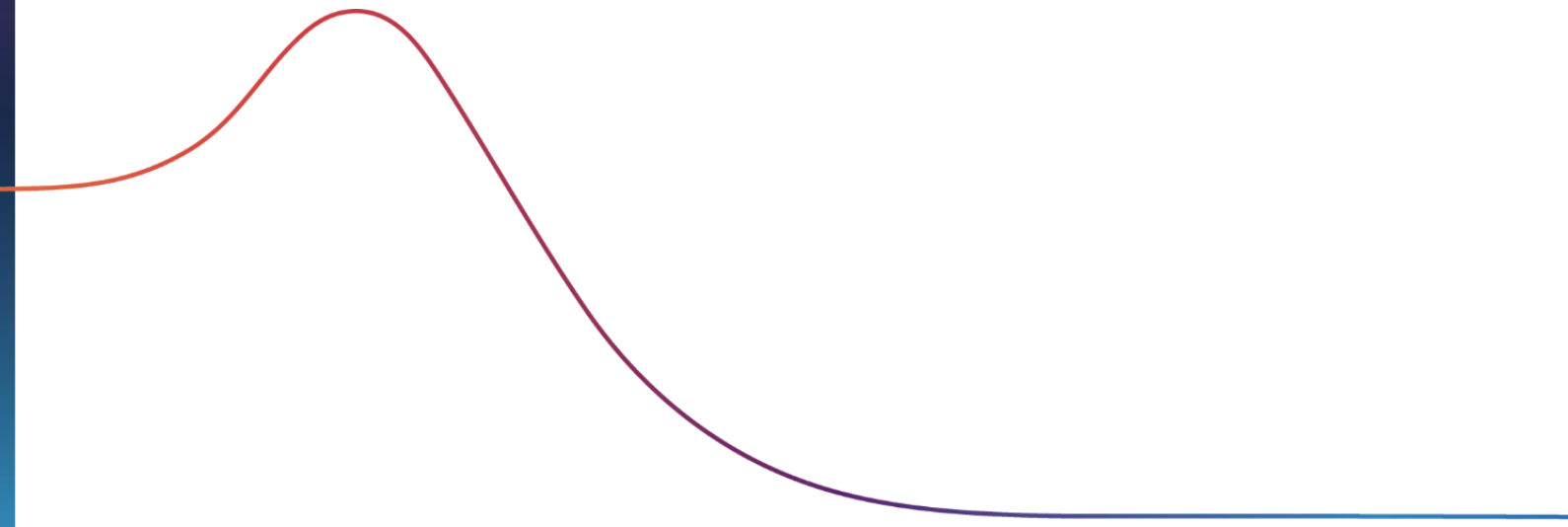
SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

FINANCIAL INSTITUTIONS METRICS AND METHODS SYNTHESIS

Version 1.0

July 2024



ABOUT SBTi

The Science Based Targets initiative (SBTi) is a corporate climate action organization that enables companies and financial institutions worldwide to play their part in combating the climate crisis.

We develop standards, tools and guidance which allow companies to set greenhouse gas (GHG) emissions reductions targets in line with what is needed to keep global heating below catastrophic levels and reach net-zero by 2050 at latest.

The SBTi is incorporated as a charity, with a subsidiary which will host our target validation services. Our partners are CDP, the United Nations Global Compact, the We Mean Business Coalition, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF).

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VERSION HISTORY

Version	Change/update description	Release date	Effective dates
Version 1.0	Draft released with Financial Institutions Net-Zero Standard (FINZ) consultation draft	July 24, 2024	July 24, 2024

CONTENTS

GLOSSARY

Metric: A metric is a quantifiable indicator to assess, manage, compare, and communicate the past, current, or intended climate-related performance of an organization. Metrics can be expressed in terms of impact (e.g. greenhouse gas emissions released into the atmosphere), outcome (e.g. percentage of electricity sourced from zero-carbon sources), or process (e.g. establishment of a portfolio company engagement strategy).

Target-setting method: A target-setting method is a mathematical formula or algorithm that can be used to determine the benchmark, threshold, or desired performance of a counterparty using a relevant metric. These benchmarks serve as a reference for defining criteria and setting targets in SBTi Standards.

Scenarios and pathways: A scenario is a plausible description of how the future may develop, based on a coherent and internally consistent set of assumptions about key driving forces (e.g. rate of technological change, prices) and relationships. Scenarios yield pathways, which represent a quantitative trajectory of a climate-relevant metric over time, such as greenhouse gas (GHG) emissions.

Technical foundations: Technical foundations refer to target-setting metrics, target-setting methods, and pathways. They are the foundation of SBTi standards.

Benchmarks: Target-setting benchmarks indicate a desirable level of performance, in terms of a target-setting metric, and serve as a point of reference against which ambition and performance of a target-setting entity is compared.

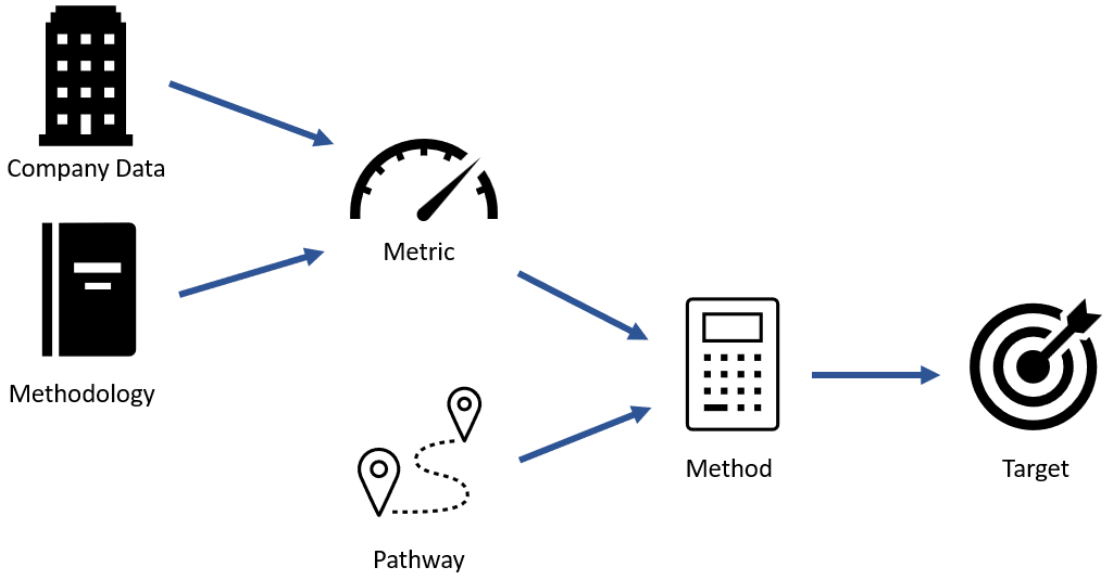
Targets (target setting): A target is a quantity that indicates the rate of change of a target-setting metric, in terms of percentage change over time, from benchmark to benchmark to reach long-term net-zero performance. **Target setting refers to** the process of establishing a target on a given metric that indicates the total percentage change that the entity wishes to achieve.

Methodology: The means by which a metric is calculated.

Exposure: Financial institutions' exposure to real economy activities is defined through their financial relationships, e.g. provision of financial services such as loans, insurance, etc. Exposure is used as a measure of the proportion of money invested, lent, underwritten, to real economy activities.

The relationship between these items is displayed in Figure 1.

Figure 1: Outline of the relationship between metrics and methods.



1. INTRODUCTION

1.1. Background

Metrics and target-setting methods play a pivotal role in the process of setting science-based targets by providing a solid foundation for defining, measuring, and tracking the climate performance of entities. The selection of appropriate metrics and methods should enable organizations to set meaningful targets that promote accountability, optimize efforts, and drive continuous improvement.

SBTi's original target-setting framework for the financial sector (SBTi, 2020) was published in 2020 and incorporated three distinct metrics and target-setting methods. Updates to this framework (SBTi, 2024) have added additional metrics and methods, most notably to address fossil fuel financing. The development of SBTi's net-zero standard has also proposed alternative metrics and methods for financial institutions (SBTi, 2022; SBTi, 2023). In addition to the work undertaken by SBTi, there exists an active ecosystem of private sector initiatives, research organizations, and metric and method developers who have contributed significantly to improve the understanding of how to design and implement metrics and target-setting methods in the financial sector. Regulations, specifically in Europe, are also defining minimum standards for what types of metrics financial institutions should track and report (EC 2024a).

A number of key trends have been observed, including concerns about traditional GHG impact metrics and how they are applied to an FI's portfolio emissions; the emergence of forward-looking "alignment" based metrics; and ongoing research on the design choices for climate metrics and target setting methods. Understanding and incorporating the latest thinking and best practices is necessary for SBTi standards to remain rigorous and credible over time.

This report summarizes the findings of research undertaken by the SBTi to support the development and revision of its standards for the financial sector. Specifically, it aims to answer how SBTi should establish a set of climate metrics and target-setting methods to be used by financial institutions to set effective science-based targets and ensure alignment with global climate goals.

1.2. Purpose and scope

The research is focused on climate performance metrics and target-setting methods for use in the financial sector. The scope of the paper is limited to financial institutions financing services, such as lending, investing, insuring, etc. The paper does not extend to an FI's operational emissions (scope 1 and 2) or its broader value chain (scope 3 category 1–14). The aim of the research is to document a range of leading metrics and commensurate data sources that can be used to credibly measure and report on performance over time and set credible science-based targets. The research is not to map a definitive inventory of all metrics and data sources but rather to focus on the applicability of various metrics and data sources, and best practices, limitations and trade-offs associated with their use.

This paper aims to inform the financial sector work of the SBTi by providing a comprehensive review and evaluation of metrics and methods used in financial sector standards. The paper looks into the current concepts and landscape of metrics and methods that can and have been used in science-based target-setting for financial institutions and presents a framework

to evaluate them in a clear and transparent way. Through comparison against a set of principles, the paper aims to facilitate the evaluation processes of metrics and methods for consistency with the SBTi Principles.

There are three distinct research questions to be answered:

1. What are suitable metrics for credibly measuring and tracking climate performance of FIs, and what are the use cases for these metrics?
2. What are suitable target-setting methods to derive benchmarks for those metrics selected as suitable for target setting?
3. How should "alignment" be defined for both impact- and outcome-based metrics, and operationalized for the purposes of target setting?

1.3. How to use the report

The report summarizes a wide range of metrics and target-setting methods used in the financial sector, followed by a detailed assessment against a set of principles. A discussion of the results and the trade-offs is followed by a set of recommendations for the incorporation of new, and updating of existing metrics and target-setting methods.

The report is intended to support the development and revision of SBTi financial sector standards, notably the Financial Institutions Net-Zero Standard v1 (FINZ).[1] This report is designed to provide information to support the selection of sustainability metrics.

The paper is structured into six sections:

- Financial sector terminology: presents an overview of key terminology and concepts critical for understanding how metrics and methods are applied to different types of financial activities that an FI may undertake.
- Research methodology: provides an overview of the methodology undertaken to evaluate metrics and target-setting methods.
- Landscape: introduces the foundational concepts of how metrics and methods are used for target-setting purposes, and how they are specifically applied in the context of financial institutions. A mapping and characterization of metrics and methods is provided.
- Metric and method assessment: this section presents the assessment of metrics and target-setting methods against the SBTi Principles.
- Alignment[2] overview: provides a deep dive into the concepts of alignment for both impact and outcome metrics and how it is calculated including an overview of the challenges.
- Discussion and recommendation: provides context and discussion on how to interpret the results from the assessment. Recommendations are made for the use of metrics and methods in the FINZ Standard as well as for further research into this subject.

[1] For more background on the FINZ development process, see the SBTi's financial sector net-zero webpage.

[2] For the purposes of this paper, alignment is the term used to express the consistency of both impact and outcome metrics with climate pathways. This can be undertaken at the portfolio, sector, and counterparty level.

A number of annexes are provided to give additional information on the target-setting methods and their assessment against SBTi Principles.

1.4. Limitations of this research

The wide range of metrics in use today by financial institutions, and the lack of transparency in some underlying methodologies, means that a detailed and accurate assessment of all metrics was not possible. For example, implied temperature rise metrics can be based on many different design choices, with a vast array of underlying assumptions (GFANZ, 2022). Rather than answering the question, "*how should a specific weighted average °C metric be designed?"*, this paper seeks to answer the question, "*should FIs track a °C metric at the portfolio level, and establish targets to align this metric with science-based pathways?"*. This paper was therefore only able to assess some metrics at a very high level, and is not designed to assess all commercial providers and their specific approach to certain metrics.

The assessment of the metrics and target-setting methods, even against a consistent set of principles, can be subjective. To address this subjectivity, the report strives to be as transparent as possible with the reasoning behind the results of the assessment. To address principles such as "robustness", we have relied on reasoning and some quantitative studies where possible. However, complete quantitative analysis could still help to better answer these questions in the future. Links to relevant literature on third-party assessments of metrics and target-setting methods is provided when available.

2. CLIMATE IMPACT OF FINANCIAL SECTOR

The role of financial institutions (FI) in achieving climate stabilization is best defined through the lens of their portfolios, which represent the sum of all financial services they offer to directly finance, or facilitate, real economy activities. This paper focuses only on the financial services, whose climate impact (in GHG emission terms) is typically accounted for as part of scope 3 category 15. The scope of the paper does not extend to an FI's operational emissions (scope 1 and 2) or its broader value chain (scope 3 category 1–14). The scope of this paper applies to the following financial institution types and their different financial services:

- **Lending**: includes all entities classified as banks, i.e. commercial and retail banks, as well as non-bank lenders.
- **Investing** (asset owning and asset management): through a range of different financial institution types, but most notably, asset owners, asset managers, private equity and venture capital firms.
- **Insurance underwriting**: both insurance and reinsurance firms, i.e. all entities that have a license to be a risk carrier.
- **Capital markets activities**: investment banking that facilitates the primary issuance of capital market instruments and loan syndication.

The notion of climate impact from financial activities is most comprehensively defined by the Partnership for Carbon Accounting Financials (PCAF) GHG Accounting and Reporting Standard for the Financial Industry.[3] The standard covers investment and lending (financed emissions), insurance underwriting (insurance-associated emissions) and capital market activities (facilitated emissions) (PCAF, 2022a; PCAF, 2022b; PCAF, 2023). This paper does not address any other types of financial services and the potential climate impact that they may cause.

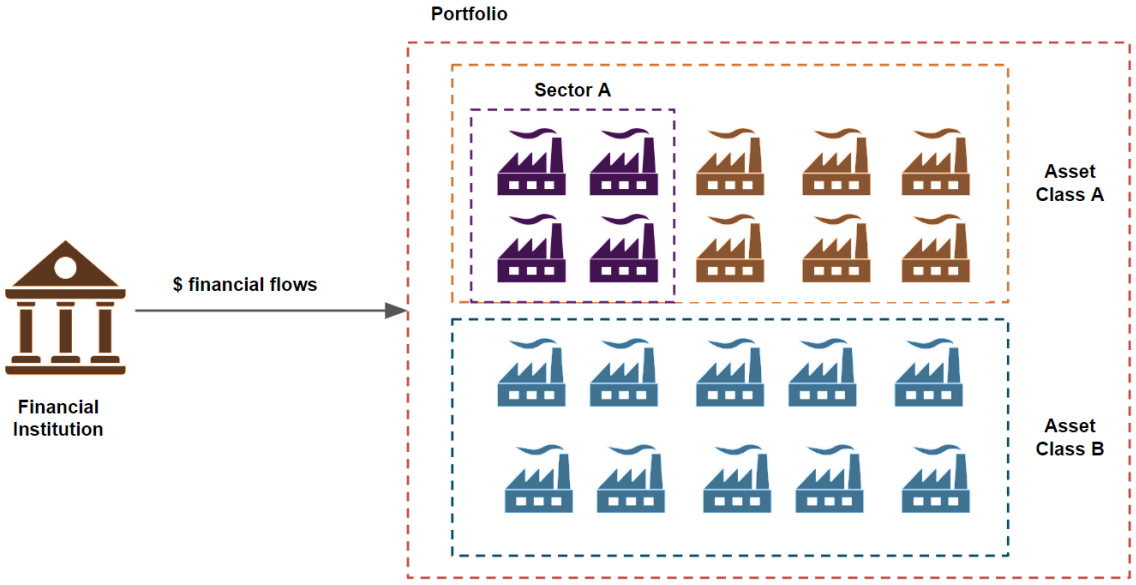
Financial institutions have a direct relationship with the real economy via their financial portfolios. Figure 2 represents this relationship, with detail on how the different components of a portfolio are characterized.

