue)	Absolute emissions per monetary unit, such as the volume of financing (e.g., dollar invested or loaned), or underlying company revenue. Demonstrates the GHG efficiency per dollar invested.
	Sector-based physical intensity (e.g., tCO_2e/MWh)	Measures the efficiency of a portfolio (or parts of a portfolio) in terms of absolute emissions per unit of a common production output (e.g., ton of cement produced, mega-watt hour of power produced. Methods built on sector decarbonization approaches (SDAs) use a convergence approach so that all companies aim to achieve the benchmark intensity.
Alignment-based: tracks the level of net-zero alignment of portfolio companies	Engagement	Engagement activities are pursued by FIs with the goal of increasing the portion of portfolio companies that are aligned with relevant net-zero pathways.
	Binary Target Measurement	Represents the percentage of investments or companies in a portfolio with declared net-zero or Paris-alignment targets.
	Implied Temperature Rise	Translates an assessment of company alignment into a temperature score that describes the most likely global

		warming outcome if the global economy were to exhibit the same level of ambition as the counterparty in question.
Contribution-based: tracks the contribution of financing to economy-wide net-zero	Internal Carbon Price	A shadow price on carbon at the company level is an assumed cost of carbon emissions that is incorporated in calculations to illustrate the economic implications of carbon emissions on business decisions.
	Green Metrics (e.g., Taxonomy or revenue share)	Several green metrics exist that classify companies based on taxonomies of economic activity, e.g., EU Taxonomy for Sustainable Activities, Climate Bonds Taxonomy, or on share of revenue from green activities.
	Capacity-based	Assess the technologies and asset-level distribution needed for Paris Alignment. The Paris Agreement Capital Transition Assessment approach is well-established and widely used for this purpose.

Source: Authors

Many FIs are using a combination of these metrics to track progress both in terms of their own decarbonization efforts, but also to guide capital reallocation to climate solutions. Table 6 evaluates the potential transition metrics for FIs on the basis of answers to the following questions: Are the metrics quantifiable in a manner that yields useful information about their alignment to net-zero? Can the ambition be easily defined in science-based terms?

Table 6. Evaluation of Transition Metrics

Potential transition metric for FIs	**Can the metric be easily quantified?**	**Can the ambition be science-based?**
Absolute portfolio emissions (tCO_2e)	Easily quantified with reported and modeled GHG emissions data.	Yes, absolute emissions reductions can be mapped to relevant 1.5°C scenarios.
Portfolio-wide intensity	Easily quantified with company-level emissions and activity data.	Emissions-intensity reduction may not result in any actual decrease in absolute emissions if underlying metric grows faster than intensity declines.
Sector-based physical intensity	Yes, with company-level emissions and activity data.	Yes, physical intensity metrics can be mapped to relevant 1.5°C sector benchmarks for some sectors.
Engagement	Uncertain, the rate and extent of engagements is difficult to track and compare across FIs (e.g., engagements/requests made over	Only if the result of engagements can be translated into direct action by the company (i.e., specific engagement led

	the past fiscal year, shareholder votes exercised).	to targets being implemented or specific emissions being reduced).
Binary Target Measurement	Yes, companies with declared net-zero or Paris-alignment targets following credible standards (e.g., SBTi).	Yes, pathways to 100% coverage can be created to ensure that the rate of net-zero target adoption follows science-based pathways.
Implied Temperature Rise	Yes, companies with declared net-zero or Paris-alignment targets.	Yes, pathways to 100% 1.5°C alignment can be created to ensure that the rate of 1.5°C adoption follows science-based pathways.
Internal Carbon Price	Yes, companies with declared internal carbon-pricing schemes, but its application and implementation vary among companies (CDP, 2021).	Not a clear link to the CO_2 price and how this should change over time to align with science-based pathways (Guivarch and Rogelj, 2017)
Green Metrics (e.g., Taxonomy or revenue share)	Yes, but relies on taxonomies and other classifications of green activities.	Not a clear approach to determine rate of shift of brown to green to create a science-based target.

Source: Authors

Depending on the net-zero strategy, these metrics are being used in isolation and in combination with each other to track progress toward achieving net-zero goals. However, not all metrics can be used to credibly track progress toward net-zero due to uncertainty in how they can be consistently quantified or due to the lack of a clear link with how science-based ambition is defined. The metrics should ideally enable a clear understanding of what parts of the portfolio are aligned and which are not, helping to drive an engagement-first approach.

Portfolio-wide absolute metrics can easily be quantified and linked to science-based absolute contraction-reduction pathways; however, used in isolation, there is little evidence that tracking this metric contributes to financing the transition.

Sector-based metrics can be complemented with forward-looking alignment metrics to guide the financing of companies in all sectors that are decarbonizing their activities along appropriate sector pathways. These metrics can be used to help transition all sectors and enable the reduction in financed emissions from the FI portfolio while also financing the transition through engaging portfolio companies.

