

FINANCIAL SECTOR

SCIENCE BASED TARGETS GUIDANCE

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PARTNER ORGANIZATIONS



IN COLLABORATION WITH



Financial Sector Science Based Targets Guidance

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Executive summary

To be added in publication version

Glossary

Term	Definition
Absolute emissions	Greenhouse gas emissions attributed to a financial institution’s lending and investing activity. Expressed in tonnes CO ₂ e
Asset class	A group of financial instruments which have similar financial characteristics
Attribution share or attribution factor	The share of total greenhouse gas emissions of the borrower or investee that are allocated to the loan or investments
Avoided emissions	Emission reductions that the financed project produces versus what would have been emitted in the absence of the project (the counterfactual baseline emissions); avoided emissions are not included in SBTs.
Biogenic CO₂e emissions	Emissions from a stationary source directly resulting from the combustion or decomposition of biologically based materials other than fossil fuels
Business loan	On-balance sheet loans and lines of credit with unknown use of proceeds to businesses, non-profits, and any other structure of organization. Revolving credit facilities and overdraft facilities as well as business loans secured by real estate, such as commercial real estate-secured lines of credit, are also included in the business loans asset class.
Carbon accounting	A means of measuring the direct and indirect emissions to the Earth's biosphere of carbon dioxide and its equivalent gases from industrial activities.
Carbon accounting of financial portfolios	The annual accounting and disclosure of GHG emissions associated with loans and investments at a fixed point in time in line with financial accounting periods. This is also called “portfolio carbon accounting”

Climate impact	In the context of this framework, climate impact refers to the emissions financed by loans and investments
Climate risk	The potential for adverse effects on lives, livelihoods, health status, economic, social and cultural assets, services (including environmental), and infrastructure due climate change
CO₂-equivalent (CO₂e)	The amount of CO ₂ that would cause the same integrated radiative forcing (a measure for the strength of climate change drivers) over a given time horizon as an emitted amount of another GHG or mixture of GHGs. Conversion factors vary based on the underlying assumptions and as the science advances.
Commercial real estate	On-balance-sheet loans for the purchase, refinance, construction, or rehabilitation of commercial real estate (CRE). This definition implies that the property is used for commercial purposes.
Consolidation approach	Refers to how an organization sets boundaries for GHG accounting. Types include equity approach, financial control and operational control.
Consumer loan	A loan given to consumers to finance specific types of expenditures. A consumer loan is any type of loan made to a consumer by a creditor. For example, a mortgage or a motor vehicle loan.
Corporate debt	Money that is owed by companies rather than by governments or individual people.
Debt	A financing instrument that requires repayment by the borrower.
Direct emissions	Emissions from sources that are owned or controlled by the reporting entity and/or the borrower or investee.
Double counting	Occurs when a single GHG emission reduction or removal, achieved through a mechanism issuing units, is counted more than once toward attaining mitigation pledges or financial pledges for the purpose of mitigating climate change.

Emission intensity metric	Emissions per a specific unit, for example: tCO ₂ e/\$M invested, tCO ₂ e/MWh, tCO ₂ e/ton product produced, tCO ₂ e/\$M company revenue.
Emission removal	The action of removing GHG emission from the atmosphere and storing it through various means, such as in soils, trees, underground reservoirs, rocks, the ocean and even products like concrete and carbon fiber.
Emission scopes	The GHG Protocol Corporate Standard classifies an organization’s GHG emissions into three scopes. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting organization, including both upstream and downstream emissions.
Enterprise Value Including Cash (EVIC)	The sum of the market capitalization of ordinary shares at fiscal year end, the market capitalization of preferred shares at fiscal year-end, and the book values of total debt and minorities’ interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.
Environmentally-extended input output (EEIO) data	EEIO data refers to EEIO emissions factors that can be used to estimate cradle-to-gate GHG emissions for a given industry or product category. EEIO data are particularly useful in screening emissions sources when prioritizing data collection efforts.
Equity	Bank’s or investor’s ownership in a company or project. There are various types of equity, but equity typically refers to shareholder equity, which represents the amount of money that would be returned to a company’s shareholders if all of the assets were liquidated and all of the company's debt were paid off.
EXIOBASE	A global, detailed Multi-Regional Environmentally Extended Supply-Use Table (MR-SUT) and Input-Output Table (MR-IOT). It was developed by harmonizing and detailing supply-use tables for a large number of countries, estimating emissions and resource extractions by industry.
Financed emissions	Absolute emissions that banks and investors finance through their loans and investments. Financed emissions can be calculated and disclosed at asset-class level.

Financial institutions	A company engaged in the business of dealing with financial and monetary transactions such as deposits, loans, investments, and currency exchange. Financial institutions encompass a broad range of business operations within the financial services sector including commercial banks, investment banks, asset owners/managers (mutual funds, pension funds, close-end funds, investment trusts) and insurance companies. Development financial institutions are currently out of project scope.
Greenhouse gas (GHG) emissions	The seven gases mandated under the Kyoto Protocol and to be included in national inventories under the United Nations Framework Convention on Climate Change (UNFCCC)—carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF ₆) and nitrogen trifluoride (NF ₃).
Greenhouse Gas (GHG) Protocol	Comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions. The GHG Protocol supplies the world's most widely used greenhouse gas accounting standards. The Corporate Accounting and Reporting Standard provides the accounting platform for virtually every corporate GHG reporting program in the world.
Indirect emissions	Emissions that are a consequence of the activities of the reporting entity but occur at sources owned or controlled by another entity.
Investment	The term investment is broadly defined as “putting money into activities or organizations’ with the expectation of making a profit.” Most forms of investment involve some form of risk taking, such as investment in equities, debt, property, projects, and even fixed interest securities which are subject to inflation risk, among other risks.
Listed equity and bonds	This asset class includes all corporate bonds without known use of proceeds and all listed equity on the balance sheet and/or actively managed by the financial institution.
Mortgage	On balance sheet loans used to purchase residential property, including multifamily properties with no limit on the number of units. This definition implies that the property is used for residential purposes.

Motor vehicle loan	On balance sheet loans that are used to finance one or several motor vehicles.
Non-listed corporate finance	Finance provided to companies that is not traded on a market such as business loans or commercial real estate.
Paris Agreement	The Paris Agreement, adopted within the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015, commits participating all countries to limit global temperature rise to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C, adapt to changes already occurring and regularly increase efforts over time.
Project finance	On balance sheet loan or equity(private) with known use of proceeds that are designated for a clearly defined activity or set of activities, such as the construction of a gas fired power plant, a wind or solar project or energy efficiency projects.
Scenario analysis	A process of analyzing future events by considering alternative possible outcomes.
Science-based reduction targets (SBTs)	Targets adopted by companies to reduce greenhouse gas (GHG) emissions are considered “science-based” if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement—to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.
Scope 3, category 15 (investments) emissions	<p>This category includes scope 3 emissions associated with the reporting company’s loans and investments in the reporting year, not already included in scope 1 or scope 2</p> <p>For Category 15, the GHGP Scope 3 Standard only requires the inclusion of corporate debt holdings with known use of proceeds. This framework goes beyond this requirement and thus expands the minimum boundary of Category 15. Financial institutions shall follow the emissions measurement and/or target setting requirements outlined in the relevant asset class methods and include debt investments without known use of proceeds where applicable.</p>

Sequestered emissions	Refers to atmospheric carbon dioxide (CO ₂) emissions that are captured and stored in solid or liquid form, thereby removing their harmful global warming effect.
Total balance sheet value	A balance sheet is a financial statement that reports a company's assets, liabilities and shareholders' equity. The balance sheet value refers to the value of total debt plus equity.
World Input-Output Database (WIOD)	World Input-Output Tables and underlying data, covering 43 countries, and a model for the rest of the world for the period 2000-2014. Data for 56 sectors are classified according to the International Standard Industrial Classification revision 4 (ISIC Rev. 4). The tables adhere to the 2008 version of the SNA.

1. Introduction

The governor of the Bank of England has warned that the global financial system is backing carbon-producing projects that will raise the temperature of the planet by over 3°C – severely overshooting what is required to stay well-below 2°C as agreed in the Paris Agreement. At the same time, extreme weather events and other climate impacts pose growing threats to financial institutions’ economic models. While many financial institutions are working on reducing their exposure to risks from climate impacts, the Science Based Targets initiative’s finance sector project provides a framework for financial institutions to reduce their impacts on the climate—it is designed to clarify, improve and accelerate FIs conformance with the Paris Agreement.

To decarbonize the global economy in alignment with the Paris goals, all economic actors in the real economy are required to reduce their GHG emissions at a rate sufficient to stay within the carbon budgets established by climate science. Corporate emissions do not occur in a vacuum, but within a broader economic and regulatory system that creates a complex web of incentives and disincentives for economic actors to reduce emissions. In many ways, all actors across a given value chain (and those connected through policy and other incentives) share influence over the direct emissions of each actor and therefore share responsibility for reducing them. FIs have special influence over other actors through their investment and lending services. To drive Paris-level systemic decarbonization, it is critical to leverage shared influence and responsibility for aligning incentives as well as eliminating barriers to emissions reductions.

Purpose of this Document

More than 50 financial institutions have publicly committed to set emissions reduction targets through the Science Based Targets initiative (SBTi). An additional 80 institutions in the financial sector reported to CDP in 2019 that they intend to set a science-based target within the next two years.

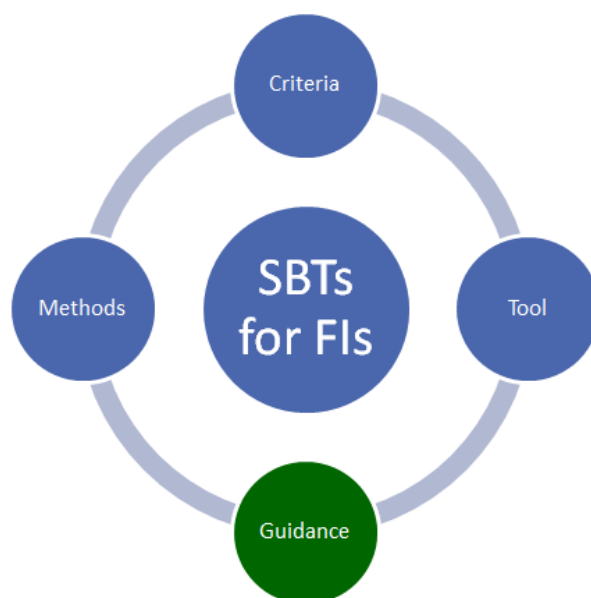
Recognizing the pressing need for a tailored and standardized approach for financial institutions, the SBTi launched a project in 2018 to develop target-setting methods, validation criteria, a target-setting tool, and guidance for financial institutions to align their lending and investment portfolios with the ambition of the Paris Agreement.

This guidance document includes resources for financial institutions to set targets for their investment and lending portfolios that can then be publicly validated by the SBTi. Financial institutions are invited to use the methods and financial sector target validation criteria and recommendations (Chapter 3) described in this document to formulate their targets. The criteria and recommendations listed in this document and published on the SBTi website are intended to guide development of targets. They will also be used by the SBTi target validation team to assess financial institutions’ target submissions. The

SBTi Finance Tool described here is freely available through the project website¹ along with all other project resources to facilitate target setting. Finally, the case studies and other information included in this guidance document are intended to further support financial institutions target development, submission, and implementation processes.

This Guidance document is part of the science-based target-setting framework for financial institutions that has been developed by the Science Based Targets initiative. It is one of four components in the framework that also includes target-setting methods, criteria and open-source tools for target-setting. The framework was developed over a 2-year stakeholder engagement process focused on method road testing, criteria feedback workshops, tool beta testing, and guidance draft review.

Figure 1-1. Four components of the SBTi's framework for financial institutions



The Guidance document provides recommendations for financial institutions on how to set science-based targets for scope 1, 2, and 3 emissions (Chapter 4 and 5), requirements on coal phase out and disclosure of fossil fuel investments (Chapter 6), actions FIs can take to achieve their targets (Chapter 7), recommendations on communicating targets and actions (Chapter 8), and instructions on committing to SBTi and submitting targets for a validation (Chapter 9). The document finishes by outlining areas for discussion and further research (Chapter 10).

Project Target Audience

For the initial 2018-2020 phase of the project, the primary audience is composed of universal banks, asset managers, asset owners (mutual funds, pension funds, closed-end funds), insurance companies,

¹ Please find the project website here: <https://sciencebasedtargets.org/financial-institutions/>

and real estate investment trusts (REITs). Development financial institutions are not the primary audience of the project.

The framework is also relevant for other financial institutions that have holdings in the following asset classes where methods are currently available:

- Real estate
- Mortgages
- Electricity generation project finance
- Corporate debt and equity

Asset classes beyond this list are currently out of scope. Additional audiences and asset classes are expected to be included in phase II of the project.

SBTi's Finance Project Context

Financial institutions differ from other economic sectors: they provide finance and other services to the companies that are responsible for reducing GHG emissions, rather than having direct control over GHG emission reductions. The central enabling role of finance is recognized in the Paris Agreement, which contains Article 2.1(c) on “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”

As reflected by Article 2.1(c), financial institutions require an approach within SBTi that is tailored to their role and recognizes that climate target-setting is one of numerous activities needed for systemic transformation. Due to the lack of complete understanding and evidence regarding the climate impacts of financial institutions' investment and lending portfolios, the SBTi's finance sector project focuses on trackable activities. Activities that connect financial flows with GHG emission reductions in the real economy include physical and transition risk assessment, emissions measurement and disclosure, target setting, tracking of mitigation actions, and performance and disclosure. Thus, the SBTi framework for finance contributes to the wider portfolio transition framework through its transparent and robust target-setting platform and disclosure requirement regarding actions taken by financial institutions to achieve targets.

What Are Science Based Targets (SBTs)?

SBT for Companies

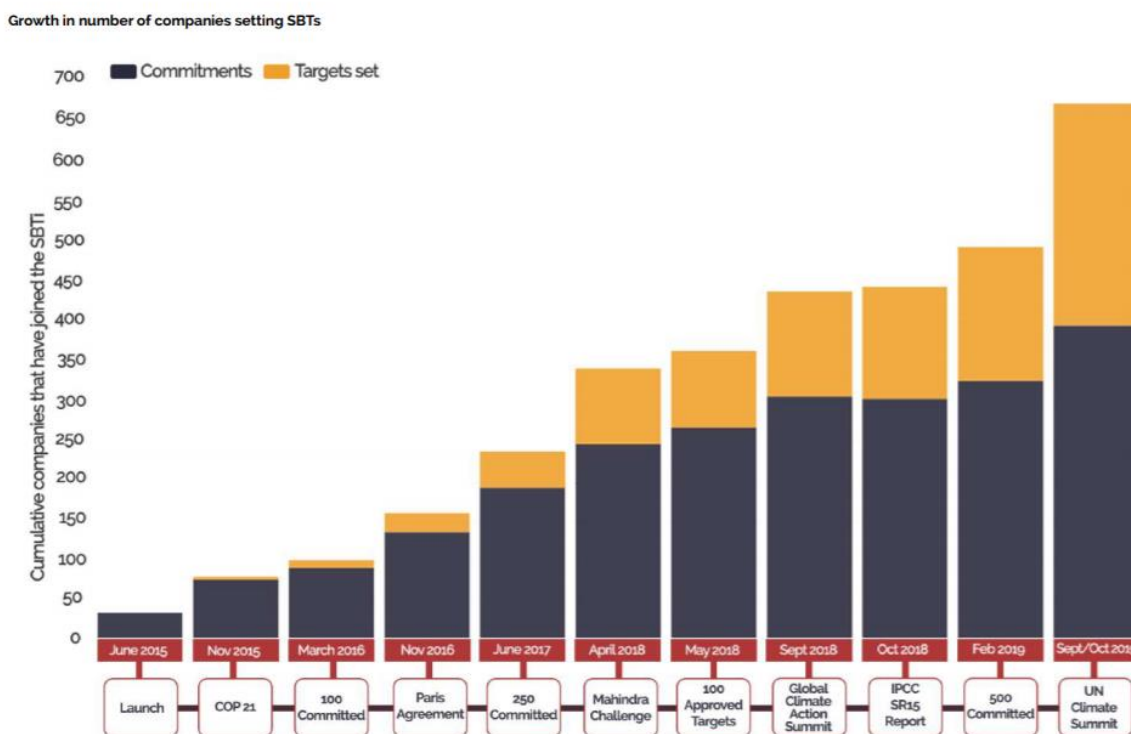
Targets adopted by companies to reduce GHG emissions are considered “science-based” if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement – to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

Among companies globally, there is a growing momentum for science-based target setting through the Science Based Targets initiative (SBTi). As of August 2020, 942 companies and 55 financial institutions have publicly joined the SBTi, among which 427 companies have had their targets officially approved.²

The pace at which companies join SBTi doubled between April 2018 and October 2019 compared to the previous 36 months. When SBTi was launched in 2015, science-based target setting emerged as a novel corporate sustainability practice. The onset of the global COVID pandemic in 2020 has not slowed the pace of company commitments such that SBTi remains on track to hit its ‘1,000 committed companies by end of 2020’ goal. Today, SBTs have become a shared language for ambitious corporate climate ambition.

SBTi has made substantial progress against its goal of making science-based target setting become standard business practice and for companies seeking to play a leading role in driving down global GHG emissions.

Figure 1-2. Increase in number of companies joining SBTi



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Source: [SBTi progress report](#) page 8 [to be updated]

² For more information on committed and approved companies, please visit <https://sciencebasedtargets.org/companies-taking-action/>

Overview of the Science Based Targets initiative

SBTi mobilizes companies to set science-based targets and boosts their competitive advantage in the transition to a low-carbon economy. It is a collaboration between CDP, the United Nations Global Compact, World Resources Institute (WRI), and the World Wide Fund for Nature (WWF), and is one of the We Mean Business coalition commitments.³ The finance project is one of SBTi's ongoing sector development projects.

The initiative:

- Showcases companies that have set SBTs through case studies, events and media to highlight the increased innovation, reduced regulatory uncertainty, strengthened investor confidence and improved profitability and competitiveness generated by setting SBTs.
- Defines and promotes best practice in setting SBTs with the support of a Technical Advisory Group and a Scientific Advisory Group.
- Offers resources, workshops, and guidance to reduce barriers to adoption.
- Independently assesses and approves companies' targets through a Call to Action campaign that calls on companies to demonstrate their leadership on climate action by publicly committing to set SBTs. Companies then have two years to get their targets approved and published through the SBTi.⁴

How is the Financial Sector Addressing Climate?

Financial institutions are increasingly attuned to climate, both in terms of adaptation to warming and reducing climate impacts of investment and lending portfolios. Actions in this latter mitigation category can be categorized into six categories: high-level commitments to act, measurement of financed emissions/disclosure, scenario analysis, target setting, implementation actions, and reporting. The table below summarizes 15 related financial sector initiatives along these six categories.