- **Portfolio**: a portfolio is a collection of financial investments like stocks, bonds, commodities, cash, and cash equivalents, as well as their fund counterparties (entities and activities). For the purposes of this paper, the portfolio can extend across multiple asset classes, including loans and investments. Metrics at the portfolio level measure the aggregate performance of all underlying entities/activities across a range of financial asset classes and services.
- **Asset class**: an asset class is a grouping of financial instruments that have similar financial characteristics (e.g. listed equity, corporate loans). Metrics can be generated at the asset class level that measure attributes of all underlying entities/activities within the asset class.
- **Sector**: within an asset class, a sector is a grouping of entities or activities that exhibit similar characteristics such as the product or service they produce. Metrics can be generated at the sector level that measure attributes of all underlying entities within the sector based on common characteristics.

[3] The PCAF standard has become the de-facto global GHG accounting standard for financial institutions. It has a "built on" mark from GHG Protocol, for its Financed Emissions Standard.

- **Counterparty**: Parties that are a part of a financial transaction, e.g. clients of a bank or insurance company, or the portfolio companies of investors. Counterparties are further split at the entity and activity level:
    - Entity: a legal entity typically receiving financial services through a general use of proceeds financial instrument. An entity-level metric seeks to capture the performance of the entity, and therefore may be based on the historical GHG emissions, the forward-looking ambition, or the relative "greenness" of its activities.
    - Activity: specific asset or economic activity with a clear use of proceeds linked to the financial instrument. An activity-level metric, meanwhile, captures primarily the (emissions) performance of an activity such as its physical intensity, and enables the comparison across other market actors; an example would be the Annual Efficiency Ratio (AER) of a ship within the shipping sector.

Figure 2: Financial institution portfolio structure



All forms of scope 3 GHG emissions, including those for financial activities (S3 category 15), are calculated using two key elements: exposure to the emissions generating activity and the actual climate performance of the activity. As established through the PCAF framework, the concept of climate impact of a financial institution reflects how emissions in the real economy are attributed to its various financial activities (e.g. lending, investing, insurance, etc.). Equation 1 highlights that the emissions attributed to the FI are determined by the volume (exposure) of financing, and the emissions performance of the counterparty.[4]

[4] Simplified equation to illustrate conceptual components. Counterparty exposure is defined in different ways depending on the type of financial asset class, and typically represents an "emissions ownership" approach.

Equation 1: Parameters for determining financed emissions calculations

$$portfolio\ emissions = \sum_{All\ counterparties} = counterparty\ emissions\ X\ counterparty\ exposure$$

This logic can be applied to calculating any measure of climate performance, including GHG emissions, but also other forward-looking metrics such as the number of counterparties who have climate targets. Equation 1 can therefore be modified to provide a more generalized equation for aggregating the climate performance of counterparties to the portfolio (Equation 2).

Equation 2: Parameters for determining climate performance of portfolios

$$portfolio\ climate\ performance = \sum_{All\ counterparties} = counterparty\ performance\ X\ counterparty\ exposure$$

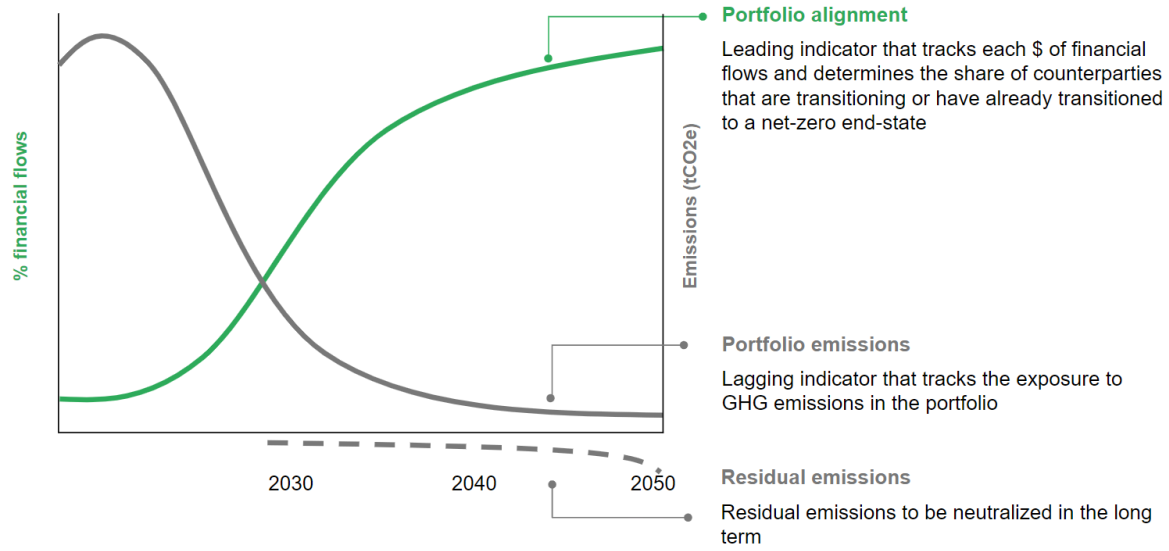
Equation 2 highlights that different types of metrics can be created for financial institutions:

- Aggregate metrics: total emissions or emissions intensity of the underlying activities, taking into account both the intensity and exposure elements.
- Counterparty level metrics: assessing change in the performance of specific counterparties and tracking that change in aggregate form, e.g. percentage of counterparties with climate targets. At the counterparty level, the concept of performance can be further broken down into the following:
    - Current performance: e.g. based on the counterparty's current emissions
    - Forward-looking: e.g. based on the forward-looking plans of the counterparty to transition its business

Equations 1 and 2 highlight that the climate performance of portfolios can be changed due to either changes in exposure (portfolio composition) or actual changes in performance of counterparties. Changes in composition do not diminish the fact that on a global level, each of the underlying activities need to decarbonize. To reach a net-zero economy, the business model of all companies and their underlying activities need to evolve to create value for society and their shareholders without causing the accumulation of GHG in the atmosphere (SBTi, 2023). A net-zero portfolio requires that each and every activity in the portfolio has a level of emissions performance that is compatible with a net-zero economy.

Reaching the end-state requires tracking the right types of metrics in the interim to ensure that FIs can take the right action to influence their counterparties. Figure 3 represents the conceptual framework of the paths to reach a net-zero end-state for a financial institution.

Figure 3: Illustrative portfolio alignment and emissions pathways towards a net-zero end-state



The green line in Figure 3 represents a measure of portfolio alignment, which tracks the overall share of financing that is going to counterparties who are aligning their activities to 1.5 degrees Celsius (1.5°C) pathways. By 2050, 100% of activities in a portfolio must be operating at a net-zero emissions performance level. The gray line in Figure 3 represents the resulting exposure to GHG emissions. This emissions value must also be reduced to net-zero levels by 2050.

Subsequently, there are two strategies for an FI to reduce their financed emissions and improve the overall climate performance of their portfolio: improving the performance of counterparties within the portfolio via various levers of influence and engagement, and/or changing their financial exposure to better performing counterparties. The strategies that FIs should take to drive maximum impact in the real economy remain the subject of much research, discussion, and debate. It is not within the scope of this paper to address these in detail. As highlighted by Kölbel et al. (2020) there are various mechanisms for categorizing and evaluating the real world impact of investors and other financial institutions. Additional work by Kahn et al. (2023) provides further insights into the benefits and trade-offs of applying these strategies. These “theories of change” of how FIs can be best drive change in the real economy are broadly characterized in the following two mechanisms:

- **Divestment**: the conceptual framework is based on minimizing exposure to “climate risk” coming from counterparties in sectors considered exposed to transition risk. By reducing exposure to specific sectors or counterparties, FIs may not have direct, near-term, impact on real-world emissions. However, reducing financing to these sectors may drive longer-term impact through a market effect.

- **Engagement**: the conceptual framework is based on “transition finance” to directly support entities transitioning in the real economy. FIs can have direct real world impact by supporting the transition of entities and financing of net-zero aligned activities. Doing so may increase the portfolio emissions of the FI in the near-term via an increase in exposure to high-emitting counterparties that are transitioning, but the FI has greater means to engage the counterparties and influence them to reduce their emissions and transition to lower carbon alternatives.

3. RESEARCH METHODS

The analysis of this paper first splits the target-setting methods into the selection of the metric, and then the application of the method to determine future performance benchmarks. This differs from how many “science-based” target-setting methods have been assessed in the past (Bjørn et al., 2020; Chang et al., 2022; Faria & Labutong, 2019; Rekker et al., 2022), where the metric and method are typically assessed together. However, original work in the financial sector undertaken by Weber et al. (2018) did analyze a broad set of metrics for banks, separately from target-setting methods.

The aim of this paper is to first identify the key metrics necessary to determine the climate performance of a portfolio. Only after the right metrics are identified, are target-setting methods introduced. Climate science can be used to derive useful quantitative indicators over time, such as the slope of the emissions curve to reach net-zero that is consistent with a certain temperature outcome. However, how an FI can contribute to this goal, and allocate its financing is not necessarily defined by science. Therefore, both the metrics selected and the target-setting methods employed by FIs must acknowledge that “science-based” pathways may not be available to track the progress of all relevant metrics. Properly characterizing methods is therefore an important step to qualify what it means to be “science-based” when establishing targets on specific metrics.

3.1. Metric and method definitions

A metric is a quantifiable indicator to assess, manage, compare, and communicate the past, current or intended climate-related performance of an organization. Metrics can be used to typically measure sustainability or climate impacts as well as interim outcomes. Metrics can be expressed in terms of three categories:

1. **Impact-based metrics** (impact metrics) measure the actual effects or results of an organization's activities on the climate (e.g. greenhouse gas emissions released into the atmosphere). Absolute- and intensity-based GHG emissions metrics are common examples of impact-based metrics.

2. **Outcome-based metrics** (outcome metrics) measure the extent to which an organization's strategies, operations, and business model are in line with the global climate goals (e.g. percentage of electricity sourced from zero-carbon sources).

3. **Process-based metrics** (process metrics) measure controllable actions that an organization can undertake to help achieve a change in the outcome metric, and ultimately the impact metric (e.g. establishment of a no-deforestation policy, number of engagements with a portfolio company).

In a report commissioned by the ISEAL Alliance (Jennings et al., 2020), impacts are defined as the “long-term effects (direct or indirect, intended or unintended) on the sustainability issue produced as the result of an intervention”. Outcomes are defined as “the short-term and medium-term effects of an intervention on the sustainability issue in question”.

Long-term impacts are achieved because of nearer-term outcomes being met. Metrics that measure outcomes can be helpful predictive indicators that give early signals into future performance against impact metrics. They can therefore help causally to connect the immediate interventions companies take and the expected contribution towards reaching the desired long-term end-state. Both impact and outcomes metrics are therefore useful in designing effective theories of change. Effective evaluation often requires a combination of both to provide a comprehensive understanding of progress.

This paper primarily focuses on impact- and outcome-based metrics. Process-based metrics may be useful for the FI to use internally to support targets. However, the causal link between the input action and the impact is too far removed to have a valid purpose in target setting and therefore is not the focus of this paper.

3.2. Principles and criteria for evaluation

A number of considerations are important when making decisions on which climate performance metrics to use, and which methods are appropriate for defining future performance levels of these metrics. The considerations are organized using a set of six key principles and address both technical considerations such as 1.5°C ambition, and also the practical considerations such as the usability of specific metrics and methods. The principles are specified below in Table 1 and further discussed through the report. Each principle has one or more criteria that is used to assess compliance against the principle. A “technical foundation” in this context refers to a metric, target-setting method, or pathway.

Table 1. SBTi Principles for the assessment of technical foundations

SBTi Principles
Principle 1: *technical foundations should drive action and transformative decarbonization in line with the ambition required to limit warming to 1.5°C.* ***Principle 2:*** *technical foundations should be informed by the best available science, as defined by international consensus bodies like the Intergovernmental Panel on Climate Change (IPCC), and best practice in climate target-setting and climate mitigation.* ***Principle 3:*** *technical foundations should make all relevant information publicly available, and be documented in a way that supports balanced, multi-stakeholder involvement in their construction and use.* ***Principle 4:*** *SBTi standards should be rigorous and impartial, safeguarding the independence of the standard-setting process, and enabling credible and evidence-based claims throughout the target-setting and implementation journey.* ***Principle 5:*** *technical foundations should provide an actionable way forward that presents an organization with clear, measurable, and achievable steps for realizing their targets, thereby facilitating effective and immediate reductions in emissions.* ***Principle 6:*** *technical foundations should recognize the differentiation needed for entities of varying sizes, types, sectors, and geographies to undertake a science-based*

decarbonization journey in a manner that strives for equity.

3.3. Methodological approach

A research framework was created to capture and analyze data on each metric in a consistent, structured and systematic manner. The framework included four key steps:

- Descriptive information (e.g. name of metric, unit of measurement, underlying calculation steps). A broad literature review on current use of metrics and methods for science-based target-setting for financial institutions was undertaken to complete this step.
- Metric and method characteristics and analysis of the metric's characteristics against each principle. Assessment criteria being defined for how consistency with the principle is determined.
- Assessment of the metric and method against the SBTi Principles.
- Explanation of the analysis and key trade-offs, including references where appropriate. A discussion on why the outcome of the assessment was chosen for each principle is outlined for clarity and transparency purposes.

The research framework was used to inform this report and to produce summary tables of the main characteristics of metrics under each sustainability issue, allowing readers to see some of the main strengths, weaknesses and trade-offs without needing to read all of the details captured in the framework. The Annexes of this report provide a more detailed overview of the assessment with reasoning behind the results.

A decision matrix was employed for the review as it is a tool that can be used to evaluate multiple options against a predetermined set of criteria. Each option is listed as a row, while the criteria are listed as columns. A qualitative assessment for each metric and method against criteria was undertaken to understand their consistency with the SBTi Principles. A decision matrix approach was chosen because it facilitates informed decision-making, providing a structured and transparent framework to analyze complex choices and prioritize metric and method selection based on their consistency with established criteria. Table 2 shows the template used for the assessment criteria.

A weighting of principles was not used as part of this research. The decision matrix is designed to provide transparency on why results were reached and the logic and supporting information behind the decision.

Table 2: Overview of criteria assessment scoring

Principle	Criteria	High	Medium	Low
One of six principles defined	**Criteria for assessing compliance with principle**	High degree of consistency with the criteria, where sufficient evidence is available to demonstrate compliance.	May be consistent with criteria under certain conditions.	Low degree of consistency with the criteria.

4. LANDSCAPE

The goal of SBTi standards is to drive the improvement in the climate performance of a financial institution over time to reach the desired net-zero performance level: financial activities do not contribute to the accumulation of GHGs in the atmosphere. The conceptual framework specified in Figure 3 shows that there are a range of metrics, both impact and outcome based that can reveal important information about the progress towards this desired "end-state". A broad review of both academic and industry literature was undertaken to produce a landscape assessment of climate metrics and target-setting methods.