Alignment-based metrics offer a forward-looking approach to assess the relative level of ambition of portfolio companies. While these metrics are relatively new, a growing body of work is being undertaken to develop and harmonize the methodologies (Portfolio Alignment Team 2020 & 2021). Alignment metrics are usually based on GHG reduction targets and hence best suited to decarbonization efforts, and have not typically assessed climate

solutions (e.g., renewable energy or other low-impact companies). Further research is needed to understand how alignment metrics can be used to assess all types of companies.

Contribution-based metrics are relatively new and are more difficult to link to global climate goals. While capacity-based metrics are widely used, other green metrics that rely on taxonomies and assessments of green revenue are still in their infancy. These metrics can guide capital reallocation toward environmentally sustainable economic activities, but further research is needed on the process to establish a science-based target the ambition of which is linked to global goals for this reallocation.

7 Target Formulation and Tracking

Criteria and guidance for FI SBTi net-zero targets will be developed and refined through a regimented stakeholder-engagement process. This section presents initial implications of the principles, definitions, and metrics presented earlier on FIs' treatment of fossil-fuel financing, use of carbon credits, and target timing.

7.1 Treatment of Fossil-Fuel Financing

The combustion of fossil fuels continues to be the largest source of GHG emissions and the central driver of climate change. Significant reduction in the production and use of fossil fuels is essential to achieving a net-zero economy and avoiding the catastrophic consequences of climate change. The transition to a net-zero GHG energy system is an enormous task with far-reaching implications. First, the phasing out of fossil fuel production needs to be counterbalanced by the phasing in of renewable energy and other methods of alternative energy supply combined with major infrastructural changes that reduce energy demand by comparison to business as usual. Second, the phasing out of fossil fuels will have significant implications for global trade, fossil fuel market share distribution across countries, and other macroeconomic impacts (IEA 2021). Third, countries with limited resources to manage the transition could face larger social impacts if wealthier or less fossil-dependent countries do not decarbonize faster than the global average. To help resolve these issues, it is incumbent on governments and FIs to play an active role in shifting policies and financing flows accordingly. For example, energy price shocks in 2021 highlighted the need for additional financing of renewable-energy capacity to meet global energy demand as the world transitions away from fossil fuels.

Despite increased climate ambitions under the Paris Agreement, governments, companies and FIs are, in aggregate, planning to produce more than twice the amount of fossil fuels in 2030 than would be consistent with limiting global warming to 1.5°C (SEI et al. 2021). Additionally, many FIs, including those that belong to the various net-zero alliances, have not set detailed plans to reduce their fossil-fuel financing. In contrast, global coal, oil, and gas production needs to decrease by around 11 percent, 4 percent, and 3 percent, respectively, each year between 2020 and 2030 to be consistent with limiting warming to 1.5°C (SEI et al. 2021). Regarding future capacity, the International Energy Agency has also stated that there is "no need for investment in new fossil fuel supply" in its net-zero pathway report (IEA 2021).

FIs seeking to set net-zero targets should transparently address the role of fossil fuels in their financing activities. SBTi currently recommends a disclosure, transition, and phase-out approach.

Figure 3. Disclosure, Transition, and Phase-Out Approach

Source: Authors

1. **Disclosure:** Annually disclose fossil-fuel related financing activities, including investments (public equity, private equity, corporate bonds), direct project financing, arranged financing (i.e., securities underwriting), and lending.

2. **Transition:**
   - **a.** Engage with fossil-fuel companies to adopt net-zero targets and action plans,
   - **b.** End financing of any new fossil fuel exploration and production,
   - **c.** Divest if companies are unable or unwilling to transition in line with net-zero pathways.
3. **Phase-out:** End all financial support (excluding decarbonization or transition to zero-carbon alternatives) to existing coal assets by 2030 and to existing oil and gas assets by 2040.

Historically, the SBTi has not mandated specific sector requirements for meeting targets. Engagement, exclusion, and divestment levers are often implicit in financial-sector net-zero strategies and targeted at the fossil-fuel sector. As part of the net-zero framework, the SBTi is evaluating the extent to which fossil-fuel requirements should be made explicit as part of any science-based net-zero target. The approach to fossil-fuel financing will be resolved in 2022 as part of the SBTi net-zero financial target standard development process.

FIs are currently using two approaches to address the financing of fossil fuels:

a) Implicit commitment: FIs disclose their current financing activities as they relate to fossil fuels but do not set specific divestment or exclusion targets as part of their net-zero strategy. By having a net-zero target, the FI would have to align all financing with relevant 1.5°C decarbonization pathways. To achieve this, FIs will have to engage these companies to align their activities or divest to ultimately achieve their wider net-zero goal.
b) Explicit fossil fuel commitment: In addition to establishing their net-zero targets, FIs also establish a specific target for fossil-fuel financing. Several examples of these targets have been made by FIs, including La Banque Postal, which has made a commitment to completely exit from oil and gas, both conventional and unconventional, by 2030 (LBP 2021). Another example is the Canadian Pension Fund CDPQ, which has committed to a complete exit from oil production by 2022 as part of their net-zero strategy (CDPQ 2021).