³ Please refer to the SBTi's website for further details on its governance: <https://sciencebasedtargets.org/governance/>

⁴ For more information, see <http://sciencebasedtargets.org/>

Table 1-1. Relevant initiatives that support financial institutions' climate actions

Existing collaborative climate initiatives supporting FIs on climate actions									
For whom?			as of December 31, 2019						
B Banks	I Investors	BI Banks & Investors	◆ Focus of Initiative	High-level Commitment to Act	Measuring Financed Emissions	Scenario Analysis	Target-setting	Enabling Action	Reporting
B			◆	◆					
B				◆					
	I			◆					
	I			◆					
BI									◆
BI					◆				
B						◆			
BI						◆			
BI						◆			
I						◆			
BI							◆		
B								◆	
B								◆	
I								◆	
BI									◆

Source: PCAF 2019. [to be updated]

SBTi's finance project is focused on the target-setting component in the broader portfolio transition process. The first climate mitigation step for many financial institutions is a high-level commitment to act through an international initiative such as the UN-convened Net-Zero Asset Owners Alliance, Principles for Responsible Banking, the Investor Agenda, or a commitment to TCFD reporting. The IIGCC Paris Aligned Investment Initiative builds from a high-level commitment to set out a range of actions investors should take to align their portfolios. To develop emissions metrics, the Partnership for Carbon Accounting Financials (PCAF) provides methods and data resources for quantification of financed emissions. Peer initiatives including the 2° Investing Initiative offer alignment analysis for investment and lending portfolios. Target setting with the SBTi is intended to provide specific, shorter-term components of the high-level commitments and build on the financed emissions and scenario analysis. After the targets are set and published, SBTi seeks to harmonize with action and reporting focused initiatives to facilitate implementation, accountability, and compilation of evidence.

Outside of the areas described in Table 1-1 above, financial institutions are also mitigating their climate impacts by measuring emissions intensity of their portfolios, distinguishing green versus brown investment, and by divesting from fossil fuels. The emissions intensity approach calculates emissions per economic unit, often gCO₂e/\$ assets under management, to quantify sector differences and track

changes over time. Green versus brown metrics are exemplified by WRI's [Green Targets tool](#), which illustrates the distribution of banks' sustainable finance commitments relative to their fossil fuel finance.⁵ University endowment and other financial institutions' commitments to divest from fossil fuels represent another type of action. The SBTi finance sector project complements and augments these approaches with its focus on target setting.

Framework Development Process

Science-based target setting resource for financial institutions have been developed through an inclusive, multi-stakeholder process, including consultation with: an Expert Advisory Group (EAG) representing financial institutions, consultants, NGOs, and academic institutions; financial institutions participating in method road testing; and a broader Stakeholder Advisory Group (SAG) which provides input at key milestones in the framework development process.

Below are highlights and milestones from the development process:

- September 2018: First EAG meeting. [Read a summary](#) of the discussion.
- December 2018: EAG meeting to introduce the draft methods and solicit initial feedback.
- February 2019: EAG meeting to obtain feedback on the road-testing process.
- April 2019: Launch of methods road-testing process. [Watch a recording](#) of the launch webinar and [view slides](#).
- April-September 2019: Gathered feedback from financial institutions and other stakeholders on draft asset class-based methods through road-testing process and an open stakeholder consultation.
- October 2019: Hosted a webinar to share a summary of feedback received from companies participating in the road-testing process. [Watch a recording](#) of the webinar and [view slides](#).
- November 2019: Co-hosted a webinar with Global Compact Network Australia and WWF to share progress on methodologies with financial institutions in Oceania and Asia Pacific. [Watch a recording](#) of the webinar and [view slides](#).
- February 2020: Hosted workshops in London and Tokyo to gather feedback from stakeholders on draft target validation criteria. Watch a recording of the workshop plenary in London and view slides [here](#).
- April 2020: Hosted a webinar to initiate public call for feedback on development of a new temperature scoring [draft methodology](#) for companies and investment portfolios. Watch a recording and view slides.

⁵ For more information on WRI's Green Targets tool for banks, see <https://www.wri.org/finance/banks-sustainable-finance-commitments/>.

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- April – May 2020: Conducted public consultation to gather input from stakeholders on draft target validation criteria and tool development process that will serve as central components of the SBTi’s framework for financial institutions.
 - May 2020: Hosted a webinar to share a summary of stakeholder feedback on draft target validation criteria. [Watch a recording](#) and [view slides](#).
 - May 2020: Participated in a webinar hosted by the Institute of International Finance to share a project overview and update. [View recording](#).
 - April - May 2020 - Hosted a webinar to launch the consultation process for the temperature scoring methodology. [Watch a recording](#) and [view slides](#).
 - July 2020: Hosted a webinar to launch the Temperature Alignment and SBT portfolio coverage tool beta testing process and provided an overview of the Financial Sector Science Based Targets Guidance and the feedback process. View [recording](#) and [slides](#).
 - August 2020: Shared the first draft of the Financial Sector Science Based Targets Guidance for public comments.
 - *[To be updated]*

2. Business Case for Financial Institutions to Set Science Based Targets

Financial institutions are uniquely positioned to influence other actors through their investment and lending services. To drive Paris-aligned systemic decarbonization, it is critical to leverage shared influence and responsibility for aligning incentives as well as eliminating barriers to emissions reductions.

Financial institutions that set science-based targets commit to align their lending and investment portfolios with the level of ambition required to achieve the goals of the Paris agreement. This commitment, along with the strategy and actions that will be taken to achieve the targets, not only contribute to the transition to a net-zero economy, but also bring substantial benefits to the financial institution. Key benefits include:

- **Build business resilience and increase competitiveness:** Performing scenario analysis and applying methods to set SBTs enable financial institutions to align with the low-carbon economy, to identify and capitalize on a range of opportunities, to mitigate climate risks and increase competitiveness by gaining insights into the transformations faced by the economic sectors they lend to and invest in.
- **Drive innovation:** As SBTs include a long-term vision, financial institutions can plan future financing options that prioritize the low-carbon transition. Engaging with their clients, financial institutions can develop innovative financial products and services that enable customers to reduce real economy emissions.
- **Build credibility and reputation:** SBTs have higher credibility with stakeholders since they are based on the latest available science. Financial institutions with SBTs can serve as lower-risk options for long-term shareholders and investors that are seeking to hedge climate-related risks. In addition, financial institutions with SBTs demonstrate leadership in sustainability, which improves a financial institution's reputation towards all stakeholders.
- **Influence and prepare for shifts in public policy:** SBTs help financial institutions adapt to changing policies and send a stronger signal to policymakers, allowing the industry to better influence policy decisions. Financial institutions that have SBTs are much better positioned to respond to future regulatory adjustments as governments ramp up their climate action.
- **Increase transparency of climate ambitions:** while access to robust portfolio emissions data remains a challenge, this is no reason to delay action. Financial institutions that undertake the target setting process lead the way and push the market towards better data solutions. In general, three data options currently exist to measure portfolio emissions; in order of

robustness, these are; (i) reported emissions⁶, (ii) physical activity-based emissions⁷ and (iii) economic activity-based emissions^{8,9}. For sake of transparency, the GHG protocol recommends disclosing information on the quality of the inventory (e.g., information on the causes and magnitude of uncertainties in emission estimates).¹⁰

⁶ Audited or non-audited GHG emissions data or actual primary activity data collected from the investee company directly (e.g. company sustainability report) or third-party data providers, such as CDP, Bloomberg, MSCI, Sustainalytics, S&P / Trucost, ISS ESG Solutions etc.

⁷ Physical activity-based emissions are derived from actual energy consumption (e.g. MWh of natural gas consumed) or production (e.g. ton of steel produced) data reported by companies and verified emission factors from public databases (e.g. Ecoinvent, DEFRA, IPCC, GEMIS, FAO, etc.)

⁸ Economic activity-based emissions are derived from official statistical data and/or acknowledged EEIO tables providing region/sector-specific average emission factors expressed per economic activity (e.g. tCO₂e/EUR of revenue or tCO₂e/EUR of asset). Example EEIO databases that can be used to obtain such emission factors are EXIOBASE, GTAP or WIOD.

⁹ The Partnership for Carbon Accounting Financials has developed an emissions factor database that offers a large set of emission factors organized by geographies, sectors and asset classes. The data set is a collection of public available emissions factors from the sources mentioned in footnote 3 and 4.

¹⁰ WRI and WBCSD (2004) A Corporate Accounting and Reporting Standard; chapter 9.
<https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

3. SBTi Target Validation Criteria and Recommendations for Financial Institutions

This chapter presents the SBTi target validation criteria and recommendations that have been developed through multiple rounds of stakeholder consultations. All of the criteria presented here must be met in order for financial institutions' targets to be recognized by the Science Based Targets initiative (SBTi). In addition, financial institutions shall follow the [GHG Protocol Corporate Standard, Scope 2 Guidance](#), and [Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#) for their emissions accounting and reporting.¹¹ SBTi recommendations are important for transparency and best practices, but are not required.

Criteria are also included throughout this document where detailed guidance on application is provided.

Table 3-1. SBTi target validation criteria and recommendations for financial institutions

GHG Emissions Inventory and Target Boundary
<p>C1 – Scopes</p> <p><i>Financial Institutions (FIs) must set a target(s) that covers Institution-wide scope 1 and scope 2 emissions, as defined by the GHG Protocol Corporate Standard.</i></p>
<p>C2 – Significance Thresholds</p> <p><i>Financial Institutions may exclude up to 5% of scope 1 and scope 2 emissions combined in the boundary of the inventory and target.</i></p>
<p>C3 – Greenhouse Gases</p> <p><i>The targets must cover all relevant GHGs as required per the GHG Protocol Corporate Standard.</i></p>
<p>C4 – Bioenergy Accounting</p> <p><i>Direct emissions from the combustion of biomass and biofuels for Institution-wide operational use, as well as GHG removals associated with bioenergy feedstock, must be included alongside the Financial Institution’s inventory and must be included in the target boundary when setting a science-based target and when reporting progress against that target. If biogenic emissions from biomass and biofuels are considered climate neutral, the financial institution must provide justification of the underlying assumptions.</i></p>
Scope 1 and 2 Target Timeframe
<p>C5 – Base and Target Years</p> <p><i>Targets must cover a minimum of 5 years and a maximum of 15 years from the date the target is submitted to the SBTi for an official validation</i></p>

¹¹ Limited deviations from the Scope 3 Standard in this framework are described in the section “Compiling a GHG inventory”.

C6 – Progress to Date

Targets that have already been achieved by the date they are submitted to the SBTi are not acceptable. The SBTi uses the year the target is submitted to the initiative (or the most recent completed GHG inventory) to assess forward-looking ambition. The most recent completed GHG inventory must not be earlier than two years prior to the year of submission

Scope 1 and 2 Target Ambition**C7 – Level of Ambition**

At a minimum, scope 1 and scope 2 targets will be consistent with the level of decarbonization required to keep global temperature increase to well below 2°C compared to pre-industrial temperatures, though financial institutions are encouraged to pursue greater efforts towards a 1.5°C trajectory. Both the target timeframe ambition (base year to target year) and the forward-looking ambition (most recent year to target year) must meet this ambition criteria.

C8 – Absolute vs. Intensity

Intensity targets for scope 1 and scope 2 emissions are only eligible when they lead to absolute emission reduction targets in line with climate scenarios for keeping global warming to well-below 2°C or when they are modelled using an approved sector pathway. Absolute reductions must be at least as ambitious as the minimum of the range of emissions scenarios consistent with the well-below 2°C goal or aligned with the relevant sector reduction pathway within the Sectoral Decarbonization Approach.

C9 – Method Validity

Targets must be modelled using the latest version of methods and tools approved by the initiative. Targets modelled using previous versions of the tools or methods can only be submitted to the SBTi for an official validation within 6 months of the publication of the revised method or the publication of relevant sector-specific tools.

C10 – Offsets

The use of offsets is not counted as emissions reduction toward the progress of financial institutions' science-based targets. The SBTi requires that financial institutions set targets based on emission reductions through direct action within their own operations or their investment and lending portfolios. Offsets are only considered to be an option for financial institutions seeking to support additional emission reductions beyond their science-based targets.

C11 - Avoided Emissions

Avoided emissions fall under a separate accounting system from corporate and financial institutions' inventories and do not count toward science-based targets.

Scope 2**C12 – Approaches**

Financial Institutions shall disclose whether they are using a location or market-based approach per the GHG Protocol Scope 2 Guidance to calculate base year emissions and to track performance against a science-based target. Financial Institutions shall use a single, specified scope 2 accounting approach ("location-based" or "market-based") for setting and tracking progress toward their SBTs.

C13 – Renewable Electricity Procurement

Targets to actively source renewable electricity at a rate that is consistent with well below 2°C scenarios are an acceptable alternative to scope 2 emission reduction targets. The SBTi has identified 80% renewable electricity procurement by 2025 and 100% by 2030 as thresholds (portion of renewable energy over total energy use) for this approach in line with the recommendations of RE100. Financial Institutions that already source electricity at or above these thresholds shall maintain or increase their use share of renewable electricity to qualify.

Scope 3 - Portfolio Emissions Screening and Target Setting Requirement

C14 – Requirement to Set Target(s) on Investment and Lending Activities

All financial institutions must set targets on their investment and lending activities as required by C15, irrespective of the share of quantified portfolio emissions as compared to the total scope 1+2+3 emissions of the financial institution.

C15 – Portfolio target coverage

Financial institutions shall set targets on all “Required Activities” in the Required Activities and Methods Table (Table 5-2 below) following the minimum coverage requirement.

C16 – SDA Targets

Financial institutions’ targets using the sectoral decarbonization approach (SDA) are considered acceptable when the following conditions are met:

Boundary: Financial institutions shall set SDA targets on their mortgage, real estate, and electricity generation project finance related activities as specified in the Required Activities and Methods Table (Table 5-2).

Ambition: Portfolio SDA targets must meet minimum ambition indicated by sector-specific methods for well-below 2° pathways.

Timeframe: Portfolio SDA targets must cover a minimum of 5 years and a maximum of 15 years from the date the financial institution’s target is submitted to the SBTi for an official validation. Financial institutions are further encouraged to develop long-term targets up to 2050 in addition to the required mid-term targets.

C17.1– SBT Portfolio Coverage Targets

Financial institutions’ targets to drive the adoption of science-based emission reduction targets by their investees are considered acceptable when the following conditions are met:

Boundary: Financial institutions shall set engagement targets around the corporate debt and equity portions of their portfolios.

Target Level of Ambition: Financial institutions shall commit to having a portion of their investees set their own approved science-based targets such that the financial institution is on a linear path to 100% portfolio coverage by 2040 (using a weighting approach in the SBTi Finance Tool). For example, a financial institution starting with 10% coverage in 2020 would need to increase coverage by 4.5% per year ($90 / (2040 - 2020) = 4.5$) and reach at least 32.5% coverage by 2025.

Target Formulation: Financial institutions shall provide information in the target language on what percentage of the corporate equity and debt portfolio is covered by the target, using a weighting approach in the SBTi Finance Tool consistently throughout the target period.

Target Timeframe: Financial institutions' portfolio coverage targets must be fulfilled within a maximum of 5 years from the date the FI's target is submitted to the SBTi for validation. Fulfillment of portfolio coverage targets mean that investees' SBTs have been approved by SBTi.

Scope of Investee Targets: Financial institutions' investees shall follow the latest SBTi criteria for companies to set scope 1 and 2 targets, as well as scope 3 targets when their scope 3 emissions

C17.2 – Portfolio Temperature Alignment Targets

Financial institutions' targets to align the temperature rating of their corporate debt and equity portfolios with ambition of the Paris Agreement are considered acceptable when the following conditions are met:

Portfolio Temperature Alignment Target Boundary: Financial institutions shall set portfolio temperature alignment targets on corporate instruments as specified in the Required Activities and Methods Table (Table 5-2).

Portfolio Temperature Alignment Target Level of ambition: Financial institutions shall align their portfolio scope 1+2 temperature score with a minimum well-below 2°C scenario and in addition align their portfolio to a minimum 2°C scenario for the scope 1+2+3 portion by 2040. Alignment with more ambitious scenarios such as 1.5°C is highly encouraged.

Financial institutions shall commit to reducing their portfolio temperature scores such that the financial institution is on a linear path to the stated goal (at least well-below 2°C aligned) by 2040. For example, a financial institution starting with scope 1+2 portfolio temperature score of 2.9°C in 2020 would need to decrease their portfolio temperature by 0.0575°C per year $((2.9°C - 1.75°C) / (2040 - 2020)) = 0.0575°C$, and reach at least 2.61°C portfolio temperature score by 2025.

The scope 1+2+3 temperature score must include the scope 1+2 score of at least well-below 2°C alignment. For example, a financial institution starting with scope 1+2+3 portfolio temperature score of 3.2°C in 2020 would need to decrease their portfolio temperature by 0.06°C per year $((3.2°C - 2°C) / (2040 - 2020)) = 0.06°C$, and reach at least 2.9°C portfolio temperature score by 2025.

Portfolio Temperature Alignment Target Timeframe: portfolio alignment targets must be fulfilled within a maximum of 5 years from the date the targets are submitted to the SBTi for an official validation.

Recommendation – Targets on Scope 3 Categories 1-14

It's recommended but not required for financial institutions to measure and set target(s) on category 1-14 emissions as defined by GHGP Scope 3 standard.

Optional targets on these categories must meet Criteria 19-20.1 in [the latest SBTi criteria for companies](#) to be approved by SBTi.

Disclosure and phase out of fossil fuel investments

C18 – Phase out of coal investments

*Financial institutions shall establish and publicly disclose a policy **at the time of target announcement** that they will cease investments and/or loans with known use of proceeds (e.g., project finance) in new and additional thermal coal exploration, mining, production, and utilization (i.e., combustion). This does not preclude investments and/or loans with known use of proceeds that support the low-carbon transformation of coal facilities, such as hydrogen production plants or carbon storage.*

*In addition to the policy described above, financial institutions shall establish and publicly disclose a policy at the time of target announcement that they will **phase-out** coal across all their investments, financial services and insurance coverage **at the latest by 2040**.*

Recommendation 4 - Disclosure of Fossil Fuel Investments

After target approval, financial institutions should disclose the annual investments (private equity, public equity, corporate bonds), direct project financing and lending or underwriting to fossil fuel (oil, gas, and coal) projects and companies in U.S. dollar amount (or other currencies) in annual reporting.*

**This includes companies involved in exploration, extraction, refining, transportation and distribution, storage, retailing, marketing, trading, or power, heat, or cooling production from oil, gas, and coal.*

Reporting

C19 - Disclosure of Target(s) Portfolio Coverage

Financial institutions shall disclose the percentage of their total investment and lending activities covered by current portfolio targets in a metric representative of the magnitude of the FI's main business activities (which may involve any combination of commercial banking, investment banking, and asset management). Examples include total emissions, total assets (balance sheet total), assets under management, or annual revenue.

C20 – Implementation Reporting

At the time of target submission, the financial institution shall submit a brief summary of how it intends to meet its scope 3 portfolio targets in conformity with the template provided in the target submission form.

This disclosure is intended to create transparency and will not be used as a basis for validation of targets. At the time of target announcement, the summary of how the financial institution intends to achieve its targets shall be made public upon agreement with the FI.

*After target approval, SBTi requires annual disclosure of scope 1 and 2 GHG emissions, disclosure of actions/strategies taken during the year to meet scope 3 portfolio targets and disclosure of progress against all approved targets. **

**If optional targets on scope 3 category 1-14 as described in [R1](#) are submitted and approved by SBTi, their progress shall be included in the disclosure of progress as well.*

Recalculation and Target Validity

C21 - Target Recalculations

To ensure consistency with most recent climate science and best practices, targets must be reviewed, and if necessary, recalculated, and revalidated, at a minimum, every 5 years.