4.1. Literature review

The goal of this landscape assessment was to review the metrics that are used by different types of financial institutions for different purposes. The work of net-zero alliances, regulatory bodies, and other research organizations were reviewed to determine the metrics commonly employed in the financial sector, for both disclosure and target-setting purposes.

Common metrics and target types for different financial activities

Given the maturity of target setting in the financial sector, most examples of metric use is in lending and investment activities of banks and investors. Insurance underwriting and capital market activities climate targets are relatively new with fewer examples available to review.

Lending

Bank lending is typically covered by impact-based metrics (absolute financed emissions and/or sector-specific emissions intensity). The Net-Zero Banking Alliance (NZBA) Guidelines for Climate Target Setting for Banks, for example, recommend both absolute emissions and sector-based emissions intensity metrics (UNEP, 2024a). At the sector level, the NZBA recommends physical intensity metrics (e.g. per kWh, m^2, or tonne of product), but also financial metrics may be used if it is not possible to use a physical metric. Other types of metrics used by banks at the sector level include technology share, production volume and sector financing volume (RMI, 2024; 2Dii, 2020). Technology share metrics are also becoming more relevant for the energy sector, such as the energy supply financing ratio which compares share of financing to fossil fuels vs. renewables (BloombergNEF, 2023).

In addition to tracking impact metrics, banks are establishing green, transition, or sustainable finance frameworks to grow the share of their financing either in percentage terms or absolute financing terms to clients who qualify as transitioning or green using various classification systems (ShareAction, 2023; UNEP, 2022). One such example of this is taxonomy alignment of financing, which under the EU's Sustainable Finance Disclosure Regulation (SFDR) is now a regulatory requirement in Europe. Banks reporting their "Green Asset Ratio", represents an outcome-based metric based on the share of their on-balance sheet lending and investing that is taxonomy aligned (European Commission, 2023).

Investors (asset owners and managers)

Asset owners and managers have been tracking the performance of their portfolios and establishing targets now for multiple years. Initiatives such as the Net-Zero Asset Owners

Alliance (NZAOA), Net-Zero Asset Managers initiative (NZAMi) and the Institutional Investors Group on Climate Change (IIGCC) have helped established a number of requirements and recommendations in their respective guidances, that have become common practices when establishing targets based on different types of metrics.

Asset owners and managers commonly establish absolute-based financed emissions metrics. These are a key requirement of NZAOA's Target-Setting Protocol, under the "sub-portfolio emissions target" (UNEP, 2024b). While IIGCC's Net Zero Investment Framework acknowledges limitations with absolute portfolio emissions metrics and targets, it does recommend both absolute and intensity metrics (such as tCO_2e/$mn invested) be established and reported by asset managers (IIGCC, 2024a). Sector-based physical intensity metrics are also promoted as a key pillar for the NZAOA under their "sector targets".

There is also a growing uptake of outcome-based metrics used by investors. Since the SBTi's launch of portfolio coverage and temperature rating metrics in 2020 (SBTi, 2020), other frameworks have adopted and updated these approaches. The Glasgow Financial Alliance for Net Zero's (GFANZ) work on portfolio alignment (PAT, 2021; GFANZ, 2022) expanded the range and detail of alignment-based metrics, establishing guidelines and design choices for binary target measurement (e.g. SBT portfolio coverage), benchmark divergence, implied temperature rise, and other forms of alignment maturity scales. This has led to the broader uptake of more forward-looking alignment metrics (and targets). As an example, IIGCC's Net Zero Investment Framework recommends a specific "asset level alignment" using a maturity scale approach for their counterparties.

Transition finance targets are also adopted by IIGCC and NZAOA to track allocations to "climate solutions", either in percentage share term or absolute financing terms. Outcome metrics, such as SBT portfolio coverage and maturity scale alignment are also used by private equity (SBTi, 2021) and venture capital investors (VCA, 2024)

Insurance underwriting and capital markets activities

While within the scope of this research, the application of climate metrics to these financial activities is relatively limited in comparison to lending and investing. The Net-Zero Insurance Alliance's (NZIA) inaugural Target-Setting Protocol (UNEP, 2023) recommended both impact-based metrics (absolute- and sector-based physical intensity) and outcome-based metrics such as SBT portfolio coverage and transition insurance metrics (relative or absolute increase of revenue or premiums deriving from climate solutions).

There remain few guidelines on other metric types that can be applied to capital market activities. A key assumption in this paper is that the metrics applied to other financial activity types can be equally applied to capital market activities. For example, whether an FI is lending to a company, investing in the equity of the company, providing insurance services to the company, or underwriting the issuance of new corporate bonds for the company, the climate performance of the company should be measured in the same manner.

Other notable metric development and usage

As part of the literature review, a number of other works have been reviewed for inclusion in the landscape. This includes the considerable development around the concept of "portfolio

alignment", and in particular implied temperature rise metrics (GFANZ, 2022; ILB, 2020, 2024). This work established a number of portfolio alignment metrics as well as investigating different design choices for the underlying methodologies of implied temperature rise metrics. The scope of this paper is limited to assessing the usefulness of the aggregate metric for target setting and does not address the various underlying design choices inherent in creating implied temperature rise (ITR) metrics.

National level recommendations such as the Swiss climate scores have been reviewed (Swiss Confederation, 2022) which recommend six key metrics for disclosure, including impact-based metrics and outcome-based metrics.

4.2. Metric landscape

Table 3 provides an overview of a range of portfolio-level metrics that are commonly applied by FIs. These metrics are categorized into different metric types, and accompanied by their respective definition and calculation methodology. Table 3 is not designed to be an exhaustive list, but to represent the main types of metrics that are commonly applied by financial institutions. It is also recognized that many of these metrics have a wide range of underlying design possibilities such as ITRs.

Table 3: Portfolio level metrics for financial institutions

Metric type	Metric	Units	Definition	Calculation methodology[5]
Impact	Absolute emissions	Tonnes CO_2e	Measures the total annualized absolute GHG emissions of a portfolio.	Sum of the scope 1 and 2 GHG emissions of counterparties in the portfolio weighted by the FI's ownership share; the metric can also measure the scope 1+2+3 GHG emissions
	Weighted average carbon intensity	Tonnes CO_2e/$ revenue	Measures a portfolio total annualized absolute emissions per unit of revenue generated by portfolio counterparties	Sum of portfolio counterparties' emissions intensity (CO_2e/$ revenue) weighted by the FI's ownership share
Outcome	SBT portfolio coverage	Percent companies with SBTs	Measures the share of entities with approved SBTs, relative to all entities in the portfolio	Sum of the $ exposure to SBTi approved entities divided by the total $ exposure to all entities in the portfolio
	Implied temperature rise	Weighted average °C	Measures the weighted average temperature score of the portfolio based on forward-looking projections for all entities	Average of portfolio counterparties temperature alignment weighted by the FI's ownership share
	Taxonomy alignment	Percentage share	Measures the share of taxonomy-aligned activities, relative to all activities in the	Sum of the $ exposure to taxonomy-aligned activities divided by the total $ exposure to all activities in the

[5] For the purpose of this table, the range of different aggregation and ownership approaches is not specified. "Ownership" can take many different forms from simple portfolio weight to an emissions owned approach such as that recommended by PCAF.

			portfolio	portfolio
	Climate-aligned financing	Percentage share	Measures the share of aligned counterparties, relative to all counterparties in the portfolio	Sum of the $ exposure to climate-aligned counterparties divided by the total $ exposure to all counterparties in the portfolio
Process	Number of engagements	Absolute number of interventions	Measures the number of annualized interventions with portfolio counterparties	Sum of intervention actions
	Finance committed	Absolute $	Measures the total annualized $ amount committed to specific activities in the portfolio, e.g. climate solutions	Sum of the $ of committed exposure to all targeted activities

In addition to the portfolio-level metrics, a number of sector-level metrics are used by FIs to measure climate attributes at the sector level. Table 4 displays an overview of these metrics, classified by metric type. As with Table 3, it is not designed to be an exhaustive list, but to represent the main types of metrics that are commonly applied by financial institutions.

Table 4: Sector Level Metrics

Metric type	Metric	Units	Sectors	Definition	Calculation methodology[6]
Impact	Sector absolute emissions	Tonnes CO_2e	All sectors	Measures the total annualized absolute GHG emissions of a sector	Sum of the proportionate GHG emissions of counterparties in the sector based on FI's ownership share
	Weighted average physical intensity	tCO_2/ output	• Power generation • Steel • Cement • Shipping • Automotive • Pulp and paper • Buildings • Oil and gas	Measures the total annualized absolute GHG emissions of a sector exposure per unit of homogenous physical output common to the sector	Sum of portfolio counterparties' physical emissions intensity (CO_2e/unit) multiplied by the counterparty's weight in the portfolio
Outcome	Technology share	Percent aligned capacity	• Power generation • Automotive	Measures the relative share of a technology, or technology type relative to all other technologies in the portfolio	Sum of the $ exposure to a specific technology type divided by the total $ exposure to all technology types in a given sector sample
	Production - Volume Trajectory	Total units produced	• Power generation • Automotive	Measures the total absolute production of a given unit	Sum of targeted units produced

[6] For the purpose of this table, the range of different aggregation and ownership approaches is not specified. "Ownership" can take many different forms from simple portfolio weight to an emissions owned approach such as that recommended by PCAF.

	Green : brown ratio	Ratio	• Oil and gas • Power sector	Measures the ratio of financing directed towards fossil fuels “brown” compared to “green” zero carbon energy sources	Ratio of the total financial exposure to brown to the total financial exposure to green
Process	Sector financing trend	$ financing exposure	Fossil fuels, e.g. coal, oil, gas	Measures the total annualized $ exposure to a sector	Sum of the $ exposure to all counterparties in the sector

4.3. Method landscape

A target-setting method is a mathematical formula or algorithm that can be used to determine the benchmark, threshold, or desired performance of a counterparty using a relevant metric. The design of the method is therefore intimately linked to the choice of metric as well as the availability of climate scenarios for tracking the metric against global climate goals. Four elements, first developed by Faria and Labutong (2019) and further refined by Chang et al. (2022) are generally considered in a target-setting method, summarized in Table 5.

Table 5: Key elements of methods for target setting

Method elements	Description
Input variables	Information financial institutions must provide for their targets to be calculated. This can include the value of outstanding financial instruments, as well as attributes of current portfolio holdings, e.g. company emissions, company targets, etc.
Parameters	The targeted temperature increase above pre-industrial levels and the global or sector benchmark chosen to define target ambition.
Model	Allocation principles which the method uses to align the portfolio, and the allocation formula used to calculate targets from input variables and parameters.
Outputs	The features that define how a target is expressed as a result of all the information above.

These elements were originally designed for impact-based metrics, where the target-setting method uses company variables to define future benchmarks relative to cross sector or sector-specific emission pathways. This characterization approach is not fully applicable to financial institutions, given the large amount of outcome-based metrics that FIs use to track the climate performance of their portfolios. Table 6 summarizes the approaches and the theory behind different methods and how they are applied to a range of metrics.

Target-setting methods were originally designed to allocate global carbon budgets to sectors and individual companies to enable science-based targets to be established. This carbon budget allocation logic is only applicable to scope 1 GHG emissions, since scope 2 and scope 3 are double counted across multiple entities. However the methods have provided useful guides for creating science-based targets for scopes 2 and 3. For FI's portfolio emissions, which are a component of scope 3, the conservation of a specific budget of portfolio emissions is not applicable, since the FI's emissions are determined based on their exposure to other sources of emissions, rather than to the FI generating those emissions. A goal of this work is to assess whether these methods are suitable and still enable credible targets to be established at the portfolio level.

Table 6: Description and application of target-setting methods

Alignment demonstrated via…	Applicable metrics	Overview of methods / approaches
Alignment with global emission pathways	• Absolute emissions • Emissions intensity	Absolute contraction approach (ACA) and equivalents, where portfolio absolute emissions are expected to contract (reduce) at the constant global annual reduction rate based on maintaining the target temperature limit. Contraction-based methods can be applied by multiplying the annual reduction rate by the total portfolio emissions to determine the annual reduction target. The annual reduction rate can be found in the cross-sector pathways documentation.
Alignment with sector emission pathways	• Physical intensity • Technology share • Production volume	Convergence-based models such as sectoral decarbonization approach (SDA), or linear intercept approach (LIA). For SDA, FIs derive their science-based emission reduction targets based on their financing of total sector activity and their carbon intensity relative to the sector's intensity in the base year. Convergence is set for 2050. Linear-intercept are a simpler version of SDA, where the target is defined based on reaching sector intensity value in the desired target year. The LIA is therefore base-year intensity independent.
Alignment with milestones / tipping point theories	• All other outcome metrics, e.g. ITR, % alignment, etc.	The interim performance levels for certain metrics cannot be derived directly from science, and hence methods for broader climate alignment are defined by tipping point or S-curve type growth models. These methods therefore are not "science-based", but are instead informed by driving change in the real economy.

Table 7 summarizes the key methods that are used for different metric types and how they are typically used to express alignment with global climate goals and subsequently define ambitious targets for the portfolio.

Table 7: Characterization of methods

		Method Type			
		Linear intercept approach (LIA)	Sectoral decarbonization approach (SDA)	Absolute contraction approach (ACA)	Milestone approach
Input variables	Metric(s)	Physical intensity Technology share	Physical intensity metrics	Absolute portfolio GHGs,	Outcome-based metrics, e.g., %

		Production volume		Economic emissions intensity	SBT portfolio coverage
	Reference scenario	Scenario agnostic	Scenario agnostic	Scenario agnostic	Method does not use climate scenarios
	Granularity	Sector	Sector	Cross-sector	Cross-sector
	Portfolio inputs / projections	Base year, target year, target value	Base year, target year, sector classification, projected change in output	Base year, target year, target value (0 or residual value)	Base year, target year, target value
Parameters	Temperature alignment	1.5°C	1.5°C	1.5°C	N/A
	Level of temperature alignment	Temperature alignment is defined at sector level	Temperature alignment is defined at sector level	Temperature alignment is defined at portfolio level	Temperature alignment is defined at counterparty level
Model	Allocation types	Linear intercept	Convergence	Contraction	N/A
	Timeframe	Any	Mid / long	Mid / long	Mid / long
Outputs	How the target is expressed	% reduction or % increase from base year to target year	% reduction from base year to target year	% reduction from base year to target year	% increase from base year to target year

5. ASSESSMENT OF TARGET-SETTING APPROACHES FOR FINANCIAL INSTITUTIONS

The first two research questions of this document address the selection of suitable climate metrics and target-setting methods for the financial sector. To answer this question, the metrics and methods are assessed for consistency with the SBTi Principles and associated assessment criteria.

5.1. Metric assessment

Four of the SBTi Principles for the development of standards and technical foundations were selected as being most relevant for metric assessment. Two principles, scientific rigor and responsibility, are considered not directly relevant to metrics at this level of granularity. Consistency with scientific rigor should be assessed in further detail when determining the types of data sources and assumptions used to define alignment. Scientific rigor and responsibility principles are also applied when evaluating the methods used to determine future benchmarks for the metric.

Table 8: Assessment criteria for metrics developed for each principle

Principle	Criteria for assessment
Ambitious	a) The degree to which the metric reflects the delivery of real world emissions reductions, i.e. represent over time the actual delivery of reductions in the real economy and not just stated ambition b) The degree to which the metric addresses both “transition” and “green” finance to ensure that FIs are incentivized to support the activities’ needs for a net-zero economy
Transparency	a) The degree to which the metric can be replicated, based on publicly available documentation required for its calculation b) The degree to which the metric is easily understood by a wide range of audiences, and cannot be easily misinterpreted
Robust	a) The degree to which changes to metric value reflect improved performance and avoid volatility from attributing / normalizing emissions based on non-physical attributes b) The degree to which the metric can be applied across a range of financial activities and sectors
Actionable	a) The degree to which the metric is easily measurable based on widely available data, relying on a limited set of assumptions b) The degree to which the metric can detect change resulting from an intervention

Fitting these assessment criteria to the decision matrix enables a high/medium/low assessment to be undertaken. Table 9 displays the scoring rubric for each assessment criteria.