Box 3. La Banque Postale's Fossil Fuel Exit

In October 2021, La Banque Postale became one of the first financial institutions to set a validated Science-Based Target, committing to ensure that its banking activities achieve net-zero carbon emissions by 2040. It also became the first bank to publish a fossil-fuel exit strategy, committing to a complete withdrawal from coal and both conventional and unconventional oil and gas (upstream and midstream activities) by 2030.

The bank will refrain from financing oil and gas energy projects, no longer provide financial services (loans, account management, etc.) to the sector, and end legacy services by 2030. La Banque Postale will also discontinue support to businesses actively involved in lobbying on behalf of the fossil fuel industry (LBP 2021).

7.2 Financial Treatment of Carbon Credits

A precedent for this paper is the SBTi Corporate Net-Zero Standard's distinction between neutralization (measures that companies take to remove carbon from the atmosphere and permanently store it to counterbalance the impact of emissions that remain unabated) and beyond value chain mitigation (mitigation action or investments that fall outside a company's value chain, including activities that avoid or reduce emissions, or that remove and store GHGs from the atmosphere). Companies are not able to purchase carbon credits as a replacement for reducing value chain emissions in line with their near and long-term science-based targets - this is often referred to as "offsetting". However, purchasing high-quality carbon credits in addition to reducing emissions along a science-based trajectory can play a substantial role in accelerating the transition to net-zero emissions at the global level. Generally, carbon credits can play two roles in corporate net-zero strategies:

1. **During the transition to net-zero**: Companies may opt to purchase carbon credits while they transition towards a state of net-zero emissions (i.e., in addition to science-based mitigation of value chain emissions) to support society to achieve net-zero emissions by 2050. Examples include purchasing high-quality, jurisdictional REDD+ credits or investing in direct air capture (DAC) with geologic storage
2. **At net-zero**: Companies with residual emissions within their value chain are expected to neutralize those emissions with an equivalent amount of carbon dioxide removals at their net-zero target date, and these removals can be sourced from carbon credits.

FIs are using varying amounts and types of carbon credits as part of their net-zero strategies. While carbon credits can be used for both transition and neutralization measures, the SBTi has established guidance for assessing different types of carbon credits (SBTi 2021d). Table 7 below provides further context on how different types of credits may be used by FIs and companies and the net-zero claims that can be made. An FI's value chain is considered to include all on and off-balance sheet portfolio holdings and activities, i.e., Scope 3, categories 1 through 15 (GHGP 2013).

Table 7: Use of Carbon Credits by Companies and Financial Institutions

Use of carbon credits and relevant target	**Neutralization** Measures to remove carbon from the atmosphere and permanently store it to counterbalance the impact of emissions that remain unabated	**Beyond Value Chain Mitigation** Activities outside of an entity's value chain that avoid or reduce GHG emissions, or that remove GHGs from the atmosphere and permanently store them
Carbon credits purchased by corporates in relation to their net-zero targets	Companies with residual emissions within their value chain are expected to neutralize those emissions with an equivalent amount of removals to reach net-zero targets. These removals may be sourced from carbon credits outside the value chain.	Beyond value chain mitigation cannot be used to meet net-zero target (i.e., cannot be used to claim net-zero), but is *strongly* encouraged as an optional and supplementary action in the transition to net-zero. As part of this, companies may opt to purchase carbon credits while they transition towards a state of net-zero emissions (i.e., in addition to science-based mitigation of value chain emissions).
Carbon credits purchased by FIs in relation to their net-zero targets	FIs must neutralize all unabated emissions from their operating activities (Scope 1 and 2 emissions) and value chain (Scope 3 emissions, category 1-14) with permanently removed carbon to reach net-zero. These removals may be sourced from carbon credits outside the value chain. FIs shall neutralize all unabated scope 3, category 15 emissions with permanent removals to reach net-zero. Neutralization may be achieved by: (a) Neutralizing residual emissions at the portfolio level through actively financing carbon removal activities, exclusive of carbon credits. (b) Portfolio companies neutralize unabated value-chain emissions (i.e., the FI's Scope 3, category 15 emissions) with permanently removed	Companies, including FIs, are encouraged to mitigate emissions beyond their value chains in the transition to net-zero, which may include carbon credits. However, carbon credits cannot be used to claim net-zero. Carbon credits purchased by an FI may be described in a separate and supplementary metric/target (e.g., amount of high-quality carbon credits purchased) as a contribution to achieving a global net-zero economy. **Carbon credits may not be used to meet the FI's near or long-term SBTs.**

	carbon to reach net-zero financed emissions. These removals may be sourced from carbon credits.	

Source: Authors

The SBTi Corporate Net-Zero Standard emphasizes that companies may only claim to have reached net-zero through deep decarbonization and eventual neutralization of residual emissions. In the transition to net-zero, companies may purchase carbon credits as additional actions, but these shall not be used to claim net-zero. For FIs, the same approach can be taken for Scope 1 and 2, as well as Scope 3 emissions category 1-14. These emissions must be reduced in alignment with reaching net-zero at the global or sector level in eligible 1.5°C pathways by 2050 or sooner. Any residual emissions must be neutralized with permanent removals when this level of reduction is achieved, in order to reach net-zero.