Financial institutions with an approved target that requires recalculation must follow the most recently applicable criteria at the time of resubmission. Targets should be recalculated, as needed, to reflect significant changes that would compromise relevance and consistency of the existing target.

C22 - Target Validity

Financial institutions with approved targets must announce their target publicly on the SBTi website within 6 months of the approval date. Targets unannounced after 6 months will have to go through the approval process again, unless a different publication timeframe was agreed with the SBTi.

4. How to Set Science Based Targets

Compiling a GHG Inventory

Setting organizational and operational boundaries for a GHG inventory

An institution wide GHG inventory is the foundation to setting SBTs. SBTi requires that financial institutions follow the [GHG Protocol Corporate Standard](#), [Scope 2 Guidance](#), and [Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#) to measure and report GHG emissions.

This section presents target validation criteria that are relevant to GHG emissions inventory and target boundary, and introduces the concepts of organizational and operational boundaries from the GHGP Corporate Standard. It also denotes where this framework deviates from or goes beyond these existing standards for setting targets on FIs' investment and lending activities.

---Criteria box begins---

GHG Emissions Inventory and Target Boundary
C1 – Scopes <i>Financial Institutions (FIs) must set a target(s) that covers Institution-wide scope 1 and scope 2 emissions, as defined by the GHG Protocol Corporate Standard.</i>
C2 – Significance Thresholds <i>Financial Institutions may exclude up to 5% of scope 1 and scope 2 emissions combined in the boundary of the inventory and target.</i>
C3 – Greenhouse Gases <i>The targets must cover all relevant GHGs as required per the GHG Protocol Corporate Standard.</i>
C4 – Bioenergy Accounting <i>Direct emissions from the combustion of biomass and biofuels for Institution-wide operational use, as well as GHG removals associated with bioenergy feedstock, must be included alongside the Financial Institution's inventory and must be included in the target boundary when setting a science-based target and when reporting progress against that target. If biogenic emissions from biomass and biofuels are considered climate neutral, the financial institution must provide justification of the underlying assumptions.</i>

---Criteria box ends---

Ensure the SBT Target Boundary is Aligned with the GHG Inventory Boundary

As a first step to compile a GHG inventory, a financial institution should define its organizational boundary by selecting a single consolidation approach based on a range of institution-specific considerations. The chosen consolidation approach should be applied consistently across its institutional structure. The boundaries of its SBTs must align with the organizational boundaries of the GHG inventory.

The GHG Protocol Corporate Standard defines three different approaches for determining the organizational boundaries of institutional GHG inventories:

1. **Operational control:** a financial institution accounts for 100 percent of the emissions from operations at which it has the full authority to introduce and implement operating policies. It does not account for any of the emissions from operations in which it owns an interest but does not have operational control
2. **Financial control:** a financial institution accounts for 100 percent of the emissions from operations at which it can direct financial and operating activities with a view to gaining economic benefits from those activities.
3. **Equity share:** a financial institution accounts for GHG emissions from operations according to its share of equity in the operation. The equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation.

The GHG Protocol Corporate Standard provides further guidance on this topic.

Setting the Operational Boundary

After selecting an organizational boundary, a financial institution sets its operational boundary to distinguish between direct emissions from sources it owns or controls from indirect emissions. The GHGP Corporate standards defines three scopes of emissions for setting organizational boundaries:

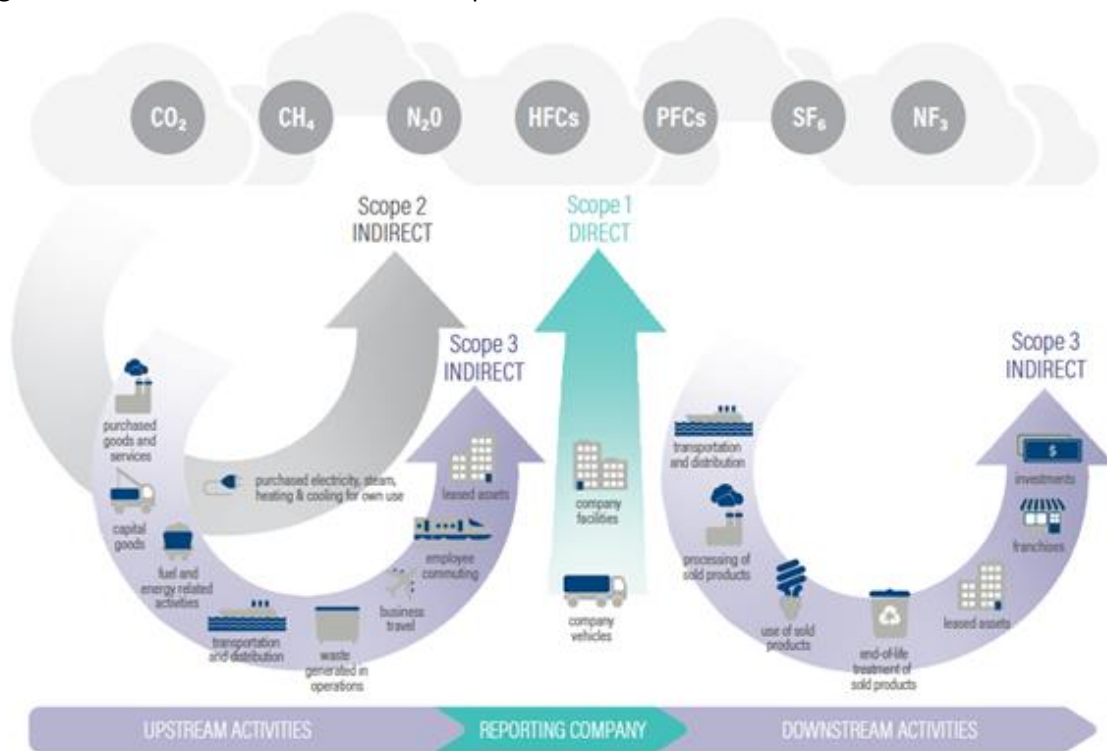
- **Scope 1:** Direct GHG emissions that are emitted from sources owned and controlled by a company.
- **Scope 2:** GHG emissions from the generation of electricity, heat and steam purchased by a company.
- **Scope 3:** “Indirect” emissions from a company’s value chain activities.

The GHG Protocol Corporate Value Chain (Scope 3) Standard further categorizes scope 3 emissions into 15 categories, where Category 15 - Investment is designed primarily for private financial institutions, such as commercial banks. Together with the Technical Guidance for Calculating Scope 3 emissions, the Scope 3 Standard provides initial, high-level guidance to account for emissions from a set of asset classes.

For Category 15, the Scope 3 Standard only requires the inclusion of corporate debt holdings with known use of proceeds.¹² **However, this framework goes beyond this requirement and therefore expands the minimum boundary of category 15.** Financial institutions shall follow the emissions measurement and/or target setting requirements outlined in the relevant asset class methods and include debt investments without known use of proceeds where applicable.

Measurement of all seven GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, and NF₃) is required for scope 1 and 2 emissions. Considering data availability challenges, financial institutions should cover all GHGs for category 15 if possible, with measurement of CO₂ as the minimum requirement.

Figure 4-1. Overview of GHG Protocol scopes and emissions across the value chain



Source: Greenhouse Gas Protocol, Scope 3 Standard

Choosing an inventory consolidation approach

The GHGP Scope 3 Standard specifies that financial institutions may decide under which scope investment and lending activities are included, depending on the chosen consolidation approach. For

¹² [Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#), page 52

instance, if a financial institution chooses the equity share approach, it has the flexibility to account for investment related emissions from equity investments in scope 1 and scope 2.¹³ To simplify the target setting process, **financial institutions shall use the operational control approach** and include investment and lending activities in scope 3 Category 15.

Measuring financed emissions to facilitate target setting

Harmonized measurement and disclosure of financed emissions are key to ensuring comparability and transparency among financial institutions. SBTi has identified the Global Carbon Accounting Standard for the financial industry, developed by the [Partnership for Carbon Accounting Financials \(PCAF\)](#), as a freely-available approach to measure portfolio-wide or asset level financed emissions. The Standard builds on the GHG Protocol Scope 3 Standard for Category 15 - Investments, providing detailed methodological guidance on measurement and disclosure of GHG emissions associated with loans and investments. The Standard is applicable to multiple geographies and includes carbon accounting methods for the asset classes covered in this SBTi guidance document (i.e. mortgages, real estate, electricity generation project finance, and corporate equity and debt).

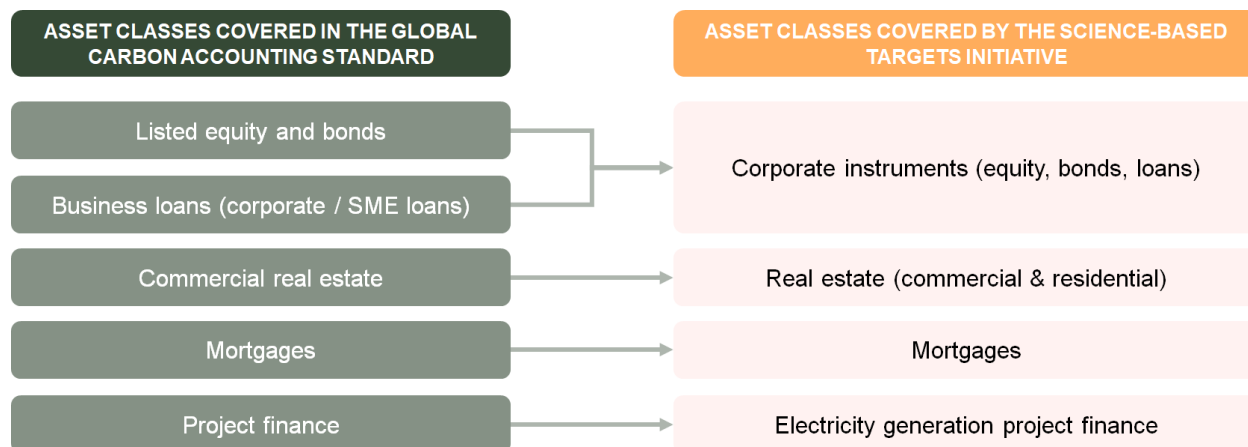
For financial institutions that are interested in understanding the overall exposure to emissions of their portfolios, they may also use PCAF methods to conduct a portfolio-wide emissions screening and prioritize which part of the portfolio to focus on for target setting (i.e. asset classes and sectors). Following this prioritization, financial institutions measure emissions associated with their investing and lending activities to determine the emission baselines from which emission-based SBT are set. At the monitoring stage, financial institutions should measure their progress against the target, at which point, measuring portfolio emissions and comparing it with the baseline is required.

For more detailed explanation on how to use PCAF as a starting point for target setting, see [section](#) on the Sectoral Decarbonization Approach.

PCAF's asset-class specific methods facilitate a harmonized approach for measuring financial institutions' year-on-year emissions of loans and investments, fostering transparency and accountability in the financial industry.

¹³ [Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#), page 51

Figure 4-2. Asset class coverage of PCAF



Source: PCAF

---case study begins---

Case study: Wells Fargo’s Scope 3 financed emissions journey

Details to come

---case study ends---

How to set an SBT for Scope 1 and 2 Emissions

Scope 1 and 2 emissions are the starting point for setting SBTs. While scope 3 emissions, in particular category 15-Investments, are more significant for financial institutions than scope 1 and 2 emissions, scope 1 and 2 targets consistent with a well below 2°C pathway at a minimum are required for all financial institutions. Financial institutions are encouraged to align their scope 1 and 2 target ambition with a more ambitious 1.5°C scenario.

This section presents the latest SBTi target validation criteria for scope 1 and 2 targets. Detailed guidance on applying the scope 1 and 2 criteria can be found in Chapter 8 of the [SBTi Target Validation Protocol](#) and Chapter 5 of the [SBT Target Setting Manual](#).

---Criteria box begins---

Scope 1 and 2 Target Timeframe
<p>C5 – Base and Target Years <i>Targets must cover a minimum of 5 years and a maximum of 15 years from the date the target is submitted to the SBTi for an official validation</i></p>
<p>C6 – Progress to Date <i>Targets that have already been achieved by the date they are submitted to the SBTi are not acceptable. The SBTi uses the year the target is submitted to the initiative (or the most recent completed GHG inventory) to assess forward-looking ambition. The most recent completed GHG inventory must not be earlier than two years prior to the year of submission</i></p>
Scope 1 and 2 Target Ambition
<p>C7 – Level of Ambition <i>At a minimum, scope 1 and scope 2 targets will be consistent with the level of decarbonization required to keep global temperature increase to well below 2°C compared to pre-industrial temperatures, though financial institutions are encouraged to pursue greater efforts towards a 1.5°C trajectory. Both the target timeframe ambition (base year to target year) and the forward-looking ambition (most recent year to target year) must meet this ambition criteria.</i></p>
<p>C8 – Absolute vs. Intensity <i>Intensity targets for scope 1 and scope 2 emissions are only eligible when they lead to absolute emission reduction targets in line with climate scenarios for keeping global warming to well-below 2°C or when they are modelled using an approved sector pathway. Absolute reductions must be at least as ambitious as the minimum of the range of emissions scenarios consistent with the well-below 2°C goal or aligned with the relevant sector reduction pathway within the Sectoral Decarbonization Approach.</i></p>
<p>C9 – Method Validity <i>Targets must be modelled using the latest version of methods and tools approved by the initiative. Targets modelled using previous versions of the tools or methods can only be submitted to the SBTi for an official validation within 6 months of the publication of the revised method or the publication of relevant sector-specific tools.</i></p>
<p>C10 – Offsets <i>The use of offsets is not counted as emissions reduction toward the progress of financial institutions’ science-based targets. The SBTi requires that financial institutions set targets based on emission reductions through direct action within their own operations or their investment and lending portfolios. Offsets are only considered to be an option for financial institutions seeking to support additional emission reductions beyond their science-based targets.</i></p>
<p>C11 - Avoided Emissions <i>Avoided emissions fall under a separate accounting system from corporate and financial institutions’ inventories and do not count toward science-based targets.</i></p>
Scope 2
<p>C12 – Approaches <i>Financial Institutions shall disclose whether they are using a location or market-based approach per the GHG Protocol Scope 2 Guidance to calculate base year emissions and to track performance against a science-based target. Financial Institutions shall use a single, specified scope 2 accounting approach (“location-based” or “market-based”) for setting and tracking progress toward their SBTs.</i></p>
<p>C13 – Renewable Electricity Procurement <i>Targets to actively source renewable electricity at a rate that is consistent with well below 2°C scenarios are an acceptable alternative to scope 2 emission reduction targets. The SBTi has identified 80% renewable electricity procurement by 2025 and 100% by 2030 as thresholds (portion of renewable energy over total energy use) for this approach in line with the recommendations of RE100. Financial Institutions that already source electricity at or above these thresholds shall maintain or increase their use share of renewable electricity to qualify.</i></p>

---Criteria box ends---

Methods for setting Scope 1 and 2 SBTs for Financial institutions

Various target-setting methods are available and differ in terms of whether they calculate targets as a percentage reduction in absolute emissions or emissions intensity based on a physical or economic indicator. This section describes the methods that are most applicable to financial institutions for setting scope 1 and 2 targets. An [integrated science-based target-setting tool](#) is available and provides target modeling options for the methods described below.

Financial institutions are encouraged to use the absolute contraction approach to set scope 1 and 2 emissions reduction targets. The absolute contraction approach is the most straightforward approach for linking targets to the well below 2°C and 1.5°C pathways. It requires a minimum of 2.5 percent annual linear reduction in terms of absolute emissions for well below 2°C targets and 4.2 percent for 1.5°C targets.¹⁴

Financial institutions can also set physical or economic intensity targets for scope 1 and 2 emissions. The main method available through SBTi for setting physical intensity targets is the Sectoral Decarbonization Approach (SDA), which uses convergence of emissions intensity and leverages the B2DS scenario from the International Energy Agency report “Energy Technology Perspectives (ETP) 2017”. SDA provides multiple sector-specific pathways, and the pathway most relevant to financial institutions is “Services/commercial Buildings”. This pathway mainly encompasses the “space heating and cooling, water heating, lighting, appliances (HVAC is the technical term), and miscellaneous equipment (such as office equipment and other small plug loads in the service sectors)” of buildings.¹⁵ Due to the lack of 1.5°C scenario data from IEA, however, SBTi currently does not provide an option for financial institutions to set 1.5°C targets using this pathway within SDA.

An alternative approach to setting physical intensity targets that requires less data input and allows for more flexibility with temperature alignment options is to set targets in line with the absolute contraction approach but express them in physical intensity terms. Financial institutions may choose physical units that are representative of their operational activities and have direct physical relationships to the quantity of emissions generated. Considering the projected growth of the chosen unit, financial institutions shall ensure that the underlying absolute emissions reduction is in line with the absolute contraction approach with a 2.5% annual linear reduction at a minimum for a well-below 2 degree alignment. Some common physical units for target setting for the service industry include employee or square meter. Although square meter is the same unit as the one used in SDA, under this option, the target ambition is assessed against the absolute contraction approach.

¹⁴ The paper [Foundations of Science-based Target Setting](#) provides supplementary technical information to Chapter 3 on how science-based target setting methods have been developed in accordance with the best available climate science.

¹⁵ SBTi 2015, Sectoral Decarbonization Approach (SDA): A method for setting corporate emission reduction targets in line with climate science, pg 63

Lastly, financial institutions may also set economic intensity targets using indicators. Scope 1 and 2 economic intensity targets shall only be set only if the underlying absolute emissions reduction aligns with at a minimum a well-below 2°C scenario under the absolute contraction approach. In general however, economic units may not be useful for tracking emissions for financial institutions whose financial growth is not tied closely to quantity of emissions. For instance, revenue for banks can be generated through the difference in rates charged for credit accounts and paid to depositors, which has little relationship with emissions generated in their operations.

Table 4-1 summarizes available methods for setting ambitious scope 1 and 2 targets, as defined in Version 4.1 of the SBTi criteria.

Table 4-1. Summary of Scope 1 and 2 Target-Setting Methods

Method	Method Description	Examples of Approved Targets
Absolute Contraction	<p>This approach assumes that all financial institutions reduce absolute emissions at the same rate:</p> <ul style="list-style-type: none"> • Well below 2°C: Min. 2.5% annual linear reduction • 1.5°C: Min. 4.2% annual linear reduction 	<p>AT&T commits to reduce absolute scope 1 and scope 2 GHG emissions 26% by 2030 from a 2015 base year.</p> <p>Walmart commits to reduce absolute scope 1 and 2 emissions 18% by 2025, from 2015 levels.</p>
Physical intensity	<p>Option 1: Physical intensity targets modeled using the “Services/commercial Buildings” in SDA in line with the B2DS scenario.</p> <p><i>The option to set 1.5°C targets using this SDA pathway is currently not available due to the lack of scenario data from IEA.</i></p>	<p>Property developer, owner and operator Swire Properties Limited commits to reduce scope 1 and 2 GHG emissions 35% per square meter by 2025 and 52% per square meter by 2030 from a 2018 base year.</p>
	<p>Option 2: Physical intensity targets with physical units that are representative of their operational activities and have direct physical relationships to the quantity of emissions generated(e.g. per employee or square meter). Translated into absolute terms, the target must result in a minimum of 2.5% annual linear reduction in terms of absolute emissions for well below 2°C targets and 4.2% for 1.5°C targets.</p>	<p>French real estate & property management company Mercialis commits to reduce scope 1 and 2 GHG emissions 47% per square meter by 2030 from a 2017 base year.</p>
Economic intensity	<p>Economic intensity targets that lead to a minimum of 2.5% annual linear reduction in absolute emissions for well below 2°C targets</p>	<p>Kering commits to reduce scope 1, scope 2, and scope 3 emissions from upstream</p>

	<p>and 4.2% for 1.5°C targets.</p>	<p>transportation and distribution, business air travel, and fuel- and energy-related emissions 50% per unit of value added by 2025 from a 2015 base year.</p> <p>Multinational inspection, verification, testing and certification company SGS commits to reduce scope 1, scope 2 and scope 3 (business travel) emissions per unit of revenue 45% by 2025 and 55% by 2030, from a 2014 base year.</p>
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5. Approaches to Setting Scope 3 Portfolio Targets

Background and brief literature review

At the start of this work, the SBTi performed [a literature review](#), and assessed various methods and tools on their applicability to support target setting for financial institutions. Triggered by the recommendation of the Task Force on Climate-related Financial Disclosures (TCFD), multi data and service providers have developed methods and tools to perform scenario analysis and assess climate-related financial risks, which are not designed to set climate targets.