Table 9: Scoring rubric per criteria

Principle	Criteria	High	Medium	Low
Ambition	Delivery consistent with 1.5°C	Leads to outcomes that are consistent with a maximum temperature rise of 1.5°C above pre-industrial levels, with low or no overshoot	Leads to outcomes that are consistent with a maximum temperature rise of 1.5°C above pre-industrial levels, with low or no overshoot under certain conditions	Leads to outcomes that are not consistent with a maximum temperature rise of 1.5°C above pre-industrial levels, with low or no overshoot
	Both transition and green	Incentivizes the financing of both transition and green, and both types can be measured AND does not incentivize divestment	May be able to differentiate between "transition" and "green" under certain conditions AND does not incentivize divestment	Disincentivizes financing activities that are required for transition (transition or green) OR incentivizes divestment
Transparency	Easily replicated with all assumptions public	Results can be exactly replicated with all inputs and assumptions publicly available	Results can be approximately replicated with some of the inputs and assumptions publicly available	Inputs and assumptions are not available
	Easily understood and granular	Results can be easily interpreted with clear scales on the range of possible values and their meaning	Results can be somewhat understood if proper documentation is provided to explain all terms	Results are difficult to understand given that the metric is not widely applied or its scales are non-linear
Robust	Limited volatility over time	Avoids volatility from non-climate-related factors	Somewhat avoids volatility from non-climate-related factors	Is volatile to changes due to non-climate-related factors
	Scalable and widely applicable across financial activities	Metric can be used to measure a range of sectors, asset classes, and underlying counterparties	Metric is a applicable to only a limited set of asset classes or sectors	Metric is limited to one specific financial activity or sector
Actionable	Objective	The metric is easily quantifiable and measurable with minimal subjectivity	The metric is somewhat measurable with partial subjectivity	The measurement of the metric is highly subjective
	Responsive to counterparty actions	Metric is responsive to changes made by the counterparty	Metric is somewhat responsive to changes made by the counterparty	Metric is unresponsive to changes made by the counterparty

The metrics were assessed for consistency with the principles using the criteria defined above. A summary of the results is provided in Table 10. An expanded version of the table can be found in Annex 1.

Table 10 : Assessment results for metrics

Metric type	Metric	Ambition		Transparency		Robust		Actionable	
		Linked to delivery of emissions	Transition and green	Easy to replicate	Easy to understand	Limited volatility	Scalable/ widely applicable	Easy to measure w/ limited assumptions	Responsive to counterparty actions
Impact	Absolute emissions	Low	Medium	High	High	Low	High	Medium	Medium
	Revenue weighted carbon intensity	Low	Medium	High	High	Medium	Medium	Medium	Medium
	Weighted average physical intensity	Medium	Medium	High	High	High	Medium	Medium	High
Outcome	Technology share	Medium	Medium	High	High	High	High	High	Medium
	Production – volume	Low	Medium	High	Medium	High	Medium	Low	High
	% SBT portfolio coverage	Medium	Low	High	High	High	Medium	High	High
	Implied temperature rise	Medium	Medium[7]	Low	Medium	High	High	Low	Medium
	% Taxonomy alignment	Low	Medium	Medium	Medium	High	Medium	Low	Medium
	% Climate-aligned financing	Medium	High	Medium	Medium	High	High	Medium	Medium
	Green : brown financing ratio	Medium	Medium	High	High	High	Medium	Medium	Medium
Process	Number of engagements	Low	Low	Medium	High	High	Medium	High	High
	Finance committed	Low	Medium	High	Medium	High	High	Medium	High
	Sector financing trend	Low	Low	Medium	Medium	High	High	Medium	Medium

5.2. Metric assessment: results and justification

A more detailed overview of the assessment is outlined in Annex 2. No metric by itself was scored “high” in all criteria, meaning that multiple metrics may be needed to have an accurate picture of an FI’s climate performance. For each of the four principles, a number of key issues emerged when evaluating the metrics.

Ambition: most outcome metrics did not score well under either criteria of the ambition

[7] This cannot be evaluated without better investigating the specific underlying methodology. Many public methodologies and assessments highlight the shortcomings of ITRs for capturing climate solutions.

principle, given that these metrics can be difficult to link to the delivery of actual emission reductions. Impact metrics are primarily a measure of exposure to GHG emissions, and reflect the current status, not the forward-looking intentions of counterparties. As such, emissions-based metrics are not directly tied to the delivery of reductions in the real economy. Fraser and Fiedler (2023) showed that given the ability to change exposure, financed emissions metrics can be reduced at the aggregate level despite an increase in counterparties' real world emissions.

Focusing on impact metrics such as absolute portfolio emissions or portfolio emissions intensity offers little incentive for FIs that wish to finance high-emitting activities which are transitioning. This potential conflict has been noted extensively by GFANZ (2023) and is leading to more of a focus on outcome metrics linked to transition finance, and being recommended as part of FI target-setting frameworks (IIGCC 2024a).

Outcome metrics in general do not properly capture “green” financing and hence may not be best to steer financing towards low-carbon climate solutions. Maturity scale climate alignment metrics were the only metric that actually enabled this given their inherent flexibility to incorporate different alignment data sources. Certain metrics like implied temperature rise can theoretically incorporate both transition and green financing, but based on the common practice design choices, providers of climate solutions may have unfavorable alignment outcomes with implied temperature rise metrics (GFANZ, 2022). This is the same issue for portfolio coverage, which only reflects ambition, and does not easily reflect other transitioning indicators. Applied on its own, it does not capture low carbon “green financing”, and is limited to just the ambition of counterparties.

Transparency: impact metrics scored highly under the transparency criteria given their wide usage and acceptance in both target-setting frameworks and regulations. Outcome-based metrics however might not always be easily understood and interpreted. Given the range of options for determining alignment of counterparties, the term is ambiguous and leads to many different interpretations of what the metric is actually measuring (ILB, 2024). This issue is particularly important for maturity scale alignment metrics which by design can incorporate a broader set of inputs to measure the overall percentage share of financing that is aligned. Chmel et al. (2023) has shown, that like many ESG ratings, there can be a notable lack of agreement between many providers of counterparty level alignment scores. Outcome metrics in general are easy to communicate at the portfolio level, with many being a simple percentage share measurement. This means clear high/low boundaries that can be easily interpreted by a wide range of stakeholders. Weighted average temperature metrics, however, scored poorly here given the difficulty in interpreting the non-linear scale of the metric, e.g. a 3°C portfolio is more than twice as bad for the climate than a 1.5°C portfolio. The non-linearity of degree Celsius metrics means they are particularly difficult to benchmark and communicate. Schwegler et al. (2022) highlights the disincentives inherent in implied temperature rise metrics given their inability to reflect the distance from the net-zero end-state, given their forward-looking nature. In these cases, both inherently green companies and large emitting companies with credible targets would receive the same outcome, which does not help the user determine which activity is operating closer to a net-zero performance level. Ensuring clear definitions and transparent data sources is essential for outcome metrics to be able to be used effectively.

For sector-specific outcome metrics, technology share metrics are generally easy to understand and apply, compared to others such as production volume. These metrics require less data and forward-looking assumptions compared to physical intensity metrics. This extends to green:brown financing ratios, which generally scored well across all principles. Production volume metrics are very rarely used by FIs as target-setting metrics, and are generally considered more difficult to understand and link to climate scenarios.

Robustness: recent assessments of portfolio emissions metrics have highlighted the volatility associated with portfolio emissions metrics and questioned their usefulness for target-setting (De Nederlandsche Bank, 2021; Fraser and Fiedler, 2023; Granoff and Lee, 2024). Portfolio emissions metrics typically rely on a calculation of ownership share, using market value metrics, like enterprise value including cash. This reliance on economic values, which may change frequently has been shown to exacerbate the effect of volatility which reduces the utility of the metric for target-setting and steering purposes (Granoff and Lee, 2024).

Actionability: nearly all metrics scored poorly in terms of actionability, which is primarily due to the following factors:

- Metrics typically rely on large amounts of counterparty level data, particularly outcome metrics such as implied temperature rise and taxonomy alignment. Implied temperature rise also requires assumptions for all counterparties in the portfolio, both in terms of forward-looking plans, and some form of business as usual projections for all other companies who have not disclosed public plans or targets. Other outcome metrics using a percentage share approach, are not under the same burden of determining business as usual or other default type scores for the counterparties on which they have no useful information.
- The data required by these metrics are often based on secondary sources, where the resulting interventions by the FI may not be measurable in the near-term. The challenges with data quality also make these metrics less actionable for target setting (Tang et al. 2023). Similar conclusions were drawn by IIGCC when addressing the issue of how scope 3 of portfolio companies should be incorporated into the portfolio emissions metric (IIGCC, 2024b) with the aggregation of multiple companies' scope 3 at the portfolio level leading to misleading measures of an FI's true GHG impact.

5.3. Method assessment

For the assessment of the methods, all six principles were deemed relevant. Table 11 outlines the assessment criteria used for the evaluation of methods against the principles.

Table 11: Assessment criteria for target-setting methods

Principle	Criteria for assessment
Ambition	The degree to which the method enables benchmarks consistent with limiting warming to 1.5°C
Scientific rigor	The degree to which the target-setting method has undergone some form of expert consultation, road-testing and/or peer review
Transparency	The degree to which the methods are easily understood by a wide range of audiences, providing full disclosure of the assumptions and calculation processes
Robust	The degree to which the method is sensitive to assumptions and can be applied with different types of company variables
Actionable	The degree to which input variables required by the method are widely available and do not require activity projections beyond business planning timeframes
Responsible	The degree to which the method reflects the historic and current performance of the metric and enables future ambition thresholds to be calculated in a manner that strives for equity

These criteria are then used to develop a scoring rubric to enable the transparent assessment of each method (Table 12).

Table 12: Methods scoring rubric applied for each criteria

Principle	Criteria	High	Medium	Low
Ambition	**1.5°C consistent benchmarks**	Enables outcomes that are consistent with a maximum temperature rise of 1.5°C above pre-industrial levels, with low or no overshoot	Enables outcomes that are consistent with a maximum temperature rise of 1.5°C above pre-industrial levels, with low or no overshoot under certain conditions	Does not enable outcomes that are not consistent with a maximum temperature rise of 1.5°C above pre-industrial levels, with low or no overshoot
Scientific rigor	**Method uses latest science**	Peer reviewed AND has undergone a public consultation involving independent stakeholders	Peer reviewed OR has undergone a public consultation involving independent stakeholders	Has not been peer reviewed NOR has undergone a public consultation
Transparency	**Easily replicated with all documentation being public**	Results can be exactly replicated with all assumptions, calculations, and input variables publicly available	Results can be exactly replicated with some assumptions, calculations, and input variables publicly available	Input variables, calculations, and/or assumptions are not available
Robust	**Robust over time with limited sensitivity**	Methods can be applied to most sectors, scenarios, and metric types within its intended use case, AND Is not sensitive to edge cases	Methods can be applied to most sectors, scenarios, and metric types within its intended use case, AND May be sensitive to edge cases	Method has very limited application and/or is very sensitive to edge cases
Actionable	**Input variables are widely available**	The input variable(s) required by the method are widely available AND The target values are clearly linked to the output	The input variable(s) required by the method are available AND/OR The target values are partially linked to the output	The input variable(s) required by the method are unavailable AND/OR The target values are not well linked to the output
Responsible	**Reflects starting point and capacity**	Performance benchmarks are dependent on the starting point and capacity to transition	Performance benchmarks are dependent on the starting point or capacity	Performance benchmarks are independent of the starting point and capacity to transition

Three methods used with metrics for portfolio level target-setting are assessed for consistency with the principles, as highlighted in Table 13. A full overview is described in Annex 2.

Table 13: Scoring rubric applied to each criteria

	Ambition	Scientific rigor	Transparency	Robust	Actionable	Responsible
Method	1.5°C benchmarks	Credible underlying methodology	Transparent documentation	Widely applicable and not sensitive	Limited inputs	Reflects starting points and capacity
ACA	High	High	High	High	High	Low
SDA	High	High	High	Medium	Medium	Medium
LIA	High	Medium	High[8]	High	High	Medium
Milestone	Low	Medium	High	High	High	Medium

5.4. Method assessment: results and justification

[8] See Annex 1

As with the metric assessment, no method scores a high rating in every criteria. For each of the metric types, a number of trends emerged when evaluating the methods.

For absolute emissions-based metrics, absolute contraction remains a credible method as it is designed to ensure alignment with global 1.5°C cross-sector emissions pathways. As is the case when applied to corporate scope 1+2 emissions, the grandfathering allocation principle means that the ambition rate is applied the same to all portfolios, regardless of their starting position or previous reductions.

For sector-specific impact and outcome metrics, both SDA and LIA score highly in many categories. The SDA does rely on more inputs and assumptions than the LIA method. While the SDA is more widely applied, the LIA is seen as more actionable and more closely aligned with how many FIs use sector-based convergence approaches. The review found that most FIs apply sector-based approaches using a linear-intensity approach rather than a stricter SDA convergence approach. Approaches to LIA have already been applied in specific sector guidelines such as for shipping with the Poseidon Principles (Poseidon Principles, 2024). The LIA does not require any forward-looking projections of activity (to estimate future market share) that FIs would have to obtain from underlying counterparties.

As the LIA method is first described in this paper, it is the least trialed method, hence may benefit from rigorous pilot testing. Fewer assumptions increase the ease of calculation in comparison to the SDA, increasing robustness. However it still receives a medium assessment for robustness as the simplicity means that there may be inconsistencies in edge cases that need to be further tested.

The milestone approach represents a method exclusively for outcome metrics that cannot be linked directly to climate pathways. Science-based benchmarks only occur at the counterparty level, and not at the portfolio level for outcome-based metrics. Therefore near-term targets on percentage portfolio alignment are not inherently science-based and should instead reflect the major milestones required in the economy for the largest source of global emissions to transition as soon as possible.

6. DEFINITION OF ALIGNMENT FOR TARGET-SETTING

The third research question focuses on how to operationalize the concept of alignment when applied to both impact- and outcome-based metrics.

6.1. Defining alignment using impact and outcome metrics

The literature review demonstrated that there is not yet clear industry consensus on a definition of alignment with a temperature outcome for financial institutions. To better understand and define alignment, it must be first split into the different levels where it is usually applied (Table 14).

Outcome-based metrics at the portfolio level require an assessment of alignment of all counterparties. For each type of counterparty (entity and activity), determining alignment is dependent on the amount of information available to the FI, and the type of sector the entity/activity is operating in. For example, the alignment of a company in the power sector could be based on multiple approaches such as physical intensity, technology share, or forward-looking targets. However, alignment of a company operating in a sector that does not have clearly defined activity pathways must be assessed via the stated ambition and progress of the company against appropriate 1.5°C emissions pathways.