In the transition to net-zero, it is recognized that FIs can provide needed liquidity and market mechanisms for efficient carbon-credit allocation and transfer that supports societal achievement of net-zero emissions by 2050. The present position of the SBTi is that these beyond value chain activities cannot be used by FIs to make claims against their own target achievement.

The net-zero standard development process will explore how this position should evolve for FIs to ensure that net-zero targets can incentivize the necessary financing for carbon removal solutions and to ensure that FIs can make credible claims when achieving net-zero.

In addition, several open questions remain on how neutralization should be accounted for within FI portfolios. Neutralization can be undertaken through different means. The FI can engage portfolio companies to ensure that each company neutralizes its own unabated value-chain emissions (i.e., the FI's Scope 3, category 15 emissions) with permanently removed carbon, to reach net-zero financed emissions. Other approaches may include neutralizing emissions at the portfolio level through actively financing carbon removal activities to counterbalance residual emissions in the portfolio. A number of other important questions on the topic of neutralization remain to be addressed, including:

- How should 1.5°-aligned levels of residual emissions be allocated within portfolios?
- How should neutralization measures be aggregated across different types of portfolio companies (e.g., can emissions removals within the value chain of one portfolio company be used to balance positive value-chain emissions of another portfolio company)?
- What is the best means to account for early-stage financing in carbon removal projects that may not yield removals for years to come?

7.3 Near and Long-term Targets

The principles highlighted in Section 4 emphasize the need for the alignment of financing activities with 1.5°C pathways. Long-term net-zero claims are only credible if they are accompanied by near-term targets to ensure accountability. Simply reaching the end state before 2050 is a necessary, but not sufficient criterion for being considered net-zero. As part of the net-zero standard development process, the SBTi plans to explore how the existing near-term target-setting framework may have to change to be fully compatible with eventual net-zero target-setting criteria.

SBTi plans to explore three options for linking near- and long-term targets:

a) Maintain the near-term SBT framework separately from the net-zero framework, with its focus remaining exclusively on decarbonization-based targets, while the long-term net-zero framework would expand to capture climate solutions and neutralization aspects of net-zero.
b) Revamp the near-term SBT framework to mirror the net-zero framework, except in terms of time frame, so that both the near-term and long-term SBTs reference both decarbonization and climate solutions.
c) Modify the near-term SBT framework to include some new aspects from the net-zero framework with near-term SBTs focusing on decarbonization metrics while long-term SBTs include decarbonization and voluntary green metrics.

8 Discussion and Preliminary Considerations

Financial-sector net-zero targets represent an important tool for FIs to signal their commitment to making finance flows consistent with a pathway toward low GHG emissions and climate-resilient development. These targets also help to ensure that financing can become compatible with a net-zero economy and enable the creation of credible net-zero investment strategies. By making net-zero targets science-based, FIs can ensure that they are sufficiently contributing the challenge faced by the global economy.

How FIs can contribute to a net-zero economy

A key principle of this work centers on the need for FIs to use their influence to drive emissions reductions in the real economy and help achieve a just transition. Financed emissions is only one means to measure progress toward net-zero and can incentivize the reduction of portfolio GHG emissions through a rebalancing of the portfolio to lower emitting companies or sectors. It is unclear whether divesting from high-carbon assets would have an immediate impact on real-world emissions, despite having the potential to have a material impact on reported portfolio financed emissions.

Science-based net-zero targets should therefore incentivize the alignment of all assets, regardless of their sector or current GHG emissions footprint. Taking a more forward-looking approach can help to ensure that FIs can finance companies who have signaled their intentions to decarbonize.

The SBTi's Foundations of Science-based Target Setting provides supplementary technical information on how science-based target-setting methods have been developed in accordance with the best available climate science (SBTi 2019). These methods can be used by FIs to ensure that their portfolio companies are aligning their operations and value chains with the latest climate science. The SBTi's Pathways to Net-Zero resource provides an up-to-date explanation of how pathways are determined for target-setting use (SBTi 2021c).

The role of climate solutions

In addition to ensuring the alignment of their financing with net-zero pathways, FIs play an important role at scaling up investment in climate solutions. These can be broadly defined as green technologies like renewable energy and sustainable mobility like electric vehicles, to name but a few. The scaling up of investment activities in carbon-removal activities, such as nature-based solutions, direct air capture, and BECCS, will also be required as part of the net-zero transition.

The definition and quantification of ambition regarding climate solutions remains uncertain. Science-based ambition has traditionally been defined in terms of rate of change of emissions reductions and not rate of change of deployment of financing for new solutions. Avoided emissions has been proposed as a metric to track progress, but the numerous GHG accounting challenges and drawbacks mean this is not a viable option for consistent,

transparent, science-based net-zero targets. Questions around if and how climate solution financing can be addressed with net-zero targets will continue to be examined as part of the framework development.