Existing science-based target setting methods for financial institutions be categorized into four approaches:

- Sector-based approach: the global carbon budget is divided by sector and emission reductions are allocated to the sector (sometimes within an asset class) on the portfolio based on the sector's budget.
- Absolute-based approach: the percent reduction in absolute emissions required by a given scenario is applied to all portfolios equally.
- Economic-based approach: based on the assumption that the sum of all economic actors' gross profits worldwide equate to global GDP, a portfolio's share of emissions is determined by the sum of the gross profit of portfolio companies.
- Capacity based approach: alignment with various climate scenarios is assessed based on physical asset-level production capacity and technology type data (e.g. vehicles manufactured per year, GW electricity, etc.)

The lack of comprehensive emission data has led some stakeholders to explore the use of capacity-based approaches that use physical asset data for climate alignment assessment purposes. An example of a capacity based approach is the Paris Agreement Capital Transition Assessment (PACTA) method produced by the 2^o Investing Initiative.¹⁶ The capacity-based method provides data that financial institutions could use to understand sector-based alignment with technology-specific metrics, rather than a GHG emissions-based metric. Previously in 2019, SBTi road tested the PACTA method with a select group of financial institutions. However, further development is needed for this method to be incorporated into the SBTi framework for finance and accepted as a method to formulate targets in line with the criteria.

Among the approaches developed prior to this project, the sector-based approach is considered most valuable for the financial sector because it enables financial institutions to manage the emissions they financed in specific sectors of the economy. As such, financial institutions can assess their portfolios per

¹⁶ Additional information is available via the [PACTA website](#)

asset class or sector, steer asset level financed emissions within the global carbon budget assigned to each sector, and monitor their improvements in emission reductions more transparently.

This level of influence in the real economy is difficult to achieve with the other three approaches. Absolute-based targets could be achieved by shifting or lowering the exposure to certain sectors within the portfolio without having a clear impact in the real economy. An economic-based approach is sensitive to economic fluctuations in gross profits of portfolio companies (e.g., target achievements can be influenced if the actual gross profit of the portfolio companies deviates strongly from the global GDP projections). Lastly, the capacity-based approach can be limited as a robust linkage between capacity factors and utilization rates with the global carbon budgets has yet to be proven.

Overview of available asset-class-specific methods, broader methods, and existing gaps

SBTi endorses three methods for financial institutions: the Sectoral Decarbonization Approach (SDA), the SBT Portfolio Coverage, and the SBT Temperature Scoring. These methods use asset-class approaches to link financial institutions' investment and lending portfolios with climate stabilization pathways, among which only the SDA method requires emissions measurement on an asset class level. Financial institutions may use one or more of these three methods to develop portfolio targets for a SBT submission as they see fit.¹⁷

An asset class oriented approach was chosen for this framework so that the varying degree of data availability, market liquidity, and levels of ownership of different asset classes are taken into consideration. An initial project survey¹⁸ distributed in February 2018 with 34 responses from financial institutions and other stakeholders also indicated that, in the order of votes received, corporate loans, listed equity, project finance, real estate, and mortgages are asset classes considered most important for inclusion in the framework.

The following table provides an overview of the methods by asset class, followed by a description of each method; more in-depth method descriptions are provided in the Appendices.

¹⁷ If alternate methods become available, SBTi will consider them on a case by case basis. Financial institutions and method developers interested in an assessment of alternative methods should contact the SBTi finance sector team before submitting targets set using these methods for a validation.

¹⁸ To add link

Table 5-1. Portfolio target setting methods for financial institutions

Asset Class	Method	Description	Potential target output example
Real Estate	Sector Decarbonization Approach (SDA)	Emissions-based physical intensity targets are set for non-residential buildings' intensity and total GHG emissions.	Financial institution A commits to reduce its real estate portfolio GHG emissions ___% per square meter by 2030 from a 2018 base year.
Mortgages	SDA	Emissions-based physical intensity targets are set for residential buildings' intensity and total GHG emissions.	Financial institution A commits to reduce its mortgage portfolio GHG emissions ___% per square meter by 2030 from a 2018 base year.
Electricity Generation Project Finance	SDA	Emissions-based physical intensity targets are set for electricity generation projects' intensity and total GHG emissions.	Financial institution A commits to reduce its electricity generation project finance portfolio GHG emissions ___% per kWh by 2030 from a 2018 base year.
Corporate Instruments (equity, bonds, loans)	SDA	Emissions-based physical intensity targets are set at sector level within the portfolio for the following sectors: power generation, cement, pulp & paper,	Financial institution A commits to reduce GHG emissions from the steel sector within its corporate lending portfolio X% per ton of

		transport, iron & steel, and buildings.	cement by 2030 from a 2018 base-year.
	SBT Portfolio Coverage	Financial institutions commit to having a portion of their investees set their own SBTi approved science-based targets or equivalent such that the financial institution is on a linear path to 100% portfolio coverage by 2040 (in consistent emissions or monetary terms)	Investment firm A commits that 30% of its equity portfolio with in the <code>_[sector]_</code> by total assets will have science-based targets by 2025.
	SBT Temperature Scoring	This approach enables financial institutions to determine the current temperature rating of their portfolio and take actions to align their portfolios to ambitious long term temperature goals by engaging with portfolio companies to set ambitious targets.	Investment firm A commits to align their scope 1+2 portfolio temperature score from 2.6°C in 2018 to 1.75°C by 2025. Investment firm A also commits to align their scope 1+2+3 portfolio temperature score from 3.1°C in 2018 to 2°C by 2025.

Defining the boundary of portfolio targets

To seek approval from SBTi, financial institutions shall set target(s) on their investment and lending portfolios that cover asset classes where methods are available, as defined in C15 - Portfolio target coverage below. This requirement stands regardless of the share of portfolio emissions (if quantified) as compared to total scope 1,2, and 3 emissions of financial institutions(C14).

---Criteria box begins---

Scope 3 - Portfolio Emissions Screening and Target Setting Requirement

C14 – Requirement to Set Target(s) on Investment and Lending Activities

All financial institutions must set targets on their investment and lending activities as required by C15, irrespective of the share of quantified portfolio emissions as compared to the total scope 1+2+3 emissions of the financial institution.

C15 – Portfolio target coverage

Financial institutions shall set targets on all “Required Activities” in the Required Activities and Methods Table (Table 5-2) following the minimum coverage requirement.

---Criteria box ends---

Specifically, various activities have been categorized into three categories for inclusion the target boundary:

- 1) Required activities, if relevant, shall be included in the target boundary. For each required activity, a minimum target coverage has been defined. For example, financial institutions with residential mortgages on their portfolio shall cover 100% of these emissions using SDA.
- 2) Optional activities that FIs may include the target boundary if they so wish. These activities are deemed optional as they can be infeasible to set targets for, given challenges such as poor data availability or a lack of influence over emissions reductions. For example, financial institutions that wish to set targets on the optional category of SME loans may consider using the SBT portfolio coverage method and engage its investees to set SBTs.¹⁹ As there is no minimum coverage requirement on optional activities, and FIs may cover as much of these activities as they wish.
- 3) Out of scope activities that can not be covered by available methods or are not applicable to the project audience. Products unlisted in the table are likely out of scope.

The following table presents these three categories of activities, along with applicable method(s) for each product type. When only one method is listed, it means that it is the required method on the specific financial product. For example, SDA is required for residential mortgages portfolios.

When multiple methods are listed, FIs may choose one or more of the methods to set targets on these products. For example, financial institutions may use both SDA and the temperature alignment method to collectively cover 100% of their corporate bonds portfolios.

¹⁹ Find more information on SBTi’s streamlined route for SMEs here: <https://sciencebasedtargets.org/2020/04/20/smoothing-the-way-for-small-and-medium-sized-businesses-to-set-science-based-climate-targets/>

For products where exclusion based on assets under management value is allowed (e.g. corporate lending: long-term debt), financial institutions should refrain from excluding high emitting sectors²⁰, which include but are not limited to:

- Power generation
- Fossil fuels (coal, oil and gas)
- Transport (passenger and freight transport, including use phase emissions of vehicles manufactured by auto manufacturers; shipping and aviation)
- Industry: iron and steel, cement, aluminum, pulp and paper, chemicals and petrochemicals
- Residential and service buildings
- Food and agriculture

For asset managers and banks’ asset management divisions, C14 and 15 also apply to **funds managed under discretionary mandates**. It's recommended but not required for funds with advisory mandates to be included in the target boundary.

Table 5-2. Required, optional, and out of scope activities and applicable methods.

Required Activities	
Optional Activities	
Out of Scope	

	Asset Class	Products and Requirement for inclusion in targets	Required minimum coverage <i>For required activities</i>	Applicable Methods
	On balance sheet and off balance sheet	Consumer loan	Residential mortgages	100%
Motor vehicle loan			N/A	N/A
Personal loans			N/A	N/A
Project Finance		Electricity Generation Project finance	100%	SDA
		Other project finance (e.g.	N/A	N/A

²⁰ More information can be found here: <https://www.iea.org/data-and-statistics?country=WORLD&fuel=CO2%20emissions&indicator=CO2%20emissions%20by%20sector>

<i>Applies to funds managed under discretionary mandates for asset managers and banks' asset management divisions. It's recommended but not required for funds with advisory mandates to be included in the target boundary</i>		Infrastructure)				
	Real Estate	Real estate investments (equity and debt)	100%	SDA		
	Corporate loan	Corporate lending: Long-term debt	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		Corporate loan with known use of proceed: commercial real estate	100%	SDA		
		Corporate loan with known use of proceed: Electricity Generation Project finance	100%	SDA		
		Corporate lending: SME loans	N/A	SDA	SBT portfolio coverage	Temperature alignment
		Corporate lending: Short-term debt	N/A	SDA	SBT portfolio coverage	Temperature alignment
		Corporate lending: Line of credit	N/A	SDA	SBT portfolio coverage	Temperature alignment
		Corporate loan with known use of proceed: Other project finance	N/A	N/A		
	Listed equity and bonds	Common stock	100%	SDA	SBT portfolio coverage	Temperature alignment
		Preferred stock	100%	SDA	SBT portfolio coverage	Temperature alignment
		Corporate bonds	100%	SDA	SBT portfolio coverage	Temperature alignment
		Exchange traded funds	100%	SDA	SBT portfolio coverage	Temperature alignment
		Real estate investment trusts (REITs)	100%	SDA		
		Funds of funds	N/A	SDA	SBT portfolio	Temperature alignment

					coverage	
		Derivatives	N/A	N/A		
		Sovereign and government bonds	N/A	N/A		
		Supranational, Sub-sovereign (including Municipal) bonds	N/A	N/A		
		Agency bonds	N/A	N/A		
		Securitized fixed income (includes ABS/MBS, covered bonds)	N/A	N/A		
	Private equity and debt, includes venture capital	Leveraged buyout	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		Growth capital	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		Shareholder loans	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		Preferred shares	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		CCPPO (Cumulative, Convertible, Participating, Preferred-dividend Ordinary) shares	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		Ordinary shares	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		Mezzanine capital	min. 67% AUM	SDA	SBT portfolio coverage	Temperature alignment
		Distressed and special situations	N/A	SDA	SBT portfolio coverage	Temperature alignment
		Secondaries	N/A	SDA	SBT portfolio coverage	Temperature alignment

As methods become available for additional asset classes and sectors in the future, financial institutions may set additional targets to increase the coverage of targets on their portfolios.

Description of Methods to Set Portfolio Targets

This section presents a brief description of methods available to set targets on financial institutions' investment and lending portfolios, along with case studies of financial institutions globally that have applied these methods.²¹ The boundary of targets set using these methods shall follow C15 as described above, covering all required activities according to the minimum coverage requirements (see Table 5-2).

Detailed method descriptions and instructions for application are included in the [Appendices](#).

The Sectoral Decarbonization Approach

The Sectoral Decarbonization Approach (SDA) is a method for setting physical intensity targets that uses convergence of emissions intensity. An intensity target is defined by a reduction in emissions relative to a specific business metric, such as production output of the company (e.g., tonne CO₂e per tonne product produced). The SDA assumes global convergence of key sectors' emissions intensity by 2050. For example, the emissions intensity of steel production in China, the U.S., and Brazil is assumed to reach the same level by 2050, regardless of its current diversity²². Regional pathways have not been incorporated into this method.

SBTi first developed the SDA for companies in 2015 using the International Energy Agency (IEA) Energy Technology Perspectives (ETP) scenario data. The method's development is described in Krabbe, et al. (2015).²³

Currently, the SDA uses the B2DS scenario from the ETP's 2017 report, which comprises emissions and activity projections used to compute sectoral pathways aligned with limiting warming to well-below 2°C (IEA, 2017). SBTi currently only provides a 1.5°C-aligned pathway for the power sector that enables electric utilities to submit 1.5°C-aligned targets for official recognition.²⁴ Due to the lack of 1.5°C scenario data from IEA, only a well-below 2°C alignment is available for other sectors.

²¹ Given that these case studies were conducted before the final release of the guidance, the target setting exercises described may not align fully with the criteria. For the purpose of target submissions, financial institutions shall follow the criteria and recommendations presented in this guidance.

²² Each sectoral budget is maintained, to the extent the sum of sectoral activity does not go beyond that projected for the scenario (for homogeneous sectors) and that no new businesses are created

²³ Krabbe, et al. "Aligning Corporate Greenhouse-Gas Emissions Targets with Climate Goals." *Nature Climate Change* 5, no. 12 (December 2015): 1057–60. doi:10.1038/nclimate2770.

²⁴ Please find more project information here: <https://sciencebasedtargets.org/sector-development/power-sector/>

The criteria box below presents requirements for SDA targets (if relevant).

----Criteria box begins----

C16 – SDA Targets
<p><i>Financial institutions’ targets using the sectoral decarbonization approach (SDA) are considered acceptable when the following conditions are met:</i></p> <p><i><u>Boundary:</u> Financial institutions shall set SDA targets on their mortgage, real estate, and electricity generation project finance related activities as specified in the Required Activities and Methods Table (Table 5-2).</i></p> <p><i><u>Ambition:</u> Portfolio SDA targets must meet minimum ambition indicated by sector-specific methods for well-below 2° pathways.</i></p> <p><i><u>Timeframe:</u> Portfolio SDA targets must cover a minimum of 5 years and a maximum of 15 years from the date the financial institution’s target is submitted to the SBTi for an official validation. Financial institutions are further encouraged to develop long-term targets up to 2050 in addition to the required mid-term targets.</i></p>

----Criteria box ends----

Once the IEA publishes its updated 2020 ETP scenarios later this year, SBTi may develop a customized SDA tool for financial institutions’ portfolios. In the meantime, financial institutions can use the existing [SBTi target setting tool](#) to set targets on their investment and lending activities for sectors other than mortgage and real estate where [a dedicated calculation sheet](#) is available. Attribution of emissions to the portfolio shall be conducted before modelling targets in the tool.

The following table summarizes the sectors covered by the SDA, the corresponding emission intensity units required by the method, and the available temperature pathways.

Table 5-3. Sector and Asset Class Coverage of Sectoral Decarbonization Approach (SDA) and Available Temperature alignment

Asset class	Sector and emission intensity units	Temperature alignment
Mortgage	Residential buildings (kgCO ₂ e/m ²)	Well-below 2°C (min. requirement)
Real estate	Residential and service buildings (kgCO ₂ e/m ²)	Well-below 2°C (min. requirement)

Electricity generation project finance	Power generation (kgCO ₂ e/kWh)	Well-below 2°C (min. requirement) 1.5 °C
Corporate equity, bonds, and loan	Power generation (kgCO ₂ e/kWh)	Well-below 2°C (min. requirement) 1.5 °C
	Cement (kgCO ₂ e/ton)	Well-below 2°C (min. requirement)
	<u>Fossil fuel</u>	N/A <i>Oil and gas sector ongoing development by SBTi</i>
	Pulp and Paper (kgCO ₂ e/ton)	Well-below 2°C (min. requirement)
	<u>Transport</u> - passenger, freight, auto manufacturing (scope 3- use of sold products) (kgCO ₂ e/vkm, kgCO ₂ e/tkm, kgCO ₂ e/vkm)	Well-below 2°C (min. requirement)
	Iron and steel (kgCO ₂ e/ton)	Well-below 2°C (min. requirement)
	Buildings (kgCO ₂ e/m ²)	Well-below 2°C (min. requirement)
	<u>Aluminum</u> (kgCO ₂ e/ton)	Well-below 2°C (min. requirement)

	Chemical	<p>N/A</p> <p><i>The chemical sector pathway in the SDA tool cannot be used at present. SBTi is developing sector specific guidance for the chemical and petrochemical industry.</i></p>
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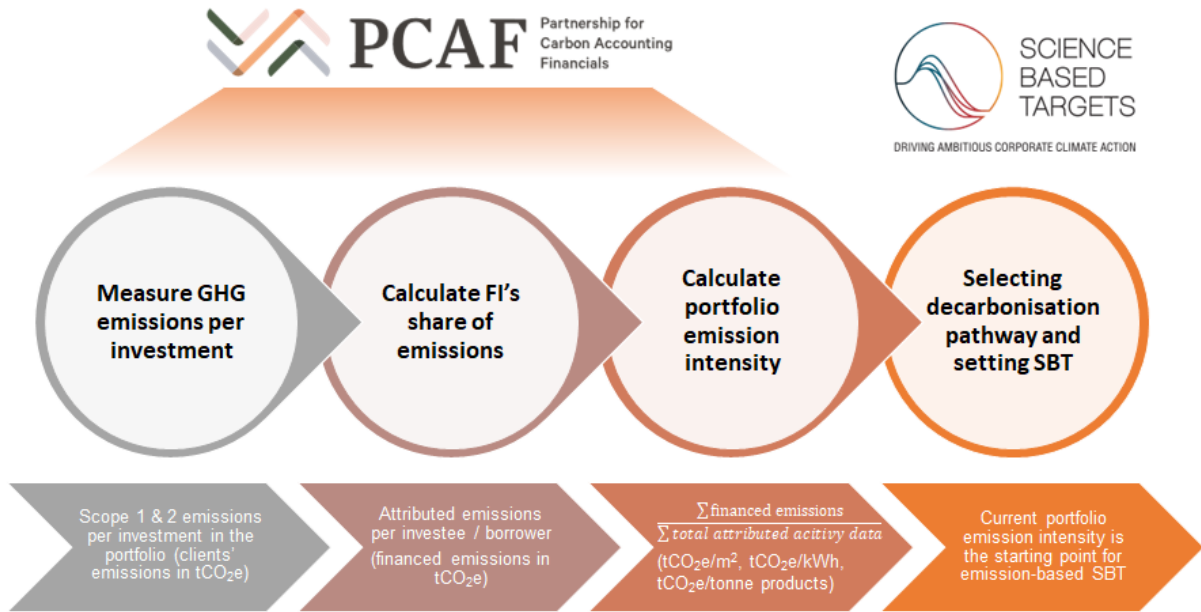
How to calculate physical emissions intensity for SDA targets

For financial institutions, determining portfolio emissions intensity is the starting point to apply SDA for target setting. Portfolio emissions intensity refers to financed emissions per unit of activity data (e.g. kgCO₂e/m², kgCO₂e/kWh, kgCO₂e/ton cement). Three steps are taken to derive this:

- (i) Measure GHG emissions per investment and/or loan (i.e. scope 1 and 2 emissions of borrowers or investees and scope 3 emissions where possible);
- (ii) calculate the share of clients’ emissions that should be attributed to the financial institution (i.e. financed emissions); and
- (iii) divide the sum of attributed emissions of all investments by the sum of attributed activity data of all investments and/or loans.