Table 14: Alignment applications at different levels of aggregation

Alignment concept	Definition	Application to impact and outcome metrics
Portfolio alignment	Measures the *aggregate* alignment of all counterparties in a given portfolio.	Impact metric: alignment of total absolute emissions/emissions intensity relative to benchmark. Outcome metric: this alignment may be communicated as a share of aligned counterparties (90% of financing is aligned) or a weighted average alignment (portfolio is aligned to 2.5°C outcome).
Sector alignment	Measures the *aggregate* alignment of all counterparties in a given sector.	Impact metric: alignment of total absolute emissions/emissions intensity relative to benchmark. The alignment may be communicated as a share of aligned counterparties/technologies (90% clients below 1.5°C physical intensity threshold) or a weighted average alignment (weighted average intensity is X% below the 1.5°C threshold). Outcome metric: this alignment may be communicated as a share of aligned counterparties/technologies (90% of financing is to zero emission vehicle production) or a weighted average alignment (weighted average financing to the power sector is X tCO_2e/MWh).
Counterparty alignment	Measures the *individual* alignment at the counterparty level (entity or activity).	Alignment is defined at the entity or an activity level, using impact and outcome-based metrics. Entity: alignment vs. long-term performance levels can be represented in impact metrics, e.g. comparing the emissions performance of the entity vs. long-term net-zero value chain emissions goal. Over the near-term, alignment defined using outcome metrics, e.g.

		entity has 1.5°C aligned ambition. Outcome metrics at the counterparty level measure the extent to which an organization's strategies, operations, and business model are in line with global climate goals. Activity level: both impact (e.g. physical intensity) and outcome (e.g. taxonomy alignment) can be used to determine alignment relative to a well-defined activity specific decarbonization pathway or climate taxonomy.

6.2. Counterparty alignment

6.2.1. Activity-level alignment

Alignment at the activity level is dependent on the type of metric and the availability of an activity-specific benchmark. For impact metrics such as physical intensity, and outcome metrics such as technology share, alignment is defined in relation to its over/under performance against a specific benchmark. Figure 4 provides a graphical representation of what this looks like for a physical intensity (Figure 4a) and technology share (Figure 4b). While an activity may be aligned today if it is below the benchmark value in the reporting year, it does not imply that it is aligned in future years.

An activity itself cannot declare ambition, in the same way as an entity, and hence the forward-looking nature of outcome metrics must be established during the target-setting stage. For example, for an activity with a physical intensity below the benchmark today, a use of proceeds specific financial instrument would only be considered “aligned” if it supported the activity to improve its performance to at least the level required by the sector benchmark by the time of maturity.

Figure 4a: Activity-level alignment over time vs. benchmark for physical intensity metrics

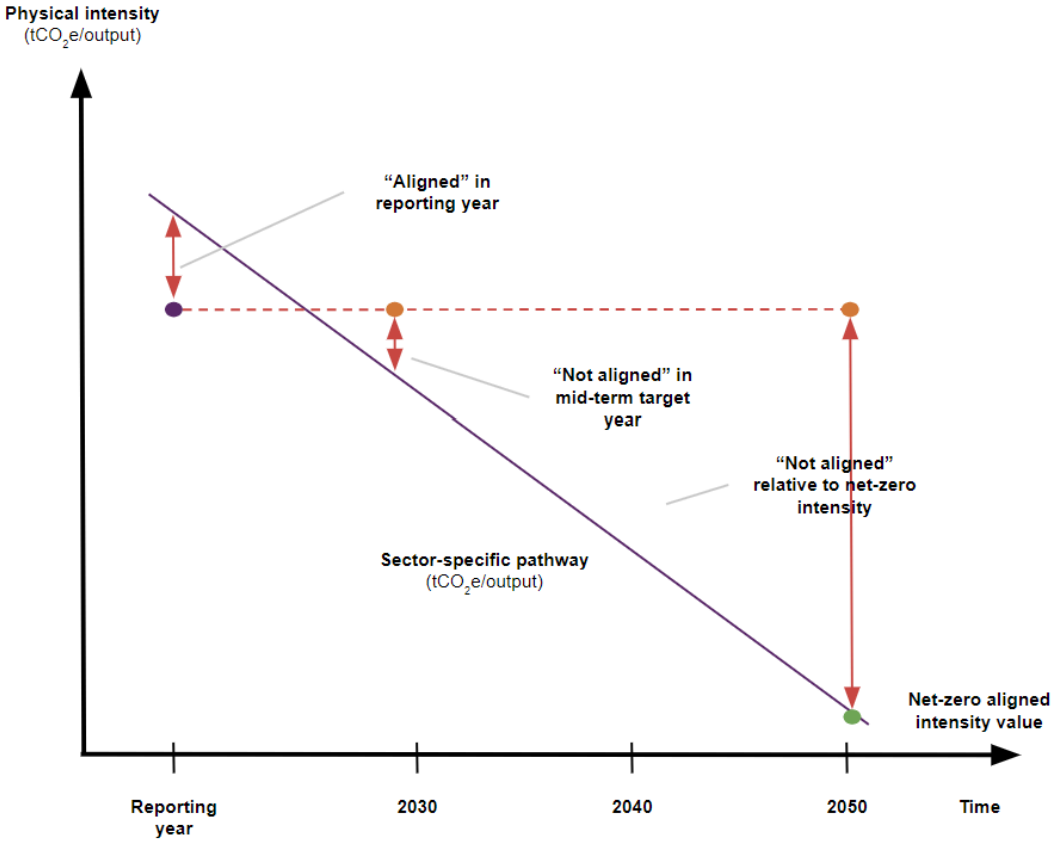
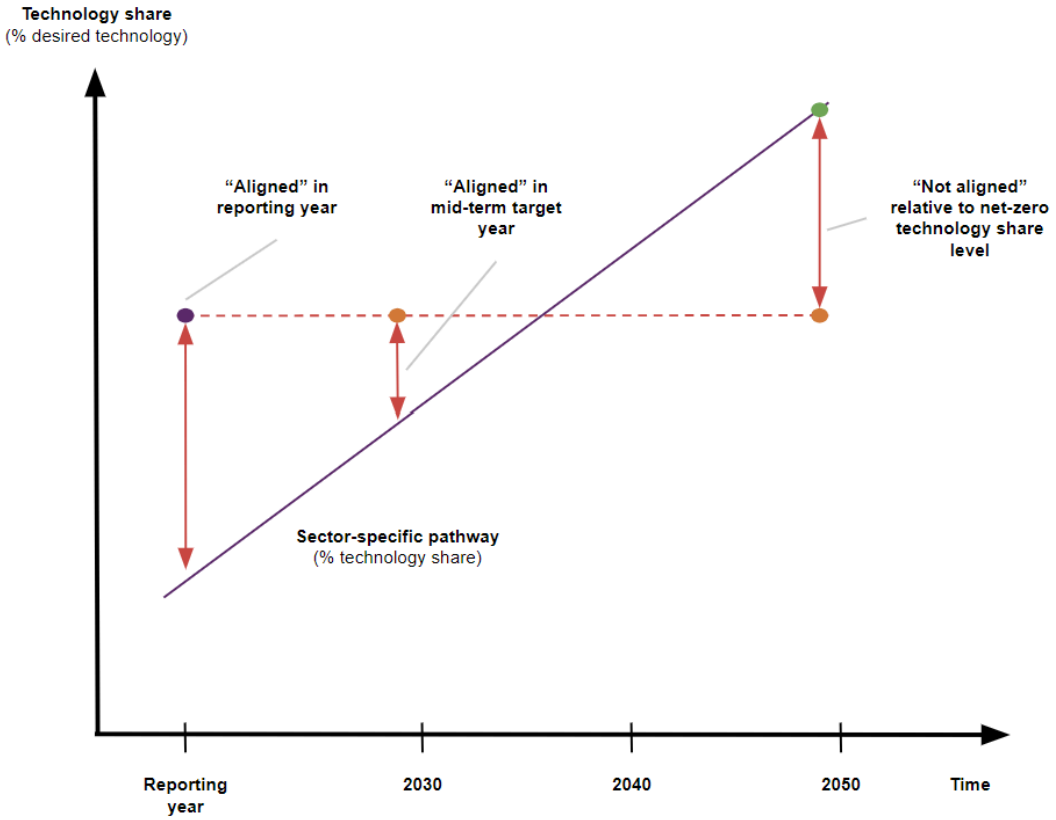


Figure 4b: Activity-level alignment over time vs. benchmark for technology share



For outcome-based metrics where there is not a sector or activity pathway, alignment must be defined differently. In the case of activities that are considered climate solutions and listed in climate taxonomies, alignment is simply defined in terms of a binary consideration, i.e. the activity meets the specific criteria required for its inclusion in the taxonomy.

6.2.2. Entity-level alignment

For the purposes of this synthesis paper, the definition of counterparty alignment must be further specified based on the following two elements:

a) **The maturity of the alignment**: entities can be aligned based on their stated *ambition* (e.g. with a climate target or public plan) or aligned based on their *progress* over time against their stated ambition (i.e. on track with their ambition). The ultimate alignment measure of the counterparty is to reach a net-zero achieved status, where the entity has reduced its value chain emissions consistent with a 1.5°C pathway to reach the required net-zero emissions performance level.
b) **Alignment with a specific climate goal**: the ambition or the progress must be linked to a specific climate goal, e.g. 1.5°C low/no overshoot pathway to reach net-zero emissions by 2050. Any metric claiming to represent the alignment of an entity must therefore address its maturity (ambition vs. progress) and the temperature outcome with which it is aligning.

Outcome-based metrics used at the entity level should specify whether they are considering only stated ambition, or also incorporating actual progress into their alignment scores. For example, certain implied temperature rating providers may only consider stated ambition to derive their alignment score, whereas others may include progress against that stated

ambition to revise the alignment score. Others such as GFANZ (2022) and ILB (2021) and ILB (2024) have provided much more detailed assessments of the design choices and trade-offs for defining entity level alignment.

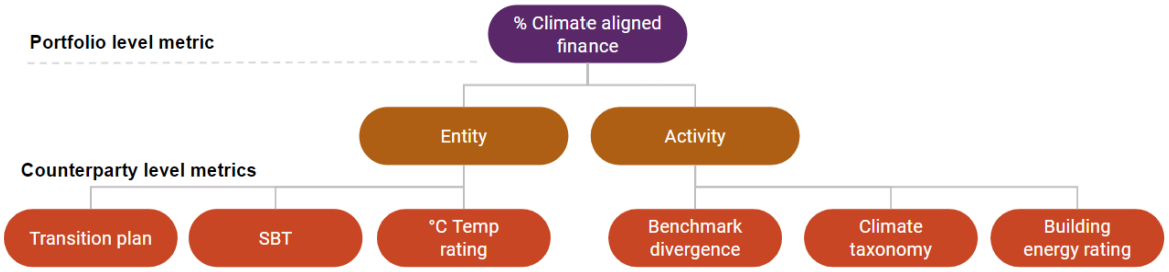
6.3. Selecting metrics at different levels

6.3.1. Portfolio level

The landscape in Section 4 presents a multitude of outcome metrics that could be used to measure the alignment of a financial portfolio. Maturity scale climate alignment approaches that capture both "transition" and "green" are key to ensuring that the financing supports the activities required for the transition. The limitations of many current outcome metrics are in part due to their inability to recognize both transitioning entities as well as entities already operating at net-zero emissions. This is the case for both portfolio coverage and implied temperature rise metrics. Likewise, for technology/taxonomy metrics, these typically provide the opposite view and only consider the "green" aspect and not transitioning entities.

To enable the establishment of a consistent and credible outcome metric, the paper proposes a **percentage of climate-aligned finance** metric, that allows the aggregation of the multiple measurements at the counterparty level, which may be derived from different data sources. Figure 5 illustrates an example of what this might look like.

Figure 5: Target-setting metric and examples of data sources



Target-setting metric: an outcome-based metric presented as the share of climate-aligned finance (percentage terms). This represents the share of the portfolio that is invested in entities and activities that are considered aligning. This is calculated by assessing whether an activity or entity is aligned based on the use of one or more of the data sources.

Data sources: depending on the types of counterparties in the portfolio, a range of underlying data sources may be required. For simple equity portfolios where the counterparties are all entities, an SBT status may suffice as a measure of counterparty alignment. For more diverse portfolios with multiple asset classes, other types of data sources may be necessary, e.g. use of a climate taxonomy for use of proceeds project financing.

To transform these definitions into quantifiable units, alignment can be represented with the unit of percentage of aligned financing, using appropriate financial metrics for the financial activity, e.g. assets under management (AUM) for asset management portfolios, and

outstanding loan amount for lending. The definition of percentage of climate-aligned finance can be calculated with the following equation:

Equation 3: Percentage of climate-aligned finance

$$\%\ climate\ -\ aligned\ finance\ = \frac{\$\ Transitioning\ +\ \$\ Net{-}Zero}{\$\ Total}\ X\ 100$$

Where:

- $ Transitioning = financial flows within a given portfolio considered transitioning, i.e. 1.5°C aligned ambition and/or progress over time
- $ Net Zero = financial flows within a given portfolio considered net-zero achieved, i.e. already operating at the performance level required in the net-zero economy
- $ Total = total financial flows within a given portfolio

6.3.2. Counterparty level

Tracking a climate-aligned outcome metric at the portfolio level requires a clear set of eligible alignment measurements at the counterparty level. Each specific metric type for counterparty alignment will have its own means of determining whether a given counterparty is in fact "transitioning". For example, an FI may use an ITR at the counterparty level for an equity investment and base its alignment on whether the output is 1.5°C. For activity level investments like real estate, the FI may use a physical intensity metric and compare it to a sector benchmark to determine its alignment. Table 15 provides an overview of common alignment metrics at the entity and activity level, and the outcomes needed for them to be classified as transitioning.

Table 15: Examples of counterparty-level alignment metrics

Counterparty type	Metric type	Ambition / Progress	Alignment status based on…
Entity	Technology share	Progress	Technology share exceeds 1.5°C-aligned benchmark
	SBTi status	Ambition	Target validated by SBTi
	Transition plan status	Ambition	Transition plan validated by third party
	Implied temperature rise	Ambition	Entity level ITR is ≤1.5°C
	Implied temperature rise with progress check	Progress	Entity level ITR is ≤1.5°C
	Taxonomy alignment	Ambition / Progress	> 90% of entity revenue from taxonomy-aligned activities
Activity (new)	Physical intensity	Progress	Physical intensity is at end-point of 1.5°C benchmark (required performance value in 2050)
Activity (existing)	Physical intensity	Progress	Physical intensity is better than sector benchmark

Counterparty type	Metric type	Ambition / Progress	Alignment status based on…
Activity (new or existing)	Taxonomy alignment	Progress	Activity is listed in the taxonomy

6.3.3. Specific alignment applications (proxy outcome metrics)

Operationalizing an outcome-based metric at the portfolio level also requires all underlying counterparties to be assessed as either “transitioning” or "net-zero achieved”. Establishing consistent and credible outcome metrics for certain types of counterparties can be particularly challenging. This section reviews a number of options for specific counterparty types.

6.3.3.1. Small- and medium-sized enterprises (SMEs)

Outcome metrics for establishing the alignment of SMEs can be more challenging than for larger corporates due to lack of clear data, and the relevance of the transition to certain SMEs. Fewer resources, lack of access to information and expertise, tighter financial margins and limited influence to drive changes in supply change also mean that many SMEs may not disclose relevant information (GHG inventories, decarbonization targets, or other climate actions) needed by an FI to determine their alignment. Two options exist for how to address this lack of information:

- Establish a proxy metric for SMEs that capture those that are demonstrating climate ambition. Some examples are displayed in Table 16.
- Delay the inclusion of SMEs into the calculation of alignment, and use the near term to encourage and assist SMEs in taking the first steps.