Defining net-zero for the financial sector

Using a number of key principles, this foundations paper has presented three possible formulations of how net-zero can be defined for FIs. Reaching a state of net-zero emissions across all financing activities alone should not be considered sufficient to make net-zero claims. These approaches are not mutually exclusive, and through its standard development process the SBTi plans to establish requirements for how one or more of these approaches can be used to set FI net-zero targets

Option 1: FIs reduce portfolio-wide financed GHG emissions to zero or a residual level consistent with reaching net-zero at the global or sector level, along 1.5°C pathways, using relevant sector-specific decarbonization pathways. Any remaining residual emissions are neutralized by permanently removing and storing an equivalent amount of atmospheric carbon dioxide.

Option 2: FIs align all operational activities and each of their underlying portfolio exposures (i.e., companies) such that each individual asset achieves a state of net-zero consistent with the SBTi Corporate Net-Zero Standard.

Option 3: FIs use financing to contribute to net-zero in a way that ensures both transition financing for decarbonization activities and an explicit shift to finance more climate solutions to reach a state where all financing is aligned with global climate goals.

The first option prioritizes the shift in financing to the more efficient companies within sectors. This enables FIs to reduce portfolio exposure to GHGs while still providing finance to a broad range of sectors. Option 2 is based on the concept of portfolio alignment where forward-looking metrics are used to gradually shift all financing activities to companies that are aligned to net-zero pathways. Alignment-based measures are currently best suited to decarbonization activities as alignment metrics are typically based on forward-looking GHG reduction plans such as public GHG targets and transition plans. The concept of alignment is still relatively new, and other alignment metrics may emerge to better classify companies for which GHG reduction measures do not best capture their contribution to net-zero. The third option extends the concept of alignment to the notion of contribution to net-zero, where FIs should explicitly target a shift of financing toward climate solutions. This approach acknowledges the role of both decarbonization and climate-solution financing as part of any net-zero strategy. A range of new metrics and taxonomies now exists to better classify climate solutions but defining science-based ambition levels for the rate at which financing needs to move from decarbonization to green remains a challenge.

The role of removals and carbon credits in science-based net-zero strategies

FIs are using varying degrees and types of carbon credits to achieve their net-zero targets. The distinction between neutralization and beyond value-chain measures from the SBTi Corporate Net-Zero Standard is used here to differentiate between emissions removals within and outside of value chains. While it is recognized that FIs can provide needed liquidity and market mechanisms for efficient carbon-credit allocation and transfer, the present position of the SBTi is that it is not appropriate for FIs to make claims against offsets for their own target achievement during the transition to net-zero. Strategies that use carbon credits or avoided emissions from certain financing activities (e.g., renewable energy) should not be used to balance residual emissions from other portfolio companies.

The net-zero standard development process will explore how this position could evolve for FIs to ensure that net-zero targets can incentivize the necessary financing for carbon removal solutions and to ensure that FIs can make credible claims when achieving net-zero.

Once portfolio emissions have been aligned and reduced along relevant 1.5°C pathways, residual emissions must be neutralized to achieve net-zero. For Scope 3, category 15 financed emissions, neutralization can be undertaken through several different means. This can include the FI engaging portfolio companies to ensure that each company neutralizes its own unabated value-chain emissions (i.e., the FI's Scope 3, category 15 emissions) with permanently removed carbon to reach net-zero financed emissions. Other approaches may include neutralizing emissions at the portfolio level through actively financing carbon removal activities to balance residual emissions in the portfolio.

Selecting the most credible metrics

Several metrics can be used to track decarbonization of financed emissions. These metrics range from well-established metrics, such as SDA physical intensities and absolute emissions, to new forward-looking alignment metrics, such as implied temperature rise. Sector-based and alignment metrics offer some of the most credible approaches to tracking progress by incentivizing FIs to finance companies who have pledged to reduce their emissions. These metrics can be used to help transition all sectors and enable the reduction in financed emissions from the FI portfolio while also financing the transition through engaging portfolio companies.

A range of new green metrics has emerged based on taxonomies such as the EU Commission and the Climate Bonds Initiative. While these metrics are attractive for reallocating finance from brown to green activities, future work is needed to determine how to establish a science-based target whose ambition is linked to global goals.

Net-Zero Finance and Policy Links

While SBTs are voluntary, SBTi frameworks and standards are becoming more relevant for policymakers as the percentage of the economy covered by SBTs and net-zero targets grows. The IPCC and IEA 1.5°C scenarios that undergird net-zero are contingent on extensive policy and regulatory interventions. Furthermore, the SBTi theory of change uses

tipping points and peer influence to catalyze SBT adoption, thereby providing proof of concept to policymakers that GHG emissions mitigation can co-exist with, and in fact are necessary for, economic competitiveness.

Given that the finance sector is more regulated than other parts of the economy, there is a clear opportunity for expanding the bi-directional flow of climate-related influence and information between FIs and policymakers. Three opportunity areas include expanded disclosure regulations (e.g., Article 173 in France, mandatory TCFD reporting in the UK), tax and fiscal mechanisms to incentivize financial institution SBTs, and central bank integration of climate considerations into monetary policies. Policy linkages and recommendations are an undeveloped area of the SBTi that could be elaborated with sufficient interest and resources.