The figure below illustrates the three steps to derive the emissions intensity baseline of a financial institution that applies the SDA.

Figure 5-1. Steps to calculate baseline emissions intensity for setting SDA targets



Source: PCAF

It is important to note that the attribution factor to calculate FI's share of emissions and share of activity data varies across asset classes, as shown in the figure below.

Figure 5-2. Attribution factors for various asset classes in the PCAF framework

Asset class	Attribution factor
Real Estate	$\frac{\text{Loan value outstanding}}{\text{Property value at time of origination}}$
Mortgages	100%
Electricity Generation Project Finance	$\frac{\text{outstanding financing (debt + equity)}}{\text{total project size or total balance sheet}}$
Corporate Instruments (equity, bonds, loans)	<p>For equity and bonds: $\frac{\text{Invested value}}{\text{Enterprise value including cash}}$</p> <p>For loans: $\frac{\text{Outstanding loan exposure}}{\text{Enterprise value OR Total balance sheet of the investee*}}$</p>

* Enterprise value used for listed companies and total balance sheet for non-listed companies (or when enterprise value is unavailable).

Source: PCAF

Detailed guidance on the methods to calculate financed emissions per asset class is provided by the [Partnership for Carbon Accounting Financials](#).

Calculating the portfolio emission intensity is the first step financial institutions need to take to set emissions-based targets. This is followed by converging the projected emission intensity to the same level as the sector-specific decarbonization pathway in 2050.

Sectoral Decarbonization Approach (SDA) for Mortgages

A mortgage is a lending agreement to purchasing a residential property in exchange for a regular repayment at interest, which the lender is entitled to with the condition that the building becomes void upon the payment of the debt. Residential property refers to a building for a single family or multifamily that is used primarily for human dwelling (i.e. apartments and houses).

Targets on a mortgage portfolio are set using the global decarbonization pathway for residential buildings (i.e. the global floor area projections and emissions intensity pathways for residential buildings defined in IEA ETP 2017 B2DS).

---Box starts---

Case Study: Testing the SDA on de Volksbank's mortgage portfolio

Background on de Volksbank

De Volksbank is the fourth-largest retail bank in the Dutch market, with 3.2 million customers and nearly 3,000 employees. The bank provides mortgages (€ 47.8 billion in 2018), manages savings (€ 37 billion) and offers 1.5 million customers a current account. It also offers a limited range of insurance and investment products and loans. The bank provides its services through four brands: ASN Bank, BLG Wonen, RegioBank, and SNS.

De Volksbank started measuring the climate impact of its portfolio in 2015 and continued to do so on a quarterly basis. In 2018, 85% of de Volksbank's financed emissions were attributed to mortgages. Thus, sustainable housing is the focal point of de Volksbank's climate ambition, creating customer value by increasing comfort and energy efficient living. As such, applying the science-based targets (SBTs) method for mortgages helps de Volksbank answer the key question: To what extent and in what pace should the bank help its customers to 'decarbonize' their own homes?

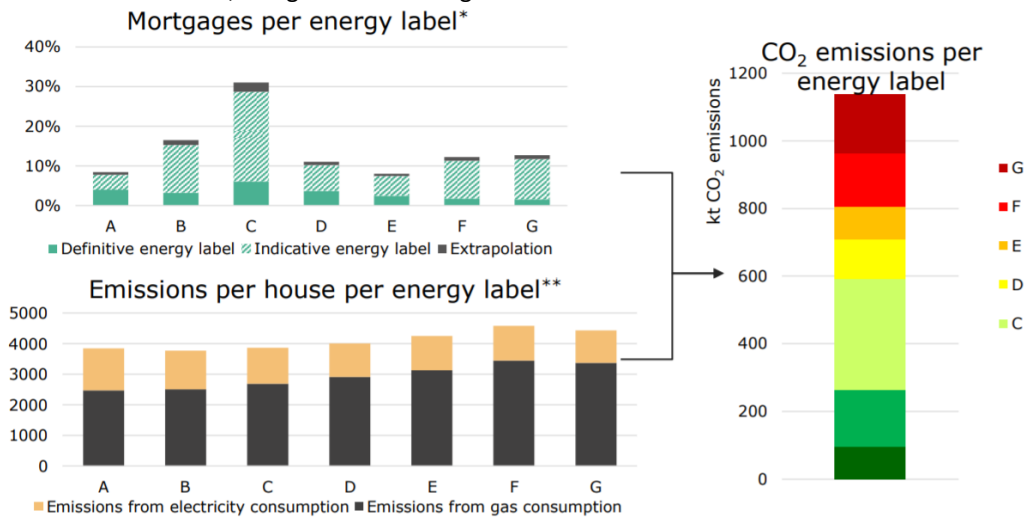
SDA applied to de Volksbank's mortgage portfolio

De Volksbank applied the SDA method for mortgages in April 2019 and presented the results to the SBTi community in June 2019.

The methodology combines the floor area of the buildings it financed, the growth forecast of its mortgage portfolio until 2030 and the absolute financed emissions it regularly measures using the carbon accounting methods developed by the [Partnership for Carbon Accounting Financials \(PCAF\)](#).

Floor area: the surface area data from the housing units financed by the bank was retrieved from the Dutch Cadastre, which collects and registers administrative and spatial data on all Dutch properties.

Absolute financed emissions: this include total scope 1 and 2 emissions for each housing unit in de Volksbank’s portfolio. De Volksbank derived these emissions by converting the average electricity and gas consumption per energy label²⁵ to CO₂ emissions, using national average emission factors²⁶.



Emissions intensity: De Volksbank combined the absolute financed emissions with the floor area to derive the emissions intensity of its mortgage portfolio in 2018. This is the baseline emissions intensity (30.8 kg CO₂/m²), from which de Volksbank projected into the future until 2050.

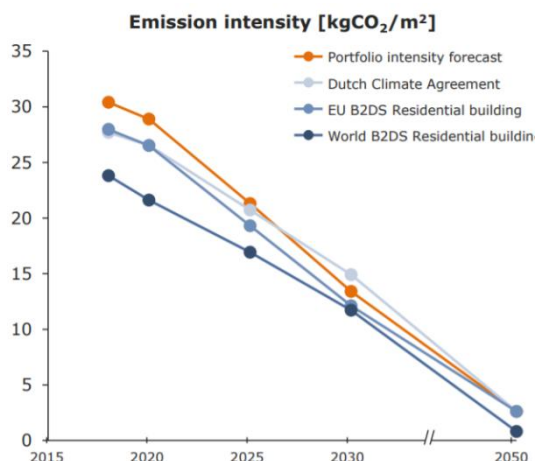
²⁵ Energy labels express the energy performance of dwellings and are provided by the Dutch Enterprise Agency (RVO). Where “A” label is the best and “G” label is the worst

²⁶ Average gas- and electricity consumption derived from WoON2012; www.rijksoverheid.nl/documenten/rapporten/2013/04/11/cijfers-over-wonen-en-bouwen-2013 and converted to emissions using factors from www.CO2emissiefactoren.nl

Selecting the decarbonization pathway: de Volksbank compared its projected emissions intensity with three building emissions pathways from the following scenarios:

- Dutch Climate Agreement²⁷
- European beyond 2°C (EU B2DS) for residential buildings
- World B2DS for residential buildings.

De Volksbank selected the EU B2DS residential building decarbonization pathway to identify the SBTs on its mortgage portfolio.



Outcome and Potential Actions to Achieve Targets

Using the EU B2DS, de Volksbank identified the following intensity and absolute targets:

Intensity targets [kg CO ₂ /m ²]				
2018	2020	2025	2030	2050
30.4	28.9	21.3	13.4	2.6

Absolute targets [kton CO ₂]				
2018	2020	2025	2030	2050
1,139	1,092	838	548	123

Intensity targets [% compared to 2018]				
2018	2020	2025	2030	2050
-	-5%	-30%	-56%	-91%

Absolute targets [% compared to 2018]				
2018	2020	2025	2030	2050
-	-4%	-26%	-52%	-89%

The challenge de Volksbank encountered with these targets is that, steering emissions on energy labels will not be sufficient to achieve the 91% reduction of emission intensity in 2050. Even if the bank achieves “A” labels for the entire portfolio, it would only be able to reduce 40% of emissions.

While de Volksbank would need more granular emissions data per mortgage, the bank identified a crucial driver that could help it steer emissions. In the Netherlands, most of the buildings’ scope 1 and 2 emissions are caused by natural gas combustion. Thus, the bank sees great value in focusing its strategy on engaging with clients in fostering electrification of the heating systems (i.e. heat pumps), installation of more renewable energy systems (e.g. solar panels) and increasing energy efficiency.

Conclusions and Recommendations

The results show the pace and the extent to which emissions per square metre financed by de Volksbank’s mortgage portfolio must be reduced to align its portfolio with national, European and global emissions scenarios. In 2020 de Volksbank is examining whether and how it can incorporate the results into its present target of a climate-neutral balance sheet by 2030.

²⁷ The Dutch Climate Agreement scenario goes until 2030, and we assumed it converges to the European Beyond 2°C (B2DS) scenario.

In the meantime, as the bank works with peers within PCAF to increase data granularity for mortgage portfolios, a unique collaboration between PCAF and the Dutch Central Bureau of Statistics (CBS) led to access actual electricity and gas consumption data for seven financial institutions in the Netherlands, including de Volksbank²⁸. The bank plans to recalculate the emission intensity baseline of its mortgage portfolio using this actual energy consumption data and re-run the target setting analysis.

---Box ends---

Sectoral Decarbonization Approach (SDA) for Real Estate

A real estate investment is the allocation of capital for partial or full ownership of property, real estate investment groups, real estate trading, real estate investment trust (REIT), etc. Both residential and service buildings under real estate investment are included in this methodology. Residential buildings refer to private dwellings such as apartments and houses, whereas service buildings include properties related to trade, finance, retail, public administration, health, food and lodging, education and commercial services.

Targets on a real estate portfolio are set using the global decarbonization pathway for service buildings and/or residential buildings accordingly (i.e. the global floor area projections and emissions intensities pathways defined in the IEA ETP 2017 B2DS).

A [calculation sheet is available](#) for setting targets on mortgages and real estate portfolios.

Sectoral Decarbonization Approach (SDA) for Electricity Generation Project Finance

Project finance is the financing of a project, such as infrastructure, public and industrial assets using a limited-resource structure, including debt, equity and/or mezzanine. This method focuses on projects in the power sector and other types of project finance are currently out of scope (see Table 5-2).

Targets on an electricity generation project finance portfolio are set using the global decarbonization pathway for power generation (i.e. the global electricity production projections and emissions intensity pathways defined in the IEA ETP 2017 B2DS).

²⁸ For more information about the results of the collaboration between PCAF and CBS on actual energy consumption for mortgage portfolios see: <https://carbonaccountingfinancials.com/newsitem/cbs-publishes-co2-emissions-of-dutch-banks-mortgage-portfolios#newsitemtext>

Sectoral Decarbonization Approach (SDA) for Corporate Equity, Bonds, and Loans

This methodology covers listed equity, private equity, corporate bonds and corporate loans. Targets are set at individual sector level within the portfolio on relevant “Required Activities” in Table 5-2, for which specific sectoral decarbonization pathways are available (e.g. electricity, iron & steel, cement, aluminum, pulp & paper, transport, and commercial buildings).

FIs shall set targets on emissions scopes as required by the relevant SBTi sector-specific guidance (e.g. scope 1 and 2 emissions for cement producers and scope 3 use phase emissions for auto manufacturers). A list of the sector-specific guidance and requirements is available in Chapter 3 of the [Target Setting Manual](#) (Table 3-1).

A detailed description of the SDA methods per asset class is provided in the [Appendices](#).

---Box begins---

Case study: Applying the SDA and SBT portfolio coverage method to La Banque Postale’s corporate equity and bond portfolios

Details to come

---Box ends---

SBT Portfolio Coverage for Corporate Instruments

Financial institutions may use the portfolio coverage method to set targets on their corporate instruments, including corporate debt, listed equity and bonds, and private equity and debt (See relevant “Required Activities” in Table 5-2). to drive adoption of science-based targets.

To use the portfolio coverage method, financial institutions commit to engaging with their investees to set their own approved science-based targets, such that the financial institution is on a linear path to 100% SBT portfolio coverage by 2040. As the fulfillment of portfolio coverage targets mean that investees’ SBTs have been approved by SBTi, the 2040 timeline has been determined to allow companies enough time to implement their target to ultimately achieve an economy-wide transition to net zero by 2050.

The SBT portfolio coverage method is a financial sector analogue to supplier engagement targets for ‘real economy’ companies’ scope 3 emissions.

To define the coverage of the SBT portfolio coverage target, financial institutions shall use one of the weighting approaches in the SBTi Finance Tool consistently throughout the target period. More instructions on applying this method in the SBTi Finance Tool can be found in the SBT Portfolio Coverage and Temperature Alignment discussion included in the Appendices.

The ambition of the SBT portfolio coverage method depends on the financial institution's starting point. Whereas a financial institution starting with 10% coverage in 2020 would need to increase coverage by 4.5% per year ($90/20=4.5$), a financial institution starting with 30% coverage would need to increase coverage by 3.5% per year.

An example portfolio coverage target can be: Investment firm A commits that 32.5% of its equity portfolio by total assets will have science-based targets by 2025.

----Criteria box begins----

C17.1– SBT Portfolio Coverage Targets

Financial institutions' targets to drive the adoption of science-based emission reduction targets by their investees are considered acceptable when the following conditions are met:

Boundary: Financial institutions shall set engagement targets around the corporate debt and equity portions of their portfolios.

Target Level of Ambition: Financial institutions shall commit to having a portion of their investees set their own approved science-based targets such that the financial institution is on a linear path to 100% portfolio coverage by 2040 (using a weighting approach in the SBTi Finance Tool). For example, a financial institution starting with 10% coverage in 2020 would need to increase coverage by 4.5% per year ($90 / (2040-2020) = 4.5$) and reach at least 32.5% coverage by 2025.

Target Formulation: Financial institutions shall provide information in the target language on what percentage of the corporate equity and debt portfolio is covered by the target, using a weighting approach in the SBTi Finance Tool consistently throughout the target period.

Target Timeframe: Financial institutions' portfolio coverage targets must be fulfilled within a maximum of 5 years from the date the FI's target is submitted to the SBTi for validation. Fulfillment of portfolio coverage targets mean that investees' SBTs have been approved by SBTi.

Scope of Investee Targets: Financial institutions' investees shall follow the latest SBTi criteria for companies to set scope 1 and 2 targets, as well as scope 3 targets when their scope 3 emissions

----Criteria box begins----

----Box begins---

Case study: Applying the SBT portfolio coverage method to Allianz's Portfolio

Details to come

---Box ends---

---Box begins---

Case study: Applying the SBT portfolio coverage method on Eurazeo's Portfolio

Details to come

---Box ends---

Portfolio Temperature Scoring Method for Corporate Instruments

Financial institutions may use the temperature scoring approach to address and cover corporate instruments, including corporate debt, listed equity and bonds, and private equity and debt (see relevant "Required Activities" in Table 5-2). Financial institutions determine the current temperature score of their portfolio based on the public GHG emission reduction targets of their investees (these targets include SBTs and any other valid public GHG targets that meet the method criteria). FIs set targets to align their base year portfolio temperature score to a long-term temperature goals (e.g. 2°C, well-below 2°C, 1.5°C).

A range of methods exist to determine the temperature alignment of investment portfolios. For these methods to be used for target setting purposes, they must be transparent and freely available. Currently the SBTi only recognizes the temperature rating methodology co-developed by WWF and CDP for target submissions. This is a fully open source method that translates the ambition of public GHG targets into temperature ratings that can be aggregated at a portfolio level.

The SBTi will consider the use of other methods to determine temperature alignment on a case by case basis. Developers of alternative methods should contact the SBTi finance sector team before submitting targets set using these methods for validation.

Temperature scoring methodology

The temperature scoring approach is an extension of the portfolio coverage approach to enable FI to assess the current ambition of portfolio companies based on their public GHG reduction targets. This method enables the assessment of ambition of any corporate GHG emission reduction targets against a wider range of temperature outcomes and allows financial institutions to understand the overall temperature rating of their portfolios and take actions to move portfolio companies towards better temperature alignment. The method is open source and has gone through a separate [consultation](#) process.

The latest version of the methodology can be found [here](#).

--Criteria box begins--

C17.2 – Portfolio Temperature Alignment Targets

Financial institutions' targets to align the temperature rating of their corporate debt and equity portfolios with ambition of the Paris Agreement are considered acceptable when the following conditions are met:

Portfolio Temperature Alignment Target Boundary: *Financial institutions shall set portfolio temperature alignment targets on corporate instruments as specified in the Required Activities and Methods Table (Table 5-2).*

Portfolio Temperature Alignment Target Level of ambition: *Financial institutions shall align their portfolio scope 1+2 temperature score with a minimum well-below 2°C scenario and in addition align their portfolio to a minimum 2°C scenario for the scope 1+2+3 portion by 2040. Alignment with more ambitious scenarios such as 1.5°C is highly encouraged.*

Financial institutions shall commit to reducing their portfolio temperature scores such that the financial institution is on a linear path to the stated goal (at least well-below 2°C aligned) by 2040. For example, a financial institution starting with scope 1+2 portfolio temperature score of 2.9°C in 2020 would need to decrease their portfolio temperature by 0.0575°C per year $((2.9^{\circ}\text{C}-1.75^{\circ}\text{C})/(2040-2020)) = 0.0575^{\circ}\text{C}$, and reach at least 2.61°C portfolio temperature score by 2025.