Table 16: Proxy outcome metrics for SMEs

Metric	Advantages	Disadvantages
100% renewable energy supply	Simple action for many SMEs to take	Does not address scope 1 or the supply chain
SMEs with public GHG inventory/estimation	Initial step for SMEs to understand emission sources	Doesn’t represent any decarbonization activity
SMEs with any form of public climate targets	Aligned with corporate metrics indicative of SME engagement	May not be realistic for all SMEs
Taxonomy alignment data of SMEs	Incentives tracking SMEs providing climate solutions	The data is not readily available
SME-specific nonfinancial data collected, e.g. FI issued climate surveys	Direct scalable action that a FI can take	Doesn’t represent any immediate decarbonization activity

In addition to establishing proxy outcome metrics, FIs may be better placed to establish policies for increased engagement and data collection from SMEs. Policies could and should encourage improved data collection, financial instruments targeting climate action for SMEs, education programs for SMEs, and provision of guidance linking SMEs to existing resources for their specific sector.

The challenge is clear in defining the correct alignment metric for an SME. Requiring a strict measurement of alignment may be too ambitious and may mean that FIs with large SME exposure are unable to establish credible near-term outcome-based targets. However the opposite also holds, that metrics that don't represent sufficiently ambitious action could mean that FIs with large SME exposure easily align large parts of their portfolio without meaningful action. Further research is required to understand the balance between these two competing elements and propose a reasonable solution.

6.3.3.2. New and existing assets

An important element for activity specific alignment is whether the activity is new, i.e. financing is helping to support its creation, or whether it is for the maintenance/upgrade of an already existing asset or activity. Table 17 outlines some aspects of how alignment should be considered differently for new and existing assets/activities.

Table 17: New and existing assets and financing

	Alignment metrics	Comments
New asset / activity	**Impact metrics:** Physical intensity at the net-zero performance level **Outcome metrics:** Taxonomy alignment of the activity	The first aim of a FI is to ensure that they are not supporting the creation of new long-lived high-emitting assets. Therefore alignment metrics for new activities should require strict performance levels to be met, e.g. new power plant is below 2050 physical intensity thresholds for electricity generation.
Existing asset / activity (e.g. refinancing an existing asset)	**Impact metrics:** Expected physical intensity at the maturity of the financing, compared to the required sector intensity. **Outcome metrics:** N/A	For existing assets, only impact metrics are considered relevant for improving their performance against sector-specific benchmarks. While an existing asset may be aligned today, i.e. better than current sector benchmark value, the financing must be linked to its improvement to ensure that it remains better than the expected benchmark value at the point of maturity of the financial instrument.

It is recommended that FIs have specific metrics to check whether an asset will be stranded over the course of its technical and financial lifetime or not. Comparing the estimated emissions intensity of an activity and comparing it to the emissions intensity expected under the scenario at the end of the technical lifetime could be one means to assess strandability. Simply creating a policy to only finance net-zero compatible assets would be a simple way to implement this but this has the challenge to potentially ignore nuances, e.g. regional differences.

6.4. Implementing outcome metrics at the counterparty level

The recommended approach for target setting for financial portfolio using climate alignment requires a number of implementation steps. These steps are critical to make the metric understandable and actionable by a wide range of FIs.

1. **Specify the categories:** Climate-aligned finance consists of a number of categories that reflect different stages of maturity towards net zero:
    a. Transitioning: classifies entities and activities that are aligning (when their ambition is consistent with 1.5°C pathways), and aligned (progress is consistent with 1.5°C pathways)
    b. Net-zero achieved: when the entity or activity is operating at net-zero emissions performance levels
2. **Establishment of quality criteria:** to determine minimum eligibility requirements for any counterparty level alignment metrics. The development of quality criteria involves clearly defining the minimum standards of a data source used to determine alignment of counterparties. These criteria should reflect best practices that have emerged through the validation of third-party inputs by SBTi for its corporate and financial sector work, industry initiatives such as the net-zero alliances, and broader academic literature.

A complete list of criteria should be established when piloting the use of any counterparty alignment metrics. All methodologies used as inputs for calculating metrics (e.g. counterparty level alignment scores) must be publicly available, sufficiently documented, and available for use by any FI when using an SBTi standard. Table 18 provides a high level overview of minimum requirements for any data counterparty alignment source to be used.

Table 18: Quality criteria (illustrative examples)

Criteria	Description
Transparent methodologies and certification	• Any methodology used to generate the alignment score of the entity or activity shall be publicly available, and sufficiently documented to enable a third party to recalculate the outcomes. • Any third-party certification scheme should be able to demonstrate its use by FIs, and have a public certification methodology/governance process.
Comprehensive boundary	• **Entity**: the boundary used to generate the alignment score of an entity shall cover all relevant GHG emissions (S1, 2, and 3 GHG emissions). • **Activity**: the boundary should reflect all direct emissions generated from the activity, and be tied to specific use of proceeds.
GHG accounting	• Where emissions are considered, all GHGs identified within the Kyoto Protocol must be considered. • Emissions data used must not include scope 4 (avoided) emissions. • Emissions data must not include carbon credits.
Scenarios / benchmarks	• **Entity**: methodologies are to be based on credible 1.5°C low/no overshoot scenarios, either cross-sector or sector specific. • **Activity:** specific benchmarks or taxonomies must demonstrate their link to 1.5°C pathways.
Forward-looking	• **Entity**: methodologies are to be based on a forward-looking projection of alignment, considering at least a 5-year future projection based on publicly

	stated targets or plans. ● **Activity**: methodologies/certification should reflect either binary net-zero aligned status or being forward-looking by at least 5 years or over the duration of the instrument.

A more comprehensive list of criteria may be developed after pilot testing of the climate alignment method. The methodology must be fully characterized as per the characterization table, to ensure the user is aware of the scientific basis of the metric.

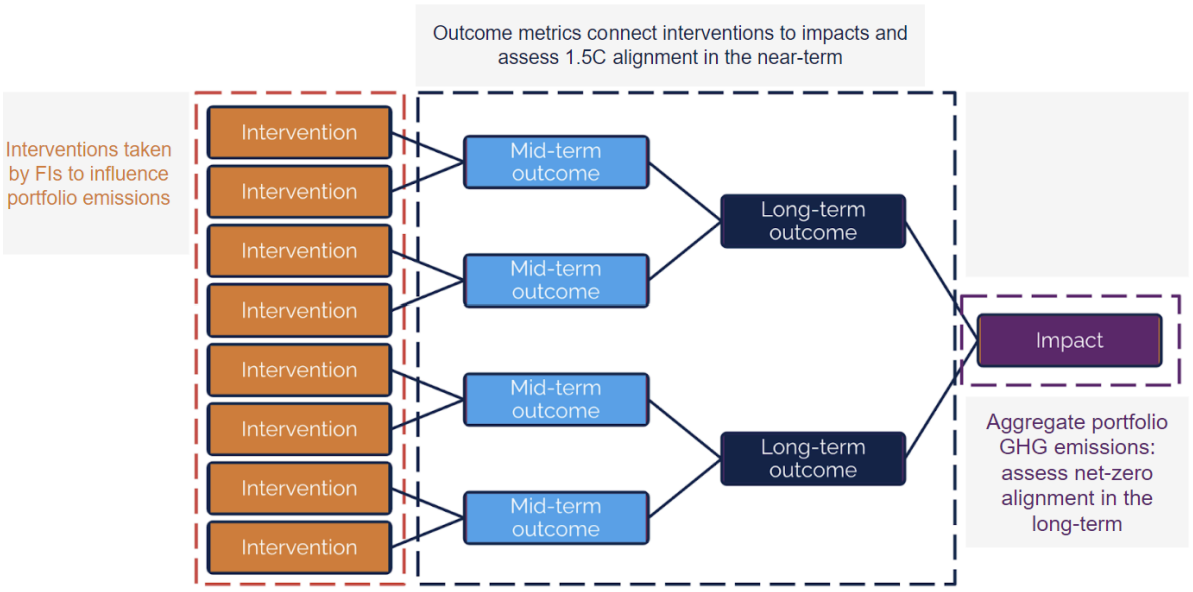
7. DISCUSSION AND RECOMMENDATIONS

7.1. Discussion

Measuring the climate performance for financial activities requires both impact and outcome-based metrics. Jennings et al. (2020) highlighted the differences between tracking impact and outcomes, impacts being the "long-term effects (direct or indirect, intended or unintended) on the sustainability issue produced as the result of an intervention" and outcomes being the "short-term and medium-term effects of an intervention on the sustainability issue in question". Figure 6 summarizes the role of both impact and outcome metrics in terms of how they can be brought together in SBTi financial sector standards. Metrics must be appropriate for tracking measurable intermediate outcomes that are necessary for achieving long-term outcomes. Only after these long-term outcomes are achieved can the true measure of impact be realized (net-zero GHG emission portfolios).

The challenges involved in making robust claims and incentivizing the financing of transitioning entities and climate solutions in the real economy mean that outcome-based metrics are preferred for near-term target setting. However, impact-based emissions metrics remain vital from a disclosure perspective to understand the current impact of the portfolio and its ultimate distance from the long-term net-zero end goal. The assessment undertaken against the SBTi Principles enables a number of metrics and methods to be recommended for different use cases within SBTi's financial sector standards.

Figure 6: Both impact and outcome-based metrics are required to track 1.5°C alignment in the portfolios



7.1.1. Impact metrics

The assessment highlighted that for metrics, it is important to differentiate between near-term measurable outcomes that lead to longer-term impact. As shown, many of the impact metrics today, at the portfolio level, cannot be used to track impact given that the metric can change due to changes in exposure, and may not reflect any real world change in the underlying counterparties. The challenges of portfolio-level GHG accounting, the volatility inherent in the attribution factors, and the potential conflict with transition finance goals have all been well documented. Impact-based metrics by their nature reflect the current exposure to GHGs, not forward-looking ambition or progress of counterparties. However, impact-based emissions metrics remain valuable from a disclosure perspective to understand the current footprint of the portfolio and its ultimate distance from the net-zero end goal. This is true in both absolute, and physical intensity terms for key climate relevant activities.

At the sector level, the ultimate outcome is tracking the financing of key energy and physical commodities against sector-specific pathways. These metrics, while still volatile in some cases, are more directly linked to the delivery of emissions reductions in the real economy via the production of new low carbon commodities. They also enable more granular analysis and allow for regional differentiation. Weighted average physical intensity tracks the performance of activities in sectors where there is a consistent product such as steel or cement. It allows easy comparison between other companies within the sector and local benchmarks.

7.1.2. Outcome metrics

Outcome metrics provide valuable near-term information that can be more easily measured. The evaluation of the outcome metrics against the principles shows that there are a wider range of options, but none meet all of the established criteria. A number of key insights can be drawn from the analysis in Chapter 3.1:

- No metric passes all criteria, but a combination of metrics could ensure that FIs are tracking all key climate relevant indicators.
- The suitability of a metric ultimately depends on its design choices, e.g. there are multiple means to assess alignment at the counterparty level and aggregate it to a portfolio level score. The evaluation depends on the underlying methodology for a metric. For example, not all temperature ratings are based on the same assumptions or calculation approaches, and therefore they need to be assessed individually.
- Outcome-based metrics require clear and consistent definition of counterparty level alignment, in order to become trusted and robust metrics over time.

At the portfolio level, a number of the existing metrics used by SBTi, notably portfolio coverage, and implied temperature rise metric, are not fully consistent with some of the principles. Their inability to properly measure both transition and green finance, and in the case of implied temperature rise, the difficulty with clearly communicating and interpreting their meaning, represents a challenge for how to use these metrics in SBTi standards. Refining these metrics into a broader maturity scale climate alignment metric should help to overcome many of these challenges. The categorization of counterparties into transitioning and net-zero aligned offers a solution to ensure that the metric is measuring and

incentivizing the right actions, while being flexible enough to incorporate new methodologies for counterparty alignment as they emerge.

A key consideration that arose during the assessment was around ease of communication and interpretation. Alignment at the portfolio level using outcome metrics can take two forms: 1) percentage share value, 2) weighted average alignment score, e.g. degrees Celsius. Interpreting weighted average temperatures at the portfolio level, their meaning, and their scales (what is a good vs. bad temperature at different points in time) has caused confusion among both users and observers of these metrics. This is seen by a much broader uptake of percentage-based target values, and recommended through target-setting protocols, most notably for asset managers. The importance of having clear, comparable and scale metrics on the overall share of assets or portfolios that are climate aligned is also emphasized by Caldecott (2021). These metrics can then be applied with any given sample, either at the portfolio level, asset class level, or sector level.

At the sector level, technology share is a relevant metric for some sectors particularly where there is a clear transition from a high carbon technology to a net-zero compatible technology, for example in the automotive and power generation sectors. Likewise for the energy sector, an energy financing ratio provides valuable information in the near-term of how FIs are financing the necessary transformation of the energy system.

7.1.3. Target-setting methods

Most metrics disclosed today are expected to be reduced in a “science-based” manner. Certain metrics such as absolute portfolio emissions, sector-specific emissions intensity, and technology share can be more easily benchmarked given the availability of 1.5°C pathway sets on which to benchmark them. However for many metrics, this may not be possible. Outcome-based metrics in particular are difficult to benchmark, given that the metric itself may not be tracked in any pathways. For example, the number of portfolio companies with targets, or the taxonomy alignment of a portfolio does not have methods with which to easily benchmark them against climate scenarios.

The assessment of methods was based on their applicability to different types of metrics. Methods used to define targets for impact metrics are based on allocating global or sector carbon budgets to portfolios and demonstrating the alignment of portfolio emissions against these pathways. As highlighted in the discussion, methods for determining near-term benchmarks for absolute portfolio emissions can be implemented, and in theory be consistent with the ambition required in 1.5°C global pathways. However as portfolio emissions metrics represent exposure to emissions, and can be highly volatile due to accounting rules, defining near-term benchmarks for absolute reductions may give a misleading impression that it is consistent with actual reductions in physical real world emissions.

For sector-based impact metrics such as physical intensity, both the LIA and SDA were evaluated. The SDA was designed for corporate scope 1 emission sources, and requires market share projections of physical output to determine future ambition thresholds. While this method is actionable for owner and operator of physical assets, it was deemed less

actionable for the FIs financing these assets given the need for this additional data. The LIA is a simplified convergence approach, considered more relevant and robust as it relies on fewer underlying assumptions regarding market development, with the FI having more influence to converge to the sector benchmarks in key milestone years. The LIA is potentially more ambitious for laggards, as it implies convergence to the benchmark over the near-term target, regardless of starting point.

For outcome-based metrics, the LIA can also be applicable in some cases, most notably for technology share. However most outcome-based metrics assessed, such as SBT portfolio coverage, ITRs, and climate alignment metrics cannot use any of the traditional methods that were designed for impact metrics. In these cases it is expected to follow a milestone-based approach, based on the adoption curves expected to drive change in the real economy.

In the case of portfolio alignment outcome metrics, science-based benchmarks only occur at the counterparty level, and not at the portfolio level. For example, there are science-based ways to determine the alignment of a specific company with a 1.5°C pathway, but there are not specific science-based ways to determine the share of a given sample of companies that should be aligned at different points in time. Therefore near-term targets on outcome metrics such as a percentage share of portfolio alignment at different points in time are not inherently science-based, given the benchmarks cannot be directly derived from climate science. These future performance levels should instead reflect the major milestones required in the economy for the largest source of global emissions to transition as soon as possible. Given that scope 3 portfolio emissions are ultimately a function of both exposure and underlying intensity of the activity, the method should ensure a rapid increase in exposure to transitioning activities, at rates required to see key tipping points in the economy and establish important market signals. Milestone-based approaches are already applied by SBTi in a number of areas. The scope 3 supplier engagement target establishes milestones of 67% of suppliers with SBTs within 5 years. For the financial sector portfolio coverage method applies a milestone of 100% SBT coverage by 2040. These methods are not strictly “science-based”, as the benchmark values cannot be directly derived from climate science.

7.2. Recommendations

Based on the assessments in the report, a final set of recommendations for both metrics and target-setting methods is provided. Table 19 presents an overview of both existing metrics used in SBTi standards and newly proposed metrics. The use cases of these metrics are also proposed, based on their applicability for target setting or only disclosure.