Integration of SBTi monitoring, reporting, and verification

Setting net-zero targets is an initial step for FIs to begin aligning their activities toward contributing to global climate goals. Creating credible net-zero investment strategies and reporting on progress are crucial for accountability and transparency purposes. The SBTi is creating a monitoring, reporting, and verification (MRV) protocol to track progress against SBTs.

This protocol will enable FIs to track the progress of their portfolio companies by highlighting which companies are meeting their targets and effectively aligning their activities with relevant net-zero pathways. The protocol will also enable external stakeholders to track the progress of FIs and provide transparency regarding connections between financial alignment and real-world impacts.

8.1 Considerations

On the basis of the principles, definitions, and metrics presented in this paper, the following initial considerations are provided for FIs seeking to set and implement robust science-based net-zero targets. These considerations will be followed by more detailed guidance and criteria that the SBTi will develop using an inclusive and transparent multi-stakeholder process.

- **Coverage:** An FI's net-zero target should cover all relevant and material operational and financing activities. In terms of net-zero targets, all operational and value-chain emissions, including Scope 3, category 15 financed emissions should be covered.
- **Time frame:** FIs should reach net-zero by no later than 2050. While earlier target years are encouraged, a more ambitious time frame should not come at the expense of emissions mitigation.
- **Accountability:** Long-term net-zero targets should be supported by near-term science-based targets to drive action within time frames that are aligned with FI planning and investment cycles and to ensure emissions reductions in the real economy that are consistent with 1.5°C mitigation pathways.

- **Transparency:** Definitions, methodologies, metrics, targets, strategies, and any other relevant information used by FIs should be publicly available and should allow all stakeholders to assess whether they are aligning with the goals of the Paris Agreement. Progress on achieving targets should be reviewed and reported at least annually.
- **Abatement:** FIs must align the emissions generated from their operations and financing at a pace and scale consistent with mitigation pathways that limit warming to 1.5°C with no or limited overshoot and limited reliance on the deployment of carbon removals at scale. The impact of actions taken by FIs should center on supporting economy-wide decarbonization and not simply reducing exposure to GHG emissions within portfolios.
- **Neutralization of residual emissions:** To reach net-zero emissions, FIs will need to ensure that any residual emissions from their operational and financing activities that are not feasible for society to abate are neutralized by financing removals of portfolio companies (for Scope 3, category 15) and FI (for Scopes 1 and 2). FIs should therefore engage their portfolio companies to ensure that each company's residual emissions are uniquely neutralized by removing carbon from the atmosphere and storing it for a long-enough period to fully neutralize the impact of any GHGs that continue to be released into the atmosphere.
- **Engagement:** FIs should adopt and execute an action plan to influence portfolio companies to undertake measures that help accelerate a net-zero transition in the real economy. Strategies can include the development and use of sustainability-linked products or services, engagement strategies, voting rights, policy advocacy, and best practices, among others.
- **Environmental and social safeguards:** Mitigation strategies should adhere to robust social and environmental principles, ensuring protection and/or restoration of naturally occurring ecosystems, robust social safeguards, and protection of biodiversity, among others.

8.2 Transition Levers for Financial Institutions

FIs have a critical role in supporting and accelerating the net-zero transition in the real economy in accordance with Guiding Principle 2 (Science-based ambition). In particular, the world will require significant amounts of investments to finance the transition. Given the different roles and services of different types of institutions, FIs may have different abilities to influence and engage the real economy. The approaches taken by FIs to do so will therefore depend on their unique position and the levers available to them, as outlined in Guiding Principle 5 (Influence).

Transition Levers for Banks

Banks will need to adopt net-zero transition plans that leverage their ability to arrange financing through loans or capital markets. For example, banks will need to direct financing

toward the decarbonization of existing assets as well as the development of climate solutions based on Guiding Principle 4 (Decarbonization and Green), through considering net-zero alignment in their decision-making process as well as setting targets (lending and more general relationship-banking targets that include capital markets and advisory services) that support these goals.

A key area of focus for banks is to develop and implement engagement strategies for their relationship managers to promote capacity building and facilitate clients' adoption of net-zero targets. Given that banks typically maintain client relationships over a sustained period of time and generate revenue from multiple products or services (e.g., offering favorable terms on lower-margin products such as revolving credit facilities to try to secure more profitable capital markets or advisory services), it is also in banks' self-interest to work with clients to facilitate their transition. Declining to roll over loans to aid portfolio decarbonization without any engagement could simply end the whole client relationship and result in a loss of market share without achieving real-world impact on emissions, to the contrary of Guiding Principle 3's (Impact) aim. Instead, banks can provide transition finance as well as develop and offer innovative financial products and services that enable climate mitigation to accompany their engagement with clients until all relevant and material financial services result in no net accumulation of GHG emissions in the atmosphere, as per Guiding Principle 1 (Completeness).