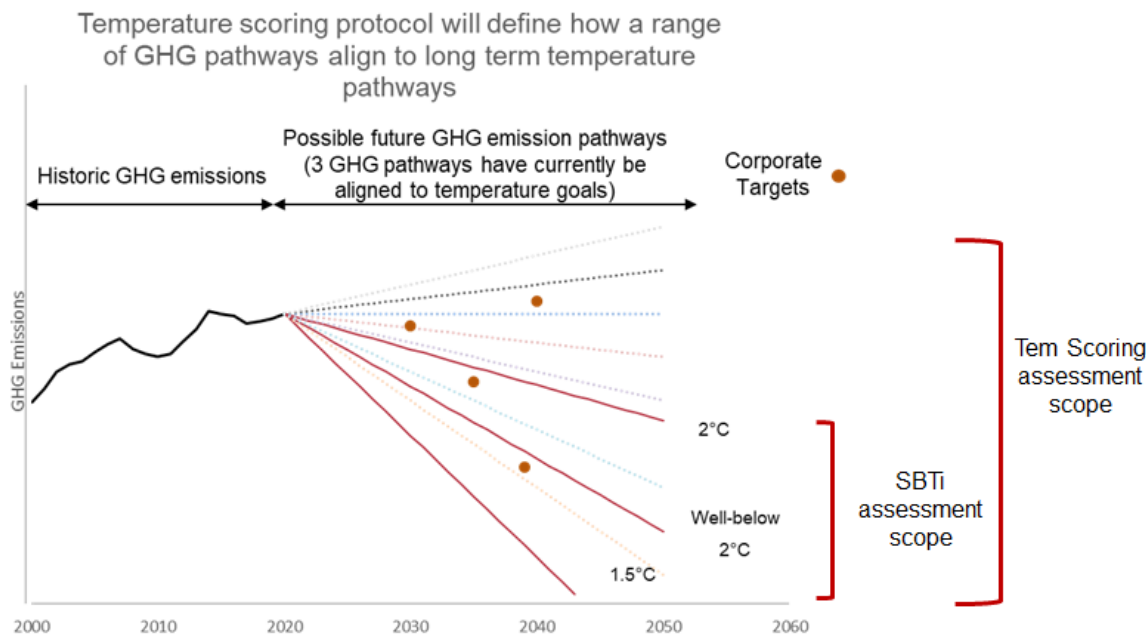
The scope 1+2+3 temperature score must include the scope 1+2 score of at least well-below 2°C alignment. For example, a financial institution starting with scope 1+2+3 portfolio temperature score of 3.2°C in 2020 would need to decrease their portfolio temperature by 0.06°C per year $((3.2^{\circ}\text{C}-2^{\circ}\text{C})/(2040-2020)) = 0.06^{\circ}\text{C}$, and reach at least 2.9°C portfolio temperature score by 2025.

Portfolio Temperature Alignment Target Timeframe: *portfolio alignment targets must be fulfilled within a maximum of 5 years from the date the targets are submitted to the SBTi for an official validation.*

---Criteria box ends---

As illustrated in the figure below, the temperature scoring method covers a broader group of companies than the strictly-SBTi-approved SBT portfolio coverage method, enabling the assessment of any public GHG emission reduction target that meets the protocol criteria.

Figure. 5-3. Overview of the temperature scoring method.



Source: Authors

The method is composed of three distinct components that will allow FIs to first quantify the temperature score of their portfolio:

1. **Target level protocol:** The target protocol converts individual targets of various formats into temperature scores. This is achieved by generating simple regression models for estimated warming in 2100 from climate scenarios with short, medium, and long-term trends in metrics like absolute emissions or emissions intensities. Regression models are generated based on scenarios in the IPCC Special Report on 1.5°C scenario database. In addition to defining methods for disclosed targets, a default scoring approach is applied to all non-target disclosing companies.
2. **Company level protocol:** Since companies may have multiple climate targets, covering different GHG emission scopes and timeframes, a protocol is used to aggregate all target data to produce scores at a company level. This protocol defines the minimum quality criteria for determining the acceptability of a target to be scored and the steps required to identify and aggregate multiple targets to produce an overall company score.
3. **Portfolio level protocol:** The company scores are then aggregated to generate scores at a portfolio level. This consists of weighting company scores on the basis of GHG emissions and economic indicators to generate an overall weighted score for a specific portfolio.

Base year temperature scores are produced at a scope 1+2 and a scope 1+2+3 level for each portfolio. Financial institutions must then formulate targets to align this temperature to the desired temperature outcome e.g. 1.5°C

Aligning current temperature scores to temperature goals:

The following table presents the key steps to generate temperature scores and align targets with long term temperature goals.

Table 5-4. Key steps to generate temperature scores under the portfolio temperature scoring method.

Step 1. Base Year Temperature Score	
Types of portfolio scores	Two portfolio level temperature scores shall be generated based on company targets and default scores, where applicable: <ul style="list-style-type: none"> - Scope 1+2 score (°C) - Scope 1+2+3 score (°C)
Boundary	No minimum coverage threshold will be applied meaning that all investees must be scored either using targets (where available) or default scores. The portfolio must reflect the average holdings over a calendar or financial year. This aligns with corporate inventory setting and prevents portfolio shifting as a means to reduce the baseline temperature score.
Outputs	In addition to the two scores generated, FIs must disclose the following information when submitting targets for an official validation: <ul style="list-style-type: none"> ● percentage of portfolio GHG emissions covered by targets and the percentage covered by default scores ● percentage of portfolio invested value covered by targets and the percentage covered by default scores Example: 30% of the portfolio score is derived from investees with valid targets, with the remaining 70% of the score being derived using default scores from investees with no valid targets
Step 2. Target Setting	
Minimum ambition thresholds	The s1+2 of the portfolio must be aligned to at least a WB2C (1.75°C) score, and the s1+2+3 must be aligned to at least a 2°C score by 2040.

Target timeframe	Targets must be within 5 years of the year the targets are submitted to the SBTi. This means that the company has effectively 5 years to engage companies to set targets or to adjust the portfolio holdings so that the portfolio temperature is aligned to a linear pathway that will reach at least WB2C in 2040.
Target Wording	<p>Two targets must be set for each portfolio, addressing both operational and value chain emission of the investees.</p> <p>Scope 1+2 target wording: <i>Investment firm A commits to align their scope 1+2 portfolio temperature score from 2.6°C in 2018 to be on a well-below 2°C pathway by 2025</i></p> <p>Scope 1+2+3 target wording: <i>Investment firm A commits to align their scope 1+2+3 portfolio temperature score from 3.1°C in 2018 to be on a 2°C pathway by 2025</i></p>
Step 3. Temperature Alignment	
Boundary	Each reporting year, and the target year temperature score must also be calculated/averaged over a complete calendar year or financial year, consistent with the approach used to calculate the base year temperature score.
Alignment ambition	<p>A linear approach to 2040 is used to determine the minimum ambition required per year. A linear annual temperature reduction (LATR) is generated based on the base year temperature score and the desired temperature goal in 2040.</p> <p>The minimum ambition must be at least well-below 2°C (1.75°C) by 2040 for scope 1+2 and 2°C for scope 1+2+3.</p> <p>$LATR = (Base\ Year\ TS - Long\ Term\ TS) / (Long\ Term\ Target\ Year - Base\ Year)$.</p> <p>Where, LATR = liner annual temperature reduction (°C/year) TS = temperature score (°C)</p> <p>A company looking to be WB2C (1.75C) aligned by 2040 starting from a portfolio S1+2 temperature score of 2.9C in a 2020 base year would have to reduce their portfolio score by at least the</p>

	<p>following amount each year: $LATR = (2.9-1.75)/(2040-2020) = 0.0575C/year$</p> <p>Therefore, if an FI sets a maximum 5 year target, the maximum temperature of the portfolio in 2025 would be: $2.9 - 5*0.0575 = 2.61C$</p>
Outputs	<p>Each year leading to the target year, the following data points should be disclosed by the FI:</p> <ul style="list-style-type: none"> percentage of portfolio GHG emissions covered by targets and covered by default scores percentage of portfolio invested value covered by targets and covered by default scores
Recalculation	<p>The types of default scores must remain consistent across sectors. If changes to these models are implemented over the target period, the company will have to baseline the temperature of the fund. This will be primarily based on the sector specific models that are modified over time.</p>
Alignment requirements:	<p>The temperature score of any given portfolio can be aligned to a lower temperature score through the following hierarchy of actions:</p> <ol style="list-style-type: none"> Engagement: Engage existing investees to set more ambitious targets which would translate to lower temperature scores Adjustment: FIs can adjust the portfolio holdings, moving the fund’s capital to investees with more ambitious targets Divestment: FIs can remove investees with no/low ambition targets and replace them with companies that have more ambitious targets <p>The SBTi recommends that FIs focus on direct engagement as a measure that can most effectively lead to emissions reduction on the ground, while recognizing that the latter two indirect strategies shall remain as complementary available measures.</p>

---Box begins---

Case study: Application of the temperature scoring method

Details to come

---Box ends---

Approaches to setting targets on rest of the scope 3 categories

In order for financial institutions to focus their efforts on Category 15, the SBTi only recommends but does not require that financial institutions measure emissions and set targets on scope 3 Category 1 to 14.

---Criteria box begins---

Recommendation – Targets on Scope 3 Categories 1-14

It's recommended but not required for financial institutions to measure and set target(s) on category 1-14 emissions as defined by GHGP Scope 3 standard.

Optional targets on these categories must meet Criteria 19-20.1 in [the latest SBTi criteria for companies](#) to be approved by SBTi.

---Criteria box begins---

For financial institutions interested in submitting targets on category 1-14, they must ensure that these targets meet Criteria 19-20.2 in the [latest general SBTi criteria](#) for them to be approved and announced.

In terms of applicable methods, the absolute contraction and supplier engagement approaches can be used to set targets on most categories. The absolute contraction method has been introduced in the previous [section](#) on scope 1 and 2 target setting. For category 1-14, financial institutions may consider setting absolute targets in line with a less ambitious 2 degree scenario (1.23% linear annual reduction), given that scope 3 emissions can be more difficult to reduce as compared to scope 1 and 2 emissions. Requirement for supplier engagement target is detailed in C20.1 of the [SBTi general criteria](#).

Relevant SDA pathways may also be applied to categories such as upstream transportation and distribution(transport), business travel(transport), employee commuting(transport), and upstream leased assets(building services). However, given that the application of SDA requires more input data than absolute contraction, financial institutions should weigh the amount of effort towards setting SDA targets against the significance of these categories.

Financial institutions may combine targets on multiple scope 3 categories. For example, a financial institution may set one single upstream supplier engagement target on Category 1- purchased goods and services and Category 4-upstream transportation and distribution that engages relevant suppliers covering both categories.

6. Coal Phase Out and Disclosure of Fossil Fuel Investments

Fossil fuel combustion is the largest source of greenhouse gas emissions and the central driver of climate change. Fossil fuels are also the dominant source of energy for the global economy. Financial institutions seeking to align with the Paris Agreement must explicitly and transparently address the role of fossil fuels in their investment and lending portfolios. In recognition of the complex and societally embedded nature of fossil fuels, the SBTi is taking a ‘minimum requirement plus recommendation for additional action’ approach for financial institutions.

The minimum requirement relates to the adoption of a coal policy. The IPCC 1.5°C emission pathways indicate that emissions from coal should reduce by four fifths in 2030 relative to 2010.²⁹ The phase out of coal investments is intended to accelerate energy transition and does not preclude support for low-carbon transformation of existing facilities. Moreover, effective coal phase out requires consideration of a just transition to ensure viability and long-term stability.³⁰

The additional disclosure recommendation supports consistent understanding of the full range of financial institutions' fossil fuel investments and related activities. Fossil fuel investment disclosure preserves credibility and creates an initial mechanism for financial institutions to help address justice and equity components of climate action.

The following text box includes the mandatory coal phase out criterion and the fossil investment disclosure recommendation. This criterion and recommendation apply to all financial institution targets.

---criteria box begins---

Disclosure and phase out of fossil fuel investments

C18 – Phase out of coal investments

*Financial institutions shall establish and publicly disclose a policy **at the time of target announcement** that they will cease investments and/or loans with known use of proceeds (e.g., project finance) in new and additional thermal coal exploration, mining, production, and utilization (i.e., combustion). This does not preclude investments and/or loans with known use of proceeds that support the low-carbon transformation of coal facilities, such as hydrogen production plants or carbon storage.*

²⁹ This is based on the P1 (i.e. no-overshoot) scenario that was developed by IPCC in their special report on 1.5°C warming. IPCC (2018), Special report: global warming of 1.5°C.

³⁰ See Jakob, Michael, Jan Christoph Steckel, Frank Jotzo, Benjamin K. Sovacool, Laura Cornelsen, Rohit Chandra, Ottmar Edenhofer, et al. “The Future of Coal in a Carbon-Constrained Climate.” *Nature Climate Change* 10, no. 8 (August 2020): 704–7. <https://doi.org/10.1038/s41558-020-0866-1>.

*In addition to the policy described above, financial institutions shall establish and publicly disclose a policy at the time of target announcement that they will **phase-out** coal across all their investments, financial services and insurance coverage **at the latest by 2040**.*

Recommendation 4 - Disclosure of Fossil Fuel Investments

After target approval, financial institutions should disclose the annual investments (private equity, public equity, corporate bonds), direct project financing and lending or underwriting to fossil fuel (oil, gas, and coal) projects and companies in U.S. dollar amount (or other currencies) in annual reporting.*

**This includes companies involved in exploration, extraction, refining, transportation and distribution, storage, retailing, marketing, trading, or power, heat, or cooling production from oil, gas, and coal.*

---criteria box ends---

FIs that wish to go above and beyond the minimum requirement and fully align their investments with the 1.5°C target, can adopt a more ambitious coal policy that:

- Includes an accelerated phase-out in OECD countries and Russia (i.e. by 2030) in accordance with 1.5°C aligned scenarios;
- Immediately ceases all financial or other support to coal companies that are building new coal infrastructure or investing in new or additional thermal coal expansion, mining, production, utilization (i.e., combustion), retrofitting or acquiring of coal assets.

7. How to Achieve SBTs and Track Progress

Portfolio science-based targets should ideally be accompanied by a set of other actions that enable the FI to achieve its goals. The sections below recommend some of the steps that FIs can take to fully integrate climate change in their organization and services, and achieve their targets in a manner that leads to greenhouse gas emissions in the real economy.

Integration of climate change in governance and decision-making

FIs should integrate climate change across their institution. This can include the following:

- **Adoption of climate-related investment principles** that recognize that portfolio alignment with the Paris Agreement will contribute to investing in the best interests of FIs' beneficiaries or clients.
- **Establishment of a climate governance structure** FIs should make portfolio alignment with the Paris Agreement a Board priority – including explicit attribution of this responsibility within the Board. They should also put governance structures in place that ensure proper support and implementation of the policy – including incentive schemes, commitment of resources, capacity building and involvement of beneficiaries or clients.
- **Integration of climate change in the investment and/or lending policy** FIs must adopt an investment and/or lending policy that reflects and implements their climate-related investment principles. This can include - depending on the type of FIs - investment/lending targets, strategic asset allocation, engagement objectives, selection criteria and incentives for service providers, and performance measurement and reporting.
- **Adjustment of strategic asset allocation to harness climate-related opportunities.** FIs should include climate risks and opportunities in strategic asset allocation (SAA), including increasing their exposure where feasible to alternative asset classes that are more likely to have a direct positive climate impact on the real economy - such as infrastructure (e.g. grids and renewable energy), real estate (highly energy efficient and resilient buildings) and private equity (renewable and energy efficiency companies)
- **Adoption of additional sector specific policies.** FIs should extend their investment policy to sectors and technologies that pose particular climate-related risks or offer particular opportunities. These are most notably:
 - Sectors where carbon-intensive companies have a significant potential to offer alternative solutions and thus reduce their emissions – such as power utilities, industrial sectors (steel, cement, chemicals) and automotive;
 - Sectors that are deemed to shrink and ultimately disappear with the energy transition (e.g. coal, oil & gas), but where some companies still have the potential to make a timely shift to other business models.

The sector policies should define criteria that allow the FI to identify to what extent the companies in its portfolio are able and willing to align their business model with the Paris Agreement, set out a strategy as to how the FI will urge companies to adopt 1.5°C transition plans through active ownership, and identify at which point exposure reduction/divestment is desirable in light of the inability or unwillingness of a company to transition in a timely manner

- **Development of methods or tools that enable the measurement of the impact of climate actions.** There currently is insufficient clarity about which FI actions lead to greenhouse gas emissions in the real economy. FIs should engage with relevant service providers to develop tools that allow them to build a better understanding of the impact of their actions on greenhouse gas emissions, and adjust their strategies according to the findings of these analyses.

Engaging key stakeholders: companies, service providers and policy makers

FIs can only generate an impact in the real economy if they actively engage with key stakeholders. The following paragraphs cover some considerations on how FIs can effectively engage companies and policy makers.

FIs should work collectively with their peers to learn, seek advice, share best practice and, most importantly, increase the impact of engagement activities with portfolio companies and policy makers. They should engage in FI coalitions, and most notably participate in and drive coalitions that promote the alignment of portfolios with the Paris Agreement.

Company engagement

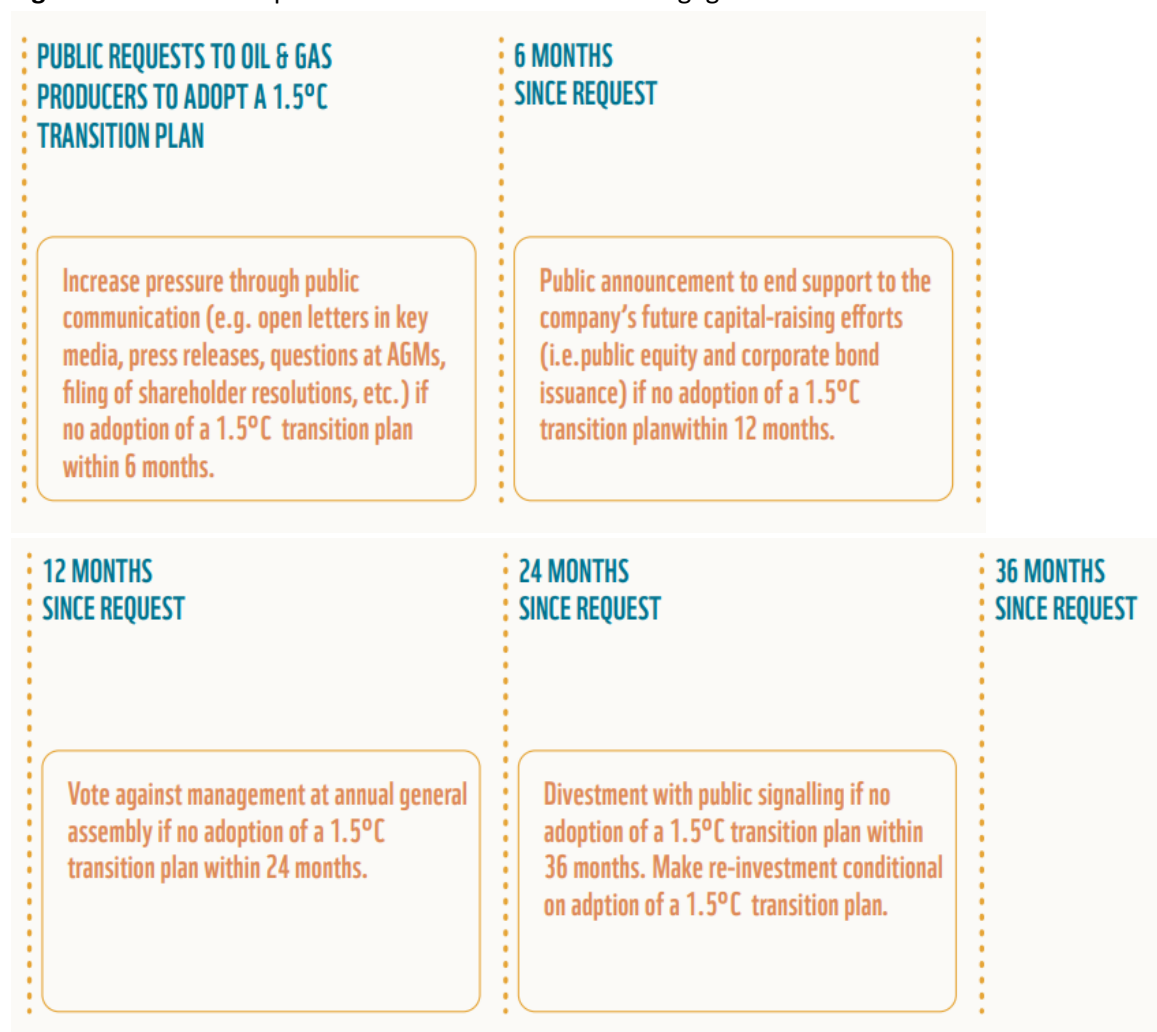
FIs should develop an assertive engagement strategy to achieve alignment of their portfolio companies' business models with the Paris Agreement – most notably through the adoption and publication of time-bound 1.5°C transition plans composed of the following elements:

- A commitment to align business models with the Paris Agreement and, more concretely, a time-bound climate science-based target built on forward looking climate-scenario analysis. If FIs set SBT portfolio targets, all companies in the boundary of these targets shall have approved SBTs by 2040 in line with the SBT FI portfolio coverage target criterion.
- Capital management plans to end capital expenditure for new high carbon projects, increase capital expenditure for low carbon projects, and a clearly articulated timeline for the closure of existing high carbon assets. This could include cash returns through buybacks or dividends.
- The disclosure of the target and transition plan and alignment with the TCFD recommendations. Such information should be published in mainstream financial reports (integrated reporting).