The review indicated that while no metric is perfect, a combination of approaches is most useful for assessing both near-term action and long-term impact. The challenges involved in making robust claims and incentivizing the financing of transition and climate solutions in the real economy mean that outcome-based metrics are preferred for near-term target setting. However, impact-based emissions metrics remain vital from a disclosure perspective to understand the current impact of the portfolio and its ultimate distance from the long-term net-zero end goal. Maturity scale climate alignment approaches were deemed the most

appropriate metric given their ability to incorporate broad definitions of alignment that can be easily updated with the latest science.

Impact-based metrics by their nature reflect the current exposure to GHGs, not forward-looking ambition or progress of counterparties. However, the impact-based metric of **absolute portfolio GHG emissions** remains valuable and is recommended from a disclosure perspective to understand the current footprint of the portfolio and its ultimate distance from the net-zero end goal.

To track emissions of the climate relevant sectors of the portfolio, it is recommended to use the **weighted average physical intensity** or alternatively the **technology share** as a proxy for emissions. Technology share is a relevant metric for some sectors particularly where there is a clear transition from a high-carbon technology to a net-zero compatible technology, for example in the automotive sector.

For target setting with outcome metrics, the recommendation is to use **percentage of climate-aligned finance** as the target-setting metric. This approach allows the use of different metrics outlined in the landscape as data sources that can be used to assess the alignment of different counterparties. A key recommendation of this paper is then to broaden the types of outcome metrics tracked at the portfolio level.

As a part of this, the outcome metrics currently used in the SBTi Financial Institutions' Near-Term Criteria (portfolio coverage and temperature rating) are recommended to be consolidated into an overall percentage climate alignment metric in order to better meet the principles specified in this paper. The SBTi status and temperature alignment of counterparties are thus still valid for use as part of near-term target-setting and remain key inputs to informing and calculating the newly suggested metric of the climate alignment share of a portfolio by providing counterparty level alignment measurements.

Although the percentage of climate-aligned finance isn't consistent with all of the principles, this is primarily due to the uncertainty of the definition of alignment. With a clear definition of this term, its understandability, replicability, and subjectivity are reduced, and it can form a stable target-setting metric. In order to create a robust, transparent and consistent climate alignment metric, a set of clear quality criteria is therefore needed to define "eligibility requirements" for different underlying alignment methodologies. Pilot testing of the climate alignment method should then involve the creation and assessment of quality criteria used for evaluating the suitability of different counterparty level alignment methodologies. The success of these climate alignment metrics will rest on rigorous pilot testing and refinement of criteria to enable a transparent and trusted evaluation process.

For target setting with outcome and emissions metrics where there are available sector-specific pathways, the use of either the **LIA or SDA** is recommended. It is also recommended that testing of the use of LIA is conducted as part of the integration of this method into SBTi financial sector standards. Meanwhile, a **milestone approach** is recommended for other outcome metrics, such as climate alignment.

Table 19: Overview of recommended metrics and methods

Metric type	Metric	Units	Use case	Recommended method	Comments
Impact	Absolute portfolio emissions	tCO_2e	Disclosure	N/A	Recommended for disclosure purposes, to track absolute portfolio GHG emissions
	Weighted average physical intensity	tCO_2e/unit	Target setting	Linear intercept or SDA convergence	For use with high intensity sectors, the combination of this metric with a LIA or SDA method would be suitable for near- and long-term target setting
Outcome	Technology share	% share	Target setting	Linear intercept	Recommended for sector-based target setting, for both power generation and automotive sectors
	Green : Brown energy financing	Ratio	Disclosure	N/A	Recommended for disclosure purposes for energy sector (renewable energy vs. fossil fuel financing)
	Percentage of climate aligned finance	% financial exposure	Target setting	Milestone approach	Recommended for net-zero standards capturing near- and long-term target setting
	Implied temperature rise	Weighted average °C	Target setting	Milestone approach	While the portfolio level aggregated metric (°C) is only recommended for near-term target setting, counterparty level temperature scores would remain a valid input into a broader portfolio level outcome metric (e.g. % of climate-aligned finance)
	SBT portfolio coverage	% SBT status	Target setting	Milestone approach	While the portfolio level aggregated metric (% share of SBTs) is only recommended for near-term target setting, counterparty level SBTi status would remain a valid input into a broader portfolio level outcome metric (e.g. % of climate-aligned finance)

REFERENCES

2Dii: 2 Degrees Investing Initiative (2020). Credit Portfolio Alignment. https://2degrees-investing.org/wp-content/uploads/2020/09/Katowice-Banks-2020-Credit-Portfolio-Alignment.pdf

Bjørn, A., Lloyd, S., & Matthews, D. (2021). From the Paris Agreement to corporate climate commitments: Evaluation of seven methods for setting "science-based" emission targets. Environmental Research Letters, 16(5). https://doi.org/10.1088/1748-9326/abe57b

BloombergNEF (2023). Financing the Transition: Energy Supply Investment and Bank-Facilitated Financing Ratios 2022. https://assets.bbhub.io/professional/sites/24/Financing-the-Transition_Energy-Supply-Investment-and-Bank-Facilitated-Financing-Ratios.pdf

Caldecott, B. (2020). Aligning Finance for the Net-zero Economy – New ideas from leading thinkers. https://www.climate-kic.org/wp-content/uploads/2020/09/200902_J932-CKIC-UNEP-ThoughtLeadershipSeries-DrBenCaldecott-1.pdf

Chang, A., Farsan, A., Carrillo Pineda, A., Cummis, C., & Weber, C. (2022). Comment on "From the Paris Agreement to corporate climate commitments: Evaluation of seven methods for setting 'science-based' emission targets". Environmental Research Letters, 17(3). https://doi.org/10.1088/1748-9326/ac548c

Chmel, L., Kathan, M., Utz, S. (2023). Are Implied Temperature Rise Metrics as Inconsistent as ESG Ratings?: Examining Firm-Level Disagreement Among Data Providers. Available at SSRN: https://ssrn.com/abstract=4494958 or https://dx.doi.org/10.2139/ssrn.4494958

De Nederlandsche Bank (2021). Misleading Footprints: Inflation and exchange rate effects in relative carbon disclosure metrics. https://www.dnb.nl/media/3n1mbtnj/os-misleading-footprints.pdf

European Commission (2023). Commission Delegated Regulation (EU) 2023/363 of 31 October 2022 amending and correcting the regulatory technical standards laid down in Delegated Regulation (EU) 2022/1288 as regards the content and presentation of information in relation to disclosures in pre-contractual documents and periodic reports for financial products investing in environmentally sustainable economic activities.

Faria, P., & Labutong, N. (2019). A description of four science-based corporate GHG target-setting methods. Sustainability Accounting, Management and Policy Journal. 11. https://doi.org/10.1108/SAMPJ-03-2017-0031

Fraser, A., & Fiedler, T. (2023). Net-zero targets for investment portfolios: An analysis of financed emissions metrics. Energy Economics, 126, 106917. https://doi.org/10.1016/j.eneco.2023.106917

Granoff, I., & Lee, T. (2024) Shocking Financed Emissions: The Effect of Economic Volatility on the Portfolio Footprinting of Financial Institutions. Working Paper 2024

GFANZ (2022). Measuring Portfolio Alignment: Enhancement, Convergence and Adoption.

https://assets.bbhub.io/company/sites/63/2022/07/GFANZ-Portfolio-Alignment-Measurement-August2022.pdf

GFANZ (2023). Scaling Transition Finance and Real-economy Decarbonization. https://assets.bbhub.io/company/sites/63/2023/11/Transition-Finance-and-Real-Economy-Decarbonization-December-2023.pdf

ILB: Institut Louis Bachelier et al. (2020). The Alignment Cookbook – A Technical Review of Methodologies Assessing a Portfolio's Alignment with Low-carbon Trajectories or Temperature Goal. https://www.institutlouisbachelier.org/wp-content/uploads/2021/03/the-alignment-cookbook-a-technical-review-of-methodologies-assessing-a-portfolios-alignment-with-low-carbon-trajectories-or-temperature-goal.pdf

ILB: Institut Louis Bachelier et al. (2024). The Alignment Cookbook 2 – A technical panorama of the alignment methodologies and metrics used by and applied to the financial sector, with a view to inform consolidated alignment assessments. https://www.institutlouisbachelier.org/wp-content/uploads/2024/05/cookbook-0905.pdf

IIGCC (2024a). The Net Zero Investment Framework v2.0. https://www.iigcc.org/hubfs/2024%20resources%20uploads/IIGCC_NZIF%202.0_consultation_2024.pdf

IIGCC (2024b). IIGCC Discussion Paper: Investor approaches to scope 3: its importance, challenges and implications for decarbonising portfolios. https://139838633.fs1.hubspotusercontent-eu1.net/hubfs/139838633/2024%20resources%20uploads/IIGCC_Investor-approaches-to-scope-3_Final_Jan-2024.pdf

Jennings, S., McCormack, C., & Sheane, R. (2020). Performance metrics for key sustainability issues. https://www.3keel.com/wp-content/uploads/2020/10/iSeal_Performance_singles.pdf

Kahn, Matthew E. and Matsusaka, John and Shu, Chong. (2023) Divestment and Engagement: The Effect of Green Investors on Corporate Carbon Emissions. IZA Discussion Paper No. 16518. https://dx.doi.org/10.2139/ssrn.4601201

Kölbel, J., Heeb, F., Paetzold, F., & Busch, T. (2020). Can Sustainable Investing Save the World? Reviewing the Mechanisms of Investor Impact. Organization & Environment, 33(4), 554-574. https://doi.org/10.1177/1086026620919202

PAT: Portfolio Alignment Team (2021). Measuring Portfolio Alignment Technical Considerations. https://www.tcfdhub.org/wp-content/uploads/2021/10/PAT_Measuring_Portfolio_Alignment_Technical_Considerations.pdf

PCAF (2022a). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. https://file.carbonaccountingfinancials.com/standard

PCAF (2022b). The Global GHG Accounting and Reporting Standard Part C: Insurance-Associated Emissions. First Version. https://file.carbonaccountingfinancials.com/standard

PCAF (2023). The Global GHG Accounting and Reporting Standard Part B: Facilitated Emissions. First Version. https://file.carbonaccountingfinancials.com/standard

Poseidon Principles (2024). A global framework for responsible ship finance. (2024). Poseidon Principles. https://www.poseidonprinciples.org/finance/wp-content/uploads/2019/07/Poseidon_Principles.pdf

Rekker, S., Ives, M. C., Wade, B., Webb, L., & Greig, C. (2022). Measuring corporate Paris Compliance using a strict science-based approach. Nature Communications 13 (1) 4441 1-11. https://doi.org/10.1038/s41467-022-31143-4

RMI (2024). PACTA for Banks Methodology Document. https://pacta.rmi.org/wp-content/uploads/2022/07/PACTA-for-Banks-Methodology-document_v1.2.2_250722.pdf

SBTi. (2020). Financial Sector Science-Based Targets Guidance Version 1.0. https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf

SBTi. (2021). Private Equity Sector Science-based Target Setting Guidance. https://sciencebasedtargets.org/resources/files/SBTi-Private-Equity-Sector-Guidance.pdf

SBTi. (2024). Financial Institutions' Near-Term Criteria Version 2.0 https://sciencebasedtargets.org/resources/files/Financial-Sector-Near-Term-SBT-Explanatory-Document.pdf

SBTi. (2023). Financial Institutions Net-Zero Standard: Conceptual Framework and Initial Criteria. https://sciencebasedtargets.org/resources/files/The-SBTi-Financial-Institutions-Net-Zero-Standard-Consultation-Draft.pdf

SBTi. (2022). Foundations for Net-Zero Target Setting in the Financial Sector. https://sciencebasedtargets.org/resources/files/SBTi-Finance-Net-Zero-Foundations-paper.pdf

Schwegler, R., Reisser, M., Iten, R., Füssler, J., & Utz, S. (2022). Portfolio Climate Alignment – Understanding unwanted disincentives when using climate alignment methodologies. https://www.infras.ch/media/filer_public/a0/36/a03639c7-102a-4ca9-ae5d-deae01a2dced/report_portfolio_climate_alignment_infras_hsg_220621.pdf

ShareAction (2023). Green Ambitions, Grey Realities: European Banks' journey from pledges to practice. https://shareaction.org/reports/green-ambitions-grey-realities-european-banks-journey-from-pledges-to-practice

Swiss Confederation (2022). Swiss Climate Scores: Best practice transparency on the Paris alignment of investments. https://www.sif.admin.ch/sif/en/home/swiss-climate-scores/minimum-criteria.html

Tang, K., Shrimali, G., & Christiaen, C. (2023). Data Quality Considerations for Estimating Financed Emissions. https://www.smithschool.ox.ac.uk/sites/default/files/2023-01/Data-Quality-Considerations-for-Estimating-Financed-Emissions.pdf

UNEP (2022). Net-Zero Banking Alliance – NZBA Transition Finance Guide. https://www.unepfi.org/wordpress/wp-content/uploads/2022/10/NZBA-Transition-Finance-Guide.pdf

UNEP (2023). UN-convened Net-Zero Insurance Alliance. Target-Setting Protocol Version 1.0. https://www.unepfi.org/industries/insurance/nzia-target-setting-protocol-version-1-0/

UNEP (2024a). Net-Zero Banking Alliance – Guidelines for Climate Target Setting for Banks. https://www.unepfi.org/wordpress/wp-content/uploads/2024/03/Guidelines-for-Climate-Target-Setting-for-Banks-Version-2.pdf

UNEP (2024b). UN-convened Net-Zero Asset Owner Alliance - Target Setting Protocol Fourth Edition. https://www.unepfi.org/wordpress/wp-content/uploads/2024/04/NZAOA-TSP4_FINAL.pdf

VCA: Venture Capital Alliance (2024). Net Zero Framework for VCs. Portfolio Alignment Framework 1.1. https://ventureclimatealliance.org/approach

Weber, C., Thomä, J., Dupre, S., Cummis, C., & Patel, S. (2018). Exploring Metrics to Measure the Climate Progress of Banks. https://ghgprotocol.org/sites/default/files/2022-12/Exploring%20Metrics%20to%20Measure%20the%20Climate%20Progress%20of%20Banks.pdf

ANNEX 1: METHODS OVERVIEW

Four distinct methods are reviewed in this paper, each of which is relevant for different types of metrics. The SDA and LIA methods are designed for both impact and outcome metrics where there are sector-specific pathways (in physical intensity or technology terms). The milestone method is only relevant for outcome metrics where there are no 1.5°C pathways (cross-sector or sector-specific) that can be used to determine future performance values. The absolute contraction method and SDA methods are documented already by SBTi, for use both in the corporate and near-term financial sector frameworks. An overview and documentation for the linear intercept and climate alignment is provided below.