For companies that are unable or unwilling to transition, however, banks could discontinue the relationship with clear public messaging such that the company would find it increasingly difficult to access financing. At the same time, banks can also engage with policymakers to push and support policies and regulations that help drive broader climate action across regions and sectors.

Transition Levers for Asset Managers

Asset managers will need to adopt net-zero transition plans that leverage their ability to direct financing through their selection of investments. In fact, asset managers have a fiduciary duty to consider and manage financial risks and opportunities in their investment decision-making process, at least for investments under discretionary mandates. As such, it is within their authority to make investment decisions that minimize losses from climate change and maximize opportunities presented by the transition to a zero-carbon economy. For example, asset managers will need to set investment targets that direct financing toward the decarbonization of existing assets and development of climate solutions based on Guiding Principle 4 (Decarbonization and Green).

One important consideration is that asset managers have a range of clients with varied preferences and interests, and some may not want their portfolio constrained by an overarching commitment. A key area of focus for asset managers is then to develop and implement engagement strategies to promote capacity building and incentivize clients to adopt net-zero targets. At the same time, asset managers can develop and offer funds and investment products or services that are aligned with a net-zero transition and facilitate

investments in climate solutions. As clients are increasingly convinced of the importance and economics of net-zero investing, asset managers can steer them toward these products or services and increase the proportion of assets managed under such a strategy until all relevant and material financial services result in no net accumulation of GHG emissions in the atmosphere, as per Guiding Principle 1 (Completeness).

Another key area of focus for asset managers is to develop and implement engagement strategies to promote capacity building and incentivize portfolio companies to adopt net-zero targets, in line with Guiding Principle 3's (Impact) aim. Because asset managers make the investment decisions and may hold large, pooled positions, they can use shareholder pressure and voting rights to compel change and endorse actions that drive decarbonization. Private equity firms in particular have longer-term investment strategies and considerable influence over their portfolio companies. This lever of influence can be amplified when asset managers join forces with this shared goal.

For companies that are unable or unwilling to transition, however, asset managers could divest with clear public messaging such that the company would find it increasingly difficult to access financing. Meanwhile, asset managers can also engage with policymakers to push and support policies and regulations that help drive broader climate action across governments and industries.

Transition Levers for Asset Owners

Asset owners will need to adopt net-zero transition plans that leverage their ability to direct financing through their selection of investments and/or asset managers. For example, asset owners will need to direct financing toward the decarbonization of existing assets as well as the development of climate solutions based on Guiding Principle 4 (Decarbonization and Green), through considering net-zero alignment in their decision-making process as well as setting investment targets that support these goals.

A key area of focus for asset owners is then to incorporate net-zero targets into their investment portfolios and mandates awarded to asset managers until all relevant and material financial services result in no net accumulation of GHG emissions in the atmosphere, as per Guiding Principle 1 (Completeness). This would include incentivizing asset managers to offer funds and investment products or services that are aligned with a net-zero transition and facilitate investments in climate solutions.

Another key area of focus for asset owners is to develop and implement engagement strategies to promote capacity building and incentivize portfolio companies to adopt net-zero targets, in line with Guiding Principle 3's (Impact) aim. Because asset owners make investment decisions and/or set investment mandates for asset managers, they can use shareholder pressure and voting rights to compel change and endorse actions that drive decarbonization. This lever of influence can be amplified when asset owners join forces with this shared goal.

For companies that are unable or unwilling to transition, however, asset owners could divest with clear public messaging such that the company would find it increasingly difficult to access financing. Meanwhile, asset owners can also engage with policymakers to push and support policies and regulations that help drive broader climate action across governments and industries.

9 Conclusions and Next Steps

This paper provides a conceptual foundation for financial net-zero targets through the establishment of key principles to define net-zero for FIs and assessing a range of metrics that may be most suitable to track progress towards these net-zero goals. Target formulation considerations such as the role of fossil-fuel financing, climate solutions, and the use of carbon credits by FIs are also discussed.

The landscape analysis revealed that there remains uncertainty and inconsistency in how FIs set net-zero targets and design net-zero financing strategies. We identified six types of net-zero strategies that are currently being employed by FIs which incorporate different approaches to financed emissions reduction, emission removals, and the financing of climate solutions. This paper represents the first step in classifying these approaches and assessing their effectiveness against key science-based principles. The questions raised throughout the paper will be further addressed through a transparent and inclusive multi-stakeholder process that will provide the input for developing target validation criteria, detailed guidance, and technical resources to support FIs with the development and implementation of science-based net-zero targets.

While the financial sector plays a different role than the corporate sector in achieving net-zero emissions, the forthcoming standard will be informed by, and aligned with, the SBTi Corporate Net-Zero Standard. As part of the standard development process, further research and consultation is planned to address the following technical topics:

- Establish how the net-zero definitions can apply to different types of FIs, given their different abilities to influence and drive reductions in the real economy, and how different types of financing activities can be captured in the boundary of a net-zero target;
- Clarify the role of climate solutions in net-zero targets, specifically as it relates to metrics and whether the rate of climate-solution financing should be tied to science-based scenarios;
- Determine the role of emissions removals within asset classes to effectively counterbalance residual emissions and stipulate the conditions for FIs to claim net-zero emissions across their operations and financing activities;
- Define how to integrate the FI net-zero framework with the corporate target-setting pathways used by real economy companies.