- A commitment to review and ratchet up targets and transition plans in the light of the evolving climate science, in particular the development of more detailed 1.5°C scenarios driven by the Paris Agreement.
- A public commitment to support policies that aim to reduce emissions in line with the Paris Agreement, be transparent about lobbying activities and related expenditures, and leave third party organizations (e.g. business and trade associations) that promote policies that risk to derail the Paris Agreement.

Given the urgency to tackle climate change, FIs should have an escalation process in place for when the engagement does not lead to significant results within set timeframes (6, 12, 24, 36 months), where a range of options are available to FIs: open letters, filing/supporting shareholder resolutions and voting at AGMs, end support to companies' efforts to raise capital (notably through corporate bonds), and ultimately divestment. The figure below gives a potential timeline for such an escalation process.

Figure 7-1. Escalation process in case of unsuccessful engagement



Source: WWF, Asset Owner Guide to Oil & Gas Producers

Policy engagement

Regulations and government policies are key drivers of systemic change. The most climate-aware FIs should engage with policy makers to accelerate the integration of climate risk analysis and mitigation across the whole investor and financial community.

Strengthening long-term investor involvement in the ‘rules of the game’ that govern the financial system is a strategic area of interest: given the high urgency of the climate challenge, FIs should swiftly and unequivocally engage with policy makers in favour of the proper implementation of the Paris Agreement – as the best pathway to mitigate their climate-related risks, protect the long term value of their assets and invest in the best interest of members and beneficiaries.

FIs should engage with policy makers to ask for the following items:

- Climate and energy policies and regulations that drive a timely implementation of the Paris Agreement and its embedded climate targets.
- Adequate climate and wider ESG corporate disclosure policies and regulations to ensure that relevant climate and ESG data become available to investors – in particular by swiftly transposing the TCFD recommendations into national legislation, with an emphasis on forward-looking climate scenario analysis.
- Financial policies and regulations that drive better understanding of climate-related risks and opportunities for financial institutions, through the assessment of climate and wider ESG risks for investors and their mitigation, with the ultimate goal of portfolio alignment with the Paris Agreement.

Service provider engagement

FIs that understand climate-related financial risks and opportunities will want to address the need to align their investments with the Paris Agreement, together with their service providers. However there are many reasons why the investment supply chain may not act in alignment with asset owners’ interests on climate issues: commercial conflicts of interests, time horizons, cultural norms etc. Asset owners therefore need to closely monitor all their service providers – most notably investment consultants, index providers, proxy voting advisors, sell side analysts and credit rating agencies, remuneration consultants and auditors.

FIs rely on **investment consultants** to solve particular problems. Therefore, investment consultants operate at a critical interface in the investment ecosystem, and FIs can push them to drive innovation within the financial community. SBT FI recommends FIs to:

- Ensure that investment consultants address climate-related risks and opportunities and adapt their core services accordingly, and demonstrate a robust track-record that shows capacity to assess and address climate-related issues.
- Require investment consultants to advise so as to help FIs develop climate-related strategies (principles, policies, targets, processes and portfolio implementation) that will align investments with the Paris Agreement over time.
- Ask investment consultants to allocate a significant percentage of time for interaction and discussion on long-term risks and opportunities – most particularly climate change – and to adjust remuneration accordingly.
- Ask investment consultants to assess the climate-related performance of other service providers and suggest approaches for accelerating their climate-related efforts.
- Publicly signal their climate-related requirements for investment consultants to urge them to act in order to avert a potential devaluation of their reputational capital.

Index providers (e.g. MSCI, FTSE, S&P, etc.) provide the investment community with a standard to quantify and understand the performance of markets and asset classes. Market-capitalization weighed indices are replicated by passive investors, and used as allocation guidelines for sector diversification by the majority of investors. Analysis indicates that indices usually reflect business-as-usual scenarios, where for instance high carbon sectors (e.g. oil & gas) are overweighed in terms of achieving the Paris goal, and they lack a good indication of energy technology exposure. The measurement of relative risk is also related to these indices, further limiting the possibility to allocate investments in line with climate goals, and away from the current unsustainable business-as-usual market (2° Investing Initiative 2014). FIs should drive demand to index providers to tackle these shortcomings in the design of indices. This issue is critical for passive investors that essentially rely on indices to define their default capital market exposures. SBT-FI recommends FIs to:

- Require index providers to disclose how their existing products align with the Paris Agreement, using forward-looking climate scenario analysis.
- Require index providers to develop new products that reflect the performance of markets in a well below 2°C transition, to help asset owners to benchmark their own investment portfolios against the Paris Agreement.
- Publicly signal their climate-related requirements for index providers to urge them to act in order to avert a potential devaluation of their reputational capital.

Proxy voting advisors (e.g. ISS, Glass Lewis, Manifest, etc.) consult with FIs to decide how to vote on matters that require shareholder approval at Annual General Meetings (and Extraordinary General Meetings) of their portfolio companies. As shareholder resolutions are a crucial tool for engagement with portfolio companies (see section on company engagement above), it is important for FIs to interact with proxy voting advisors, with the objective of improving their climate-related advice. SBT FI recommends FIs to:

- Ensure that proxy voting advisors address climate-related risks and opportunities and adapt their core services so that they align with the Paris Agreement.
- Request their proxy voting advisors to ensure that voting activities are wholly consistent with the climate objectives of the FI and support resolutions that call for the adoption of well-below 2°C transition plans.
- Publicly express their support for climate-related shareholder resolutions at portfolio companies.

Public disclosure of climate actions

FIs should publicly disclose their climate decisions and activities to increase impact. The SBTi criteria requires that FIs annually disclose the actions or strategies that have been taken during the year to reach their SBTs after target approval. The section below can help FIs frame their reporting to avenue(s) of their choice for the public disclosure of their climate action (e.g. annual report, stand-alone reports, communication on the website, press releases, social media, etc.)

Public disclosure of climate actions should notably cover - depending on the FI - the adoption of climate-related policies for companies, the integration of the policy in mandates to investment managers and other service providers, a regular assessment of engagement impact, the filling of or support to relevant shareholder resolutions, and divestment decisions if engagement is not deemed relevant or does not deliver within set timeframes.

By signaling (i.e. making public) key climate-related decisions and activities, FIs will significantly amplify their impact. Given the climate urgency, the signaling effect is critical to raise the awareness of peer FIs, companies, service providers, policy makers and other stakeholders. It emphasizes the importance of the issue, and helps to accelerate efforts from the abovementioned stakeholders.

Signaling is particularly critical for a meaningful engagement strategy. FIs should make public which companies they are engaging with, what their specific demands are, and publish at regular intervals an assessment of the engagement impact. This will increase pressure on corporations, and drive deeper and faster changes. The [Climate Action 100+](#) initiative is a promising step towards such joint and public shareholder engagement – and an implicit recognition that bilateral engagement behind closed doors will not have enough impact to get high carbon companies to shift their business model at the pace and scale required by the Paris Agreement.

FIs should also indicate the names of companies from which they have divested or decided not to invest in, following the example of financial institutions in countries like Denmark and Norway. For very liquid asset classes, such as public equity and corporate bonds, the rapid exchange of assets can quickly cancel out potential impact of divestment on oil & gas producers – so public signaling is critical for amplification.

8. How to Communicate Science Based Targets and Actions Taken to Achieve Them

FIs differ from other economic sectors: they provide finance and other services to the companies that are responsible for reducing GHG emissions, rather than having direct control over GHG emission reductions themselves.

It is therefore important that FIs communicate clearly about their SBTs, and how they intend to exert influence over the GHG emission reductions from the companies they finance or invest in through the actions they take to implement their SBTs. Financial institutions should not make claims about emission reductions attributed to these strategies or related financial products without credible evidence to support these claims.

SBT FI notably requires FIs to:

- Adopt a headline target that sets out for which asset classes they have set targets and how much of their total portfolio is covered, the purpose of which is to simplify communication of multiple asset level targets;
- Adopt targets for individual asset classes using the specific target language templates;
- At target submission, submit a brief summary of the strategy and actions they will implement in relevant sectors to reach their headline and asset class specific target(s), and how they intend to achieve greenhouse gas emissions in the real economy through these actions. This summary will be provided by the FIs with their target submission and will be published on the SBTi website upon FIs' agreement to the wording. There are however no requirements around specific actions or content for validation.

The detailed target language template below, also included in the financial sector specific target submission form, shall be followed by FIs when setting targets.

Table 8-1. Target language template for financial institutions

Headline target
Financial institution A commits to achieve SBTs in [asset classes] by [target year; if there are multiple target years of the asset class specific targets, use the target year that's farthest into the future] from a [XXX] base year.
Financial institution A's portfolio targets cover X% of its total investment and lending activities by AUM or other economic metrics such as total assets or annual revenue (and optionally X% of GHGs, if quantified).

Asset class specific target		
Asset Class	Method	Target output example
Real Estate	Sector Decarbonization Approach (SDA)	Financial institution A commits to reduce its real estate portfolio GHG emissions ___% per square meter by 2030 from a 2017 base year.
Mortgages	SDA	Financial institution A commits to reduce its mortgage portfolio GHG emissions ___% per square meter by 2030 from a 2017 base year.
Electricity Generation Project Finance	SDA	Financial institution A commits to reduce its electricity generation project finance portfolio GHG emissions ___% per kWh by 2030 from a 2017 base year.
Corporate Instruments (equity, bonds, loans)	SDA	Financial institution A commits to reduce GHG emissions from the steel sector within its corporate lending portfolio X% per ton of cement by 2030 from a 2017 base-year.
	SBT Portfolio Coverage	Investment firm A commits that 30% of its equity portfolio within the _[sector]_ by market capitalization will have set science-based targets by 2024.
	Temperature Rating	Investment firm A commits to align their equity portfolio temperature score from 2.6°C in 2018 to 1.75°C by 2025
Action plan to achieve targets		
<p>Financial institution A will implement the following strategy and actions to achieve its targets:</p> <ul style="list-style-type: none"> • Example: Financial institution A aims to steer its [XX dollar amount] corporate equity, bonds, and loan book in power generation, steel, cement, and aviation through actively 		

supporting clients' low carbon transition and helping them overcome challenges unique to their sectors. For example, it will offer more favorable revolving credit ratings to investees that set and stay on track to meet ambitious climate goals.

- It also aims to provide [XX dollar amount] in financing to climate change solutions, including green buildings, renewable energy, low carbon transport, adaptation infrastructure, forestry, waste, low-carbon infrastructure, energy efficiency, green businesses, and land remediation, with an increase of [XX dollar amount] on average between 2018 and 2020.

Financial institution A believes the above actions will achieve greenhouse gas emissions in the real economy for the following reasons:

- [Explanation 1]
- [Explanation 2]

SBT FI recognizes that currently there is a lack of clarity about which FI actions could lead to greenhouse gas emissions in the real economy. SBTi's annual disclosure requirement may help identify the most effective actions to realize GHG emissions reductions in the real economy and lead to further progress in this area.

SBT-FI is also open to collaborate with other climate initiatives that seek to develop methods or tools that enable the measurement of the impact of climate actions (see also the chapter below). We also encourage FIs to engage with relevant service providers to develop such tools, and adjust their strategies according to the findings of these analyses.

Given that current methods may not sufficiently cover all asset classes or sectors on FIs' portfolios and that the target boundary requirement remains flexible on certain financial products, FIs are also required to disclose the coverage of their total investment and lending activities by current targets in the target language (C19), using a metric that's representative of the magnitude of their main business activities. This disclosure requirement is intended to enhance the transparency and comparability of portfolio targets.

---Criteria Box begins---

Reporting

C19 - Disclosure of Target(s) Portfolio Coverage

Financial institutions shall disclose the percentage of their total investment and lending activities covered by current portfolio targets in a metric representative of the magnitude of the FI's main business activities (which may involve any combination of commercial banking, investment banking, and asset management). Examples include total emissions, total assets (balance sheet total), assets under management, or annual revenue.

C20 – Implementation Reporting

At the time of target submission, the financial institution shall submit a brief summary of how it intends to meet its scope 3 portfolio targets in conformity with the template provided in the target submission form.

This disclosure is intended to create transparency and will not be used as a basis for validation of targets. At the time of target announcement, the summary of how the financial institution intends to achieve its targets shall be made public upon agreement with the FI.

*After target approval, SBTi requires annual disclosure of scope 1 and 2 GHG emissions, disclosure of actions/strategies taken during the year to meet scope 3 portfolio targets and disclosure of progress against all approved targets. **

**If optional targets on scope 3 category 1-14 as described in [R1](#) are submitted and approved by SBTi, their progress shall be included in the disclosure of progress as well.*

---Criteria box ends---

As additional methods and the latest climate science become available, financial institutions shall continue to follow best practices and ensure that their targets remain relevant. Therefore, they shall state that they will review, and if necessary, recalculate and revalidate their targets, at a minimum, every 5 years(C21). Targets should be recalculated, as needed, to reflect significant changes that would compromise relevance and consistency of the existing target.

The following list includes example changes that should trigger a target recalculation:

- Exclusions in the inventory or target boundary change significantly and/or exceed allowable exclusion limits;
- Significant changes in institutional structure and activities (e.g., acquisitions, divestitures, mergers, insourcing or outsourcing, shifts in product or service offerings, addition of new products covered by available methods) that would affect the financial institution's target boundary or ambition;
- Significant changes in data used to calculate the targets such as growth projections (e.g., discovery of significant errors or several cumulative errors that are collectively significant);
- Other changes to projections/assumptions used with science-based target setting methods.

Financial institutions with approved targets that require recalculation must follow the most recent applicable criteria for the finance sector at the time of resubmission.

---Criteria box begins--

Recalculation and Target Validity

C21 - Target Recalculations

To ensure consistency with most recent climate science and best practices, targets must be reviewed, and if necessary, recalculated, and revalidated, at a minimum, every 5 years.

Financial institutions with an approved target that requires recalculation must follow the most recently applicable criteria at the time of resubmission. Targets should be recalculated, as needed, to reflect significant changes that would compromise relevance and consistency of the existing target.

C22 - Target Validity

Financial institutions with approved targets must announce their target publicly on the SBTi website within 6 months of the approval date. Targets unannounced after 6 months will have to go through the approval process again, unless a different publication timeframe was agreed with the SBTi.

---Criteria box ends--

9. SBTi Call to Action Process: Commit, Develop Target, Validate, Announce

This section outlines the four different steps for financial institutions to take in the SBTi Call to Action (C2A) process, from publicly committing to SBTi to having approved targets announced.³¹

Figure 9-1. The SBTi Call to Action Process



Step 1: Commit to set a science-based target

How to Commit

Financial institutions that wish to commit to set a science-based target should review and complete the [commitment letter](#) and send it to commitments@sciencebasedtargets.org. Signing the commitment letter indicates that your institution will work to set a science-based emissions reduction target aligned with the Science Based Targets initiative's criteria for financial institutions (the link will be added when available).

Business Ambition for 1.5°C

Financial institutions are urged to aim for the highest level of ambition in their targets setting. The SBTi encourages financial institutions to join the [Business Ambition for 1.5°C](#) Call to Action by signing the Business Ambition for 1.5°C Commitment Letter that indicates your intention to align your emissions reduction targets to 1.5°C. For financial institutions not currently committed to the SBTi, the Business Ambition for 1.5°C Commitment Letter constitutes as your commitment to develop and submit emissions reduction targets aligned with the SBTi criteria.

³¹ Please note that the SBTi C2A process for financial institutions is still being finalized and more details will be added for the final guidance release in September 2020.

---Box begins---

We Mean Business

[We Mean Business](#), a coalition of organizations working with thousands of the world's most influential businesses and investors, provides a platform for businesses and investors to be recognized for their climate action. Through the [We Mean Business campaign](#), financial institutions can commit to setting science-based targets as well as other actions such as procure 100% of electricity from renewable sources or put a price on carbon.

By default, financial institutions that commit to the Science Based Targets initiative count towards the We Mean Business Campaign. However, financial institutions that commit to set science-based targets through the We Mean Business Commit to Action Campaign are required to sign the SBTi commitment letter to be formally recognized by the initiative.

Financial institutions that have already committed to other closely related We Mean Business initiatives such as RE100 or EP100 are likely well-suited to set a science-based target. Likewise, those committed to science-based targets should consider how committing to 100% renewable power or improving their energy productivity would support their emission reduction efforts.

--Box ends---

Benefits of committing

Signing the commitment letter indicates that the financial institution will work towards setting science-based emission reduction targets. If the financial institution already set its own targets, the letter confirms the FI's interest in having its existing targets verified against a set of criteria developed by the SBTi or developing new targets that will align with these criteria.

After a financial institution submits its commitment letter (either the general commitment letter or the Business Ambition for 1.5°C Commitment Letter) to commitments@sciencebasedtargets.org, it will be recognized as "Committed" on our [Companies Taking Action](#) webpage, as well as the We Mean Business and [CDP](#) websites. Companies who are engaging in the UN Global Compact will also be recognized on their website. The list of committed companies is updated every week. Companies that have committed will receive a "Communications Welcome Pack" with more information on how to communicate their commitment.