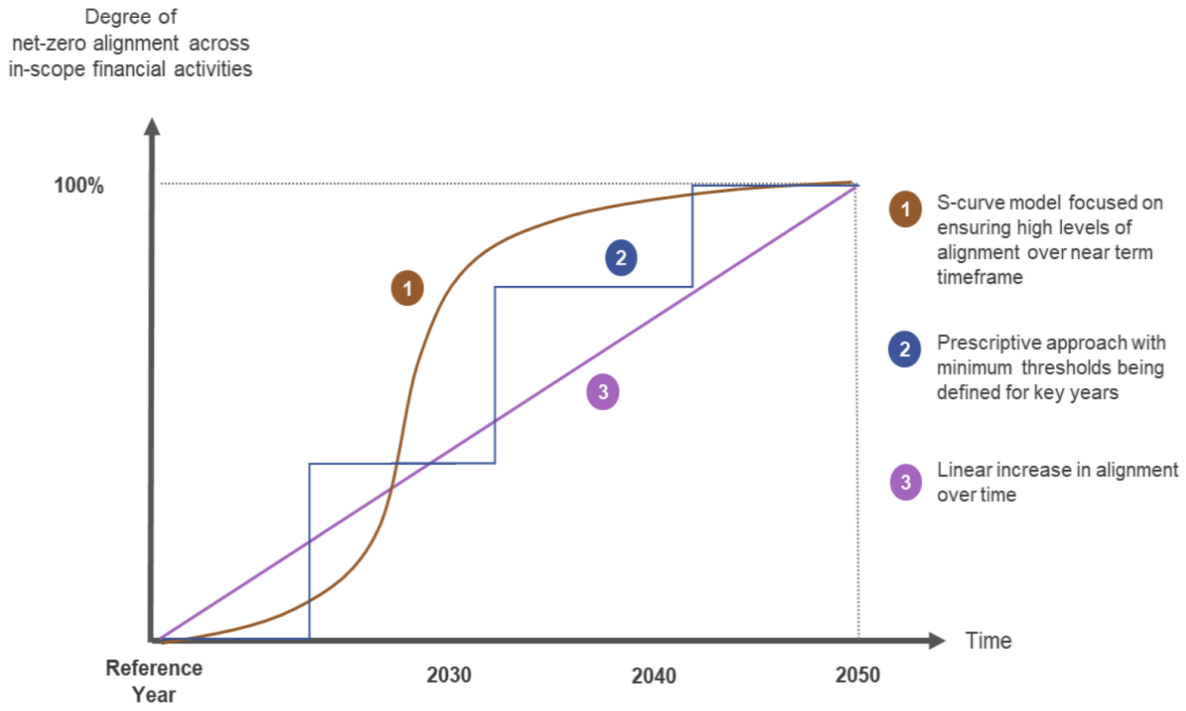
Climate Alignment Method

The method was designed to determine suitable benchmarks for outcome-based metrics in the absence of a clear climate scenario. The climate alignment outcome metric requires the following two benchmarks:

- Long-term benchmark (2050): A science-based benchmark derived from climate pathways that reflects the need for all economic activities to have reached a net-zero end-state by 2050 or sooner. 100% climate alignment in 2050 means that all financial flows are linked to counterparties operating at a net-zero emissions performance level.

- Near-term benchmarks (now to 2050): These benchmarks cannot be derived directly from climate pathways, but instead represent the change needed in the real economy, and the need for a critical mass of key emission sources to start transitioning immediately and for all entities to transition over time. For most outcome metrics, there are no science-based benchmarks for interim performance levels, e.g. number of portfolio companies to have adopted targets by a certain time.

Figure 7: Near-term climate alignment benchmarks can be derived based on a number of pathways



To generate near-term benchmarks, milestone-based approaches should be used.

The 2040 linear growth in alignment approach, applied to specific parts of the portfolio, uses the following equation:

$$TY\% = 95\% - (2040 - TY) * \frac{95\% - BYCA}{2040 - BY}$$

where:

- $TY\%$ = target value in the target year
- TY = year to achieve a near-term target (a value between the starting year and 2040)
- $BYCA$ = value in the base year, in %
- BY= base year, e.g. 2025.

The climate alignment method can also be modified with a range of other benchmarks for high priority sectors, e.g. reaching higher alignment levels in 2030 for key sectors, or regions.

Linear Intercept Method

The methods generate different levels of ambition in the initial target year. This varies on whether the base year value is above or below the pathway. The clear difference between the two approaches is that the LIA asks the target setter to converge with the pathway in the short term, by the next target milestone, while SDA have a longer term convergence. The methods are visualized in Figure 8. The methods generate different levels of ambition in the initial target year. This varies on whether the base year value is above or below the pathway. The clear difference between the three approaches is that the LIA asks the target setter to converge with the pathway in the short term, by the next target milestone, while both the ACA and SDA have a longer term convergence. There is no consistency on what will create the greatest annual reduction, as this differs with the starting point relative to the pathway. Figure 8 demonstrates the three cases where the starting value is performing worse than the benchmark (8a), better than the benchmark (8b) and already better than the desired target year benchmark (8c). In the case of the linear intercept approach, if it is already performing better than the benchmark, future targets are defined based on ensuring it is at least performing better than the sector benchmark in the target year. In cases where it is already below the level (8c), then performance would have to at least be maintained.

Linear intercept targets do not rely on any budget allocation equations given the target value is simply the proposed value in the standard. The rate of change from base year to target year value is described as follows.

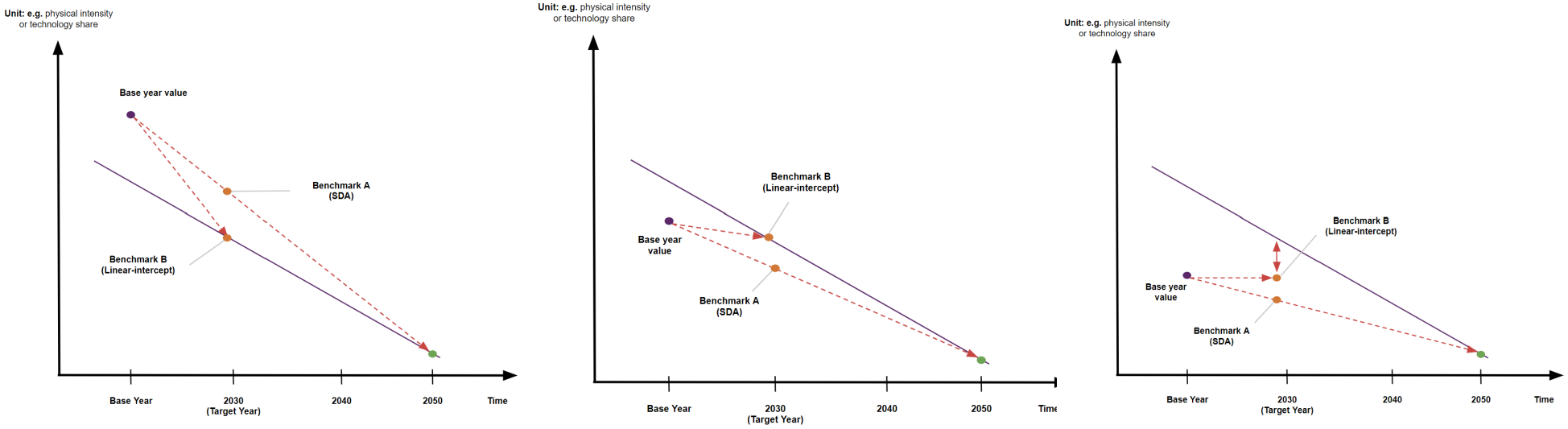
$$Target = \frac{TYV - BYV}{TYV}$$

where:

- TYV = target value in the target year
- BYV = value in the base year

As highlighted in Figure 8, when BYV <= TYV in the base year, the target value for the target year must be at least maintained at its current value.

Figure 8 (a, b, c). Benchmarks derived from application of different methods for a declining technology with the base year value above and below the pathway. Benchmark A represents SDA; benchmark B represents LIA.



ANNEX 2: ASSESSMENT OF METRICS

Table 17: Assessment of Metrics for consistency with the SBTi Principles.

Metric Type	Metric	Ambition		Transparency		Robust		Actionable	
		Linked to delivery of emissions	**Transition and green**	**Easy to replicate**	**Easy to understand**	**Limited volatility**	**Scalable/widely applicable**	**Easy to measure w/ limited assumptions**	**Responsive to counterparty actions**
Impact	Absolute portfolio emissions	Aggregated value can change independently of counterparty emissions values, no clear link to physical emissions	Does not disincentivize financing green, but can disincentivize transition finance if leads to increase in absolute emissions in short term	For a specific portfolio weighting, counterparty data can be sourced and replicated	Clear concept that is easy to understand	Can be highly volatile due to variability of nature of attribution methodologies and data quality	Data is available across sectors, asset classes at activity and entity level	The metric is dependent on multiple variables and emissions factors	Use of secondary data sources means that interventions may not always be reflected in metric value
	Revenue weighted carbon intensity	Aggregated value can change independently of counterparty emissions values, no clear link to physical emissions	Doesn't directly incentivize transition financing that may increase GHG emissions in the short term	For a specific portfolio weighting, counterparty data can be sourced and replicated	Clear concept that is easy to understand	Revenue is somewhat volatile and independent of climate-related factors	Data is available across sectors, asset classes at entity level	The metric is dependent on multiple variables and emissions factors	Reliance on secondary data means that interventions may not always be reflected in metric value
	Weighted average physical intensity	Aggregated value can change independently of counterparty emissions values. But clear link to sector-specific pathways	Does not incentivize nor disincentivize green technologies	Should be replicable based on publicly reported emission and production data	Clear concept that is easy to understand	Variation in either numerator or denominator is climate relevant	Data is available across sectors, and asset classes. Limited to sectors with pathways	The metric is dependent on multiple variables and emissions factors, and potentially production data	The metric is responsive if the measurement/calculation process is sufficiently robust

Outcome	Technology share	Can be indirectly linked to the carbon budget through technology pathways	Incentivizes growth of specific green technologies, but does not directly capture transition financing	Should be replicable based on publicly available production data	Clear concept that is easy to understand.	Volatility dependent on new infrastructure hence not volatile	Data is available across sectors, and asset classes. Limited to only a small number of sectors with specific technology pathways	Relies on sufficient disclosure of counterparty production	Only responds to major changes in revenue streams by the counterparty
	Production - Volume Trajectory	Relevant to production only, not clear about link to underlying emissions	Does not incentivize nor disincentivize green technologies	Should be replicable based on production data	Concept is not widely used	Volatility dependent on new infrastructure hence not volatile	Data is available across sectors, and asset classes. Limited to only a small number of sectors with specific technology pathways	The metric is dependent on assumptions and future data that is subjective, and may be difficult to measure	Responds to changes in public commitments
	% SBTi portfolio coverage	Currently based only on target ambition and not delivery of emissions reductions	Does not address green activities that will not be covered by GHG targets	Data on SBTi validation is publicly available and easily accessible	Clear concept that is easy to understand.	There is minimal volatility on whether the company has a target. Volatility limited to portfolio reallocation.	Limited to use in corporate instrument asset classes, and does not directly apply to project or asset based financing	The metric is simple to calculate and not subjective	Responds directly to a change in target status
	Implied temperature rise	Generally based on forward-looking ambition, but can incorporate delivery of emissions reductions	Depends on the methodology but typically ITRs do not incorporate “green” considerations of entities	Generally complicated modeling with many assumptions and data sources. Depends on the data provider as to open source availability	Conceptually easy, but difficult to interpret the meaning, and can be easily mis-used. The non-linearity means it is can be difficult to interpret change in the metric	There is minimal volatility on whether the company has a target. Slight volatility due to portfolio reallocation	Data is available across sectors, asset classes at entity level	The metric is complex to calculate and requires assumptions for all counterparties	Somewhat responsive to changes, depending on complexity of the methodology
	% Taxonomy alignment	No assurance that low carbon technologies are enough to reach	Green technologies can be recognized but transitioning companies cannot be.	May be replicable where data is made easily available.	Conceptually easy, difficult to understand all components and	Taxonomy categorization is dependent on activity therefore should not	Depending on taxonomy, coverage may not be complete	Taxonomies can be very subjective. Depending on categories	Only responds to major changes in revenue streams by the counterparty

		temperature outcomes			background to a taxonomy	change frequently.		provided may be simple to calculate	
	% Climate-aligned financing	Generally based on forward-looking ambition, but can incorporate delivery of emissions reductions over time	Can incorporate both transition and green activities based on number of underlying methodologies	Given the variation in the definition of climate aligned, may be difficult to measure	Conceptually understandable, however may be difficult to understand how to drive change	Volatility depends on the underlying definitions but generally these are stable.	Data is available across sectors, asset classes at activity and entity level	Easy to calculate and aggregate across different alignment scores. Ease of measurement depends on range of allowable counterparty methodologies	Depends on the underlying methodology, may be responsive to changes
	Green : brown energy financing ratio	Not directly linked to emissions reductions, but to market effect of scaling up green energy relative to fossil fuels	Incentivizes green over brown, but does not directly incorporate transition of counterparties	Should be replicable based on production data	Clear concept that is easy to understand	Variation in either numerator or denominator is climate relevant	Limited to energy sector	Simple to calculate. Some subjectivity with regards to green and brown definitions	Only responds to major changes in revenue streams by the counterparty
Process	Number of engagements	Engagement is removed from actual emissions reductions	Does not reflect the types of counterparties and their transition status	Subjective metric based on definitions by FIs	Clear concept that is easy to understand	The value is not volatile and changes only when an engagement occurs	Applicable where an FI/ client relationship exists	Simple to calculate. Subjectivity dependent on a clear definition of engagement	Responds directly with engagements made by the FI
	Finance committed	Financing may or may not lead to emissions reductions	Can be tied directly to transition status of counterparties	Should be replicable based on the rules set by the FI	Clear concept that is simple to understand, but scale and significance of finance is difficult without normalization	Dependent only on the quantity of financing made available	Data is available across sectors, asset classes at activity and entity level	Simple to calculate. Subjectivity to having a clear definition of the categories	Directly responds to financing decisions of FI
	Sector financing trend	Depends on the data source, but no assurance of meeting	Financing is not tied to types of counterparties and their transition status	Given the variation in the definition of climate aligned,	Conceptually understandable, however may be difficult to	Volatility depends on the underlying definitions but generally these are stable.	Data is available across sectors, asset classes at activity and entity level	Simple to calculate. Subjectivity to having a clear	Only responds to major changes in revenue streams by the counterparty

		temperature outcome		may be difficult to measure	understand how to drive change			definition of the categories	

ANNEX 3: ASSESSMENT OF TARGET-SETTING METHODS

Table 18: Assessment of each method for consistency with the SBTi Principles

Method	**Ambition**	**Scientific Rigor**	**Transparency**	**Robust**	**Actionable**	**Responsible**
	1.5°C benchmarks	Credible underlying methodology	Transparent documentation	Widely applicable and not sensitive	Limited inputs	Reflects starting points and capacity
Absolute contraction approach	Consistent with global cross-sector 1.5°C pathways	Published in peer reviewed journal articles, and undergone multiple years of application and upgrading for corporate target setting	Publicly available documentation as part of SBTi target-setting resources	Simple approach leads to robust outcomes. Method can be easily updated to incorporate new scenarios	Very simple approach and relationship between input and output is clear	Trajectory is independent of the starting point and capacity to transition
Sector decarbonization approach	Consistent with sector-specific 1.5°C pathways	Published in peer reviewed journal articles, and undergone multiple years of application and upgrading for corporate target setting	Publicly available documentation as part of SBTi target-setting resources	Method is reliant on activity projections (for market share calculations) and can be sensitive to these assumptions	Data must be provided for use in SBTi tools and requires FIs to estimate future portfolio activity projections	Trajectory reflects the starting point but not the capacity to transition
Linear intercept approach	Consistent with sector-specific 1.5°C pathways	Variation on the SDA method, but has not been widely applied or pilot tested	Details in Annex 1	Method is not reliant on activity projections and hence is more robust over time	Simple approach with limited input variables.	Trajectory reflects the starting point but not the capacity to transition
Milestone approach	Not based on climate scenarios and cannot be directly linked to 1.5°C benchmarks	Based on tipping point theories of change to drive action in real economy. Used by broader corporate scope 3 and FI methods (portfolio coverage and temperature rating)	Publicly available documentation as part of SBTi target-setting resources	Simple approach leads that can be easily updated to incorporate new milestones	Simple approach with limited input variables	Trajectory reflects the starting point but not the capacity to transition