10 References

Amalgamated Bank (2021). Net Zero Climate Targets Report
https://www.amalgamatedbank.com/sites/default/files/Net_Zero_Climate_Targets_Report.pdf

Aviva. 2021. "*Taking Climate Action*."
https://www.aviva.com/newsroom/perspectives/2021/03/taking-climate-action/.

Barclays. 2020. "*Our Approach to Net Zero.*"
https://home.barclays/content/dam/home-barclays/documents/citizenship/ESG/Our%20approach%20to%20net%20zero.pdf.

CDPQ (Caisse de dépôt et placement du Québec). 2021. "*CDPQ announces its new climate strategy.*" September 28, 2021.
https://www.cdpq.com/en/news/pressreleases/cdpq-announces-its-new-climate-strategy.

CDP. 2021. *Putting a price on carbon.*
https://www.cdp.net/en/reports/downloads/5651.

GHGP (Green House Gas Protocol). 2013. "Technical Guidance for Calculating Scope 3 Emissions (Version 1.0)."
https://ghgprotocol.org/sites/default/files/standards/Scope3_Calculation_Guidance_0.pdf .

Guivarch, C. & Rogelj, J. (2017). Carbon price variations in 2°C scenarios explored. Carbon Pricing Leadership Coalition, USA.

Hale, T., T. Kuramochi, J. Lang, B. Mapes, S. Smith, R. Aiyer, R. Black, et al. 2021. *Net Zero Tracker*. Energy and Climate Intelligence Unit, Data-Driven EnviroLab, NewClimate Institute, Oxford Net Zero.
https://www.zerotracker.net/. Accessed October 2021.

IEA (International Energy Agency). 2021. *Net Zero by 2050 A Roadmap for the Global Energy Sector.*
https://www.iea.org/reports/net-zero-by-2050. Accessed October 2021.

IPCC (Intergovernmental Panel on Climate Change). 2019. *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.*
https://www.ipcc.ch/sr15/

IPCC. 2021. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.*
https://www.ipcc.ch/report/ar6/wg1/#FullReport

JPMorgan Chase & Co. 2021. *Carbon Compass: Paris-Aligned Financing Commitment Methodology*.

https://www.jpmorgan.com/content/dam/jpm/cib/complex/content/investment-banking/carbon-compass/Carbon_Compass_Final.pdf

LBP (La Banque Postale). 2021. *La Banque Postale is stepping up its decarbonisation strategy.* Press Release. https://www.labanquepostale.com/content/dam/lbp/documents/communiques-de-presse/en/2021/cp-en-lbp-sbti-oil-gaz.pdf

NZAOA (Net-Zero Asset Owner Alliance). 2021. *Inaugural 2025 Target Setting Protocol*. https://www.unepfi.org/wordpress/wp-content/uploads/2021/01/Alliance-Target-Setting-Protocol-2021.pdf

PAT (Portfolio Alignment Team). 2020. *Measuring Portfolio Alignment.* *https://www.tcfdhub.org/wp-content/uploads/2020/10/PAT-Report-20201109-Final.pdf*

PAT. 2021. *Measuring Portfolio Alignment: Technical Supplement* *https://assets.bbhub.io/company/sites/60/2021/05/2021-TCFD-Portfolio_Alignment_Technical_Supplement.pdf*

SEI, IISD, ODI, E3G, and UNEP. 2021. *The Production Gap Report 2021*. http://productiongap.org/2021report

SBTi (Science Based Targets Initiative). 2019. *Foundations of Science-based Target Setting, Version 1.0*. https://sciencebasedtargets.org/resources/files/foundations-of-SBT-setting.pdf

SBTi. 2021a. *SBTi Corporate Net-Zero Standard, Version 1.0.* https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf

SBTi. 2021b. *Beyond Value Chain Mitigation FAQ, Version 1.0.* https://sciencebasedtargets.org/resources/files/Beyond-Value-Chain-Mitigation-FAQ.pdf

SBTi. 2021c. *Pathways to Net-Zero. SBTi technical summary, Version 1.0.* *https://sciencebasedtargets.org/resources/files/Pathway-to-Net-Zero.pdf*

SBTi. 2021d. *Beyond Value Chain Mitigation FAQ. Version 1.0.* https://sciencebasedtargets.org/resources/files/Beyond-Value-Chain-Mitigation-FAQ.pdf

United Nations Environment Program. 2021. *The Emissions Gap Report 2021*. https://www.unep.org/resources/emissions-gap-report-2021

UNEP-FI (United Nations Environment Programme Finance Initiative). 2021. *Guideline for Climate Target Setting for Banks.* *https://www.unepfi.org/wordpress/wp-content/uploads/2021/04/UNEP-FI-Guidelines-for-Climate-Change-Target-Setting.pdf*