Step 2: Develop a target

Once a financial institution has signed the commitment letter, it will have up to **24 months** to:

- (i) Develop science-based targets aligned with the SBTi criteria for financial institutions;
- (ii) Submit the targets to the SBTi for a validation;
- (iii) After approval, have the SBTi publish your targets and other related information on the relevant websites.

Financial institutions that have already committed to SBTi before the release of this framework will still have 24 months to fulfill these requirements.

We encourage financial institutions to start this process and submit your targets for validation as early as possible. If a financial institution fails to complete all the above outlined steps by the end of the 24 months, their name will be removed from the [SBTi Companies Taking Action webpage](#) and our partners' websites. The SBTi will not grant extensions beyond the 24 months' timeline because financial institutions can submit targets for validation and be added to the website with the status "targets set" independent of their commitment status. Please refer to the [Expired Commitments Protocol](#) for more information.

Target has to be in line with the criteria for financial institutions that the SBTi considers critical for qualifying targets as "science-based." The SBTi has developed a suite of [tools and guidance](#) (link will be updated) to help financial institutions understand how to meet these criteria.

Step 3: Submit the targets for a validation

How company information is treated

The SBTi safeguards the confidentiality of all information provided by the financial institution to assess its targets. This means that information provided will be used in accordance with the target validation service contract that financial institutions are asked to sign before target assessments commence.³²

The paid target validation service

The SBTi has introduced a paid service for target validations since 2019. With this paid target validation service, the initiative aims to provide a faster target validation process and additional feedback to companies. At the guidance final release in September 2020, SBTi will launch a pilot target validation phase for financial institutions. More details on the pilot phase will be shared at that time.

³² SBTi no longer accommodates requests for signing of Non-Disclosure Agreements (NDAs) as they can take up to 6 months to complete. The target validation contract should be sufficient to serve confidentiality purposes.

Target Submission Form for Financial Institutions

Financial institutions that wish to submit targets to be evaluated should download the latest Target Submission Form and Guidance for financial institutions (the link will be added when available) and fill it out as clearly, completely, and accurately as possible. It is highly recommended that financial institutions consult the submission form guidance available to complete the form, including the guidance on target language and summary of actions to achieve targets, before filling out the form. Additional documents should be attached only if they are directly related to the information requested.³³

It is the financial institution's responsibility to ensure the integrity of the information provided. Once the form is completed, financial institutions should send the submission form in Word format, together with any supporting documents in one email to targets@sciencebasedtargets.org.

Step 4: Announce the targets

Once targets are approved by the SBTi, the financial institution will receive an approval email with a validation report and a certificate. A date roughly one month from the target decision date will be tentatively chosen for the date of public target publication and suggested to the financial institution. If the financial institution would like to request a different publication date, they can coordinate with the SBTi communication team included in the decision email. Please note that financial institutions must publicly communicate their targets six months from approval date, or must have their targets re-validated by the SBTi to ensure the targets still meet relevant criteria. A "Welcome Pack" will be sent to the financial institution, which outlines how the targets can be showcased or communicated, how the SBTi logo may be used, and how the SBTi approval may be referenced. Once timing is agreed, the financial institution will be listed as having an "approved target" on our [Companies Taking Action](#) webpage as well as on our partners' websites at We Mean Business and CDP. Financial institutions who are engaging in the UN Global Compact will also be recognized on this website.

³³ Financial institutions should reference the specific page numbers, figures, or text that is being referred to in accompanying documents. Missing, unclear, or erroneous information will result in the validation process being delayed.

10. Discussion and Areas for Further Research

The methods, criteria, tools, and case studies presented in this document provide an initial framework for guiding financial institutions' Paris Agreement climate alignment activities. After publication in fall 2020, this framework will provide a foundation for evaluating SBTi target submissions. These targets are expected to catalyze broader financial sector climate action and support measurable emission reductions in the real economy.

As a voluntary initiative, SBTi provides a transparent platform for companies and financial institutions to set targets with the understanding that these entities have information and resources to achieve emission reductions in their specific realms of influence. Within the enabling role that financial institutions can play in low-carbon transformation, outstanding questions remain regarding target design, implementation strategies, policy linkages, and quantification of emissions impacts:

- The criteria described in this document present minimum requirements for **target design** across a range of financial institutions and activities. Beyond minimum requirements, there is a need for more research on the links between existing design approaches including green investment, engagement, and divestment targets. As financial institution targets become more prevalent and the understanding of target design improves, SBTi expects to update its criteria.
- In addition to target design, there are open questions on **target implementation strategy** options, tradeoffs, and effectiveness. Rather than prescribing particular implementation strategies and mitigation levers, SBTi preserves credibility and expands the evidence base by requiring financial institutions to annually report on their chosen mitigation activities and progress toward targets.
- In addition to company- and institution-specific situations, the tradeoffs and effectiveness of particular implementation strategies and mitigation options are also influenced by **policy linkages**. Policy makers are increasingly steering financial institutions' climate activities through a range of mandatory and voluntary programs. However, beyond the voluntary support and referencing illustrated in Japan for example, the link between institution-level SBTs and government climate programs is yet to be clearly developed.³⁴
- Finally, a broad area that would benefit from further research revolves around data and methods for **quantifying the emissions impacts** of financial institutions' investment and lending portfolios. Impacts are contingent on assumptions regarding additionality and attribution that are not widely agreed upon at this point.³⁵ The 2020 SBTi finance framework provides a foundation for further research to better understand and resolve these questions.

³⁴ See <https://www.wri.org/blog/2019/06/japan-leading-business-climate-engagement-will-ambitious-policies-follow> for more information about Japan's government-supported SBT programs.

³⁵ See Cummis, et al. 2018. And Kölbel, et al. 2019.

After the framework is launched, the SBTi finance sector team will conduct a virtual roadshow to present the resources to financial institutions, related peer initiatives, and other stakeholders. The sector team will also train the SBTi Target Validation Team on the criteria, tool, and related resources for FI target validation.

In 2021, SBTi plans to elaborate on the framework with a phase II project focused on net-zero targets for financial institutions, resources for additional asset classes and activities (perhaps including underwriting and sovereign debt), a revised multi-method tool, and updates to the criteria and reporting guidance related to the research questions described above. The SBTi net-zero framework for financial institutions will complement the SBTi net-zero framework for companies and include a definition of net-zero for financial institutions, principles for validating net-zero targets, case studies, and guidance on how SBTs can be used as milestones to reach net-zero. A central consideration for financial institutions' net zero targets is the treatment of mitigation options including decarbonization, carbon dioxide removal, avoided emissions, and offsetting with carbon credits. Through clear and robust net-zero targets, financial institutions can provide proof of concept for broader credit and offsetting mechanisms described in Article 6 of the Paris Agreement.³⁶

Long-term climate stabilization at the well-below 2° C level of the Paris Agreement may well require the development of a new financial system centered on carbon pricing and tradable permits. While increasing instability, most recently related to the global COVID pandemic, is accelerating a focus on ESG issues among financial institutions, new systems take time to establish. In the near term, the resources described in this guidance document augment the enabling role of financial institutions to more effectively connect climate insights and capital.

³⁶ See https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf for full text of the Paris Agreement including Article 6.

Appendices

This document includes six appendices describing application of the SDA for mortgages, real estate, electricity generation project finance, corporate instruments, and the temperature scoring method. The final appendix provides instructions for using the tool to apply the temperature scoring and SBT portfolio coverage method (for which full method description is [included in the main text](#)).

1. SDA for Residential Mortgage

Prepared by technical partner of the SBTi financial sector project, Guidehouse Inc.

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SUMMARY

Category		Framework
Scope	Target audience	The target audience for this target-setting framework are financial institutions with portfolios of mortgages.
	Asset class	Mortgage
	Sectors	Targets are set at portfolio emissions for residential buildings. For a target to qualify, it has to be set for a minimum share of the mortgage portfolio emissions, as defined as defined in the SBTi Target Validation Criteria for financial institutions.
Mechanics	Inputs data	Annual emissions data can be sourced and estimated from i) direct disclosure of buildings' scope 1 and 2 emissions or energy performance; or ii) public database on buildings emissions or energy performance. When using buildings' energy performance data, emissions factors are required to convert energy use (i.e. for heat and electricity) into emissions.

	Inputs pathways	<p>Science-based targets are based on a global sectoral decarbonization pathway in line with keeping global warming well below 2°C.</p> <p>Targets set using regional pathways will be assessed against global pathways.</p>
	Attribution approach	<p>Emissions of buildings in mortgage portfolios are 100% attributed to the portfolio, as dwellings are often financed by a mortgage of only one provider. Full attribution instead of using Loan-to-Value ratio can avoid changes in emissions performances due to fluctuating property values³⁷.</p>
	Outputs	<p>The output will be an emission intensity (per floor area) target at the mortgage portfolio level. Example: Financial institution A commits to reduce its mortgage portfolio GHG emissions with ___% per m² by 2030 from a 2017 base year.</p>
	Portfolio weighting	<p>Targets are not weighted within portfolios with targets on other asset classes.</p>

Scope

This methodology covers science-based targets for the portfolios of financial institutions consisting of mortgages. Mortgages are defined as any lending agreement to purchasing a building in exchange for a regular repayment at interest, which the lender is entitled with the condition that the building becomes void upon the payment of the debt. As mortgages are **mainly applied for the purchase of a residential building**, the scope of the methodology is on residential buildings, being defined as a building for a single family or multifamily that is used primarily for human dwelling (i.e. apartments and houses)³⁸.

This methodology presents a sector-based approach to set a science-based target for the Scope 3, category 15 (investment) emissions for financial institutions. When accounting for the financed emissions of a mortgage portfolio, these emissions are based on the scope 1 and 2 emissions of the residential building, covering:

- Scope 1: direct emissions from onsite fuel combustion for space heating, water heating, cooking etc.
- Scope 2: indirect emissions from purchased energy (electricity, steam, heat and cooling) for space heating, water heating, space cooling, lighting, cooking, appliances and miscellaneous equipment's (i.e. including the energy use of the household).

³⁷ [See latest report for details on attribution approach](#) (PCAF, 2019). The Partnership for Carbon Accounting Financials (PCAF) will launch the Global Carbon Accounting Standard for the financial industry in January 2021.

³⁸ (IEA, 2013)

Scope 3 emissions of buildings (such as the embodied emissions of the buildings materials) are not currently included due to high data uncertainty. It is recognized though, that as new residential buildings get more energy-efficient, the scope 3 emissions could become a sizable portion of buildings' life-cycle emissions (e.g. emissions from materials and construction could range from 35% to 51% depending on the building type)³⁹. When robust approaches and data to measure buildings' scope 3 emissions are developed, the target setting for mortgage portfolios could expand its coverage to include scope 3 emissions.

For setting targets on a mortgage portfolio, the Science Based Targets initiative endorses the Sectoral Decarbonization Approach (SDA). The SDA was developed by CDP, WRI, WWF together with technical partner Guidehouse. In the SDA, emissions reduction targets are assessed based on sectoral emissions reduction pathways, using the absolute emissions and activity data projection from International Energy Agency's (IEA) Energy Technology Perspectives (ETP). The initial SDA publication does not include emissions reduction pathways for the residential buildings, but this method extends SDA's sector coverage by using IEA's modeled data for residential buildings⁴⁰.

Mechanics

Data input

The first step of the science-based target-setting process is defining the baseline emissions of the mortgage portfolio for which a target will be set. A 2019 report by the Partnership for Carbon Accounting Financials (PCAF) detailed the carbon accounting methodology for various asset classes, including mortgages. When direct disclosure of buildings' scope 1 and 2 emissions is not available, emissions should be calculated based on asset-level energy use and emission factors⁴¹. In principle, setting science-based target for mortgage portfolios requires the following data points:

- Data to estimate scope 1 emissions (i.e. energy performance certificates or labelling, or average/estimated building energy consumption linked to onsite fuel combustion)
- Data to estimate scope 2 emissions (i.e. energy performance certificates or labelling, or average/estimated building energy consumption linked to purchased electricity, steam, heat and cooling)

³⁹ (RICS, 2017)

⁴⁰ (SBTi, 2015)

⁴¹ [See the report for details on calculation approach](#) (PCAF, 2019). The Partnership for Carbon Accounting Financials (PCAF) will launch the Global Carbon Accounting Standard for the financial industry in January 2021.

- Floor area⁴² of current properties
- Portfolio growth rate in target year (*optional for setting absolute emissions targets*)

There are two approaches to sourcing data to establish the baseline:

- **Direct disclosure of buildings' energy performance.** Annual energy use of buildings can be sourced from actual energy consumption collected from mortgage clients when financial institutions have implemented such data collection systems⁴³. Alternatively, annual energy use can be estimated based on energy performance certificates or labeling, which mandatory disclosure is in place in some countries. Floor area data could also be found as part of the legal documents and property registrations.
- **Public database on average buildings' energy performance.** There are also some sources available to estimate the energy consumption (scope 1 and 2) use in the case of limited data availability. Average building energy efficiency in the region is available in publicly available databases such as the IEA Data and Statistics, [EU Buildings Database](#), which covers service and residential buildings in Europe; or the [EIA Residential Energy Consumption Survey 2015](#), which covers residential buildings in the U.S. It is important to note that using regional averages requires less resources on collecting data but does not reflect portfolio-specific performance nor improvement over time.

Measuring financed emissions of the mortgage portfolio to set the baseline should rely on asset-level data as much as possible, filling in any data gaps with regional proxies.

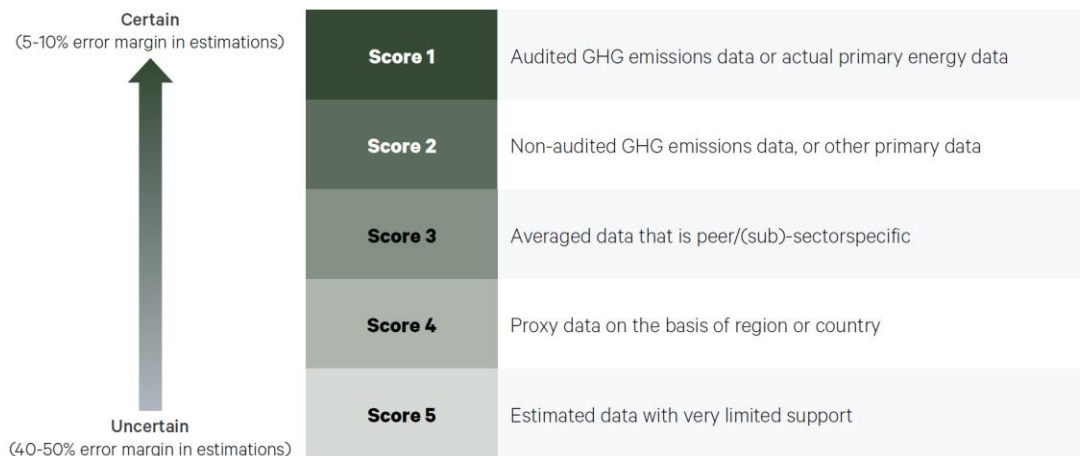
While data availability varies across regions, financial institutions can assess the specificity and accuracy of the available data using a data hierarchy (see Figure 0-1 as an example) and explore ways to improve data quality over time. For example, one may focus on moving from sector average data to building specific energy use data by refining the mortgage application process in countries with the most mortgage exposure. Any significant changes to the portfolio emissions should result in recalculation of target baseline as defined in the SBTi Target Validation Criteria for financial institutions.

Figure 0-1. Data quality score card for portfolio emissions⁴⁴

⁴² Floor area here refers to the total building area as defined in the IEA Energy Technology Perspective 2017. Financial institutions could possibly apply a different definition of floor area as long as it is consistent with the scenarios used to derive the decarbonization pathway(s).

⁴³ Some financial institutions are already using data analytics to measure emissions of their clients. See example [here](#).

⁴⁴ (PCAF, 2019)



In order to translate the emissions intensity targets into an absolute target, financial institutions have to project the annual percentage of the activity growth of their portfolio (Compound Annual Growth Rate (CAGR)) towards the target year (i.e. preferably measured in m², kWh, tonne of products). Financial institutions can project this in three ways:

1. By using the activity growth projection in the climate scenario (default growth projection). For instance, for residential buildings, this is 2.16% annually in m² gross floor area from 2020 towards 2030 (see the Annex).
2. By using the growth of their portfolio over the past 5-10 years
3. By using the growth projections of the specific business departments and extrapolate this towards the target years, if this growth projection is too short term.

Decarbonization pathway

By applying the SDA, the final emissions targets (expressed in emissions intensity per m² or in absolute emissions for the mortgage portfolio) shall be consistent with keeping global warming well below 2°C.

The application of the SDA uses the IEA 2017 ETP's Beyond 2°C Scenario (B2DS). The IEA models the building sector into sub-sectors (residential and services buildings) based on sectoral growth and technology development trajectory. The emissions and floor area projections from the B2DS will serve as the basis to derive the relevant targets for mortgage portfolios. Figure 0-2 illustrates the B2DS emissions intensity pathways for residential buildings.

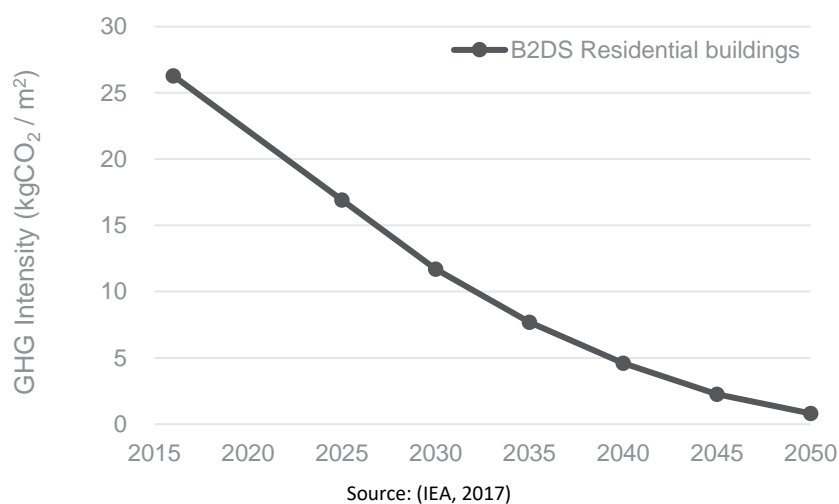
Currently, there is no 1.5°C scenario available, specific for the residential building. If the IEA or another scientific body publishes a 1.5°C scenario for this sector, the Science Based Targets initiative will consider incorporating this in the future.

The emissions trajectory of a mortgage portfolio shall continuously decline from the base year towards the target level, even if the emissions are below the pathway benchmark. The calculation method for the intensity pathway will be further explained in section 0. Note that IEA only provides pathways in a five-

year interval; thus, financial institution may derive the pathway data through interpolation if the target year falls in between these five-year intervals. Also see 0 for the data of the global B2DS pathways.

In addition, building emissions often vary across regions due to difference in emission trajectory, climatic zone, existing building performance and stock, urban planning and development, etc. Therefore, financial institutions may use regional emission pathways to assess their targets. Targets modelled using regional emissions pathways will be assessed against global pathways.

Figure 0-2. Global decarbonization pathway for residential buildings



Attribution approach

This method proposes to attribute 100% of the building's emissions to the mortgage provider, as dwellings are often financed by a mortgage of only one provider. Full attribution instead of using Loan-to-Value ratio can avoid changes in emissions due to fluctuating property values. This approach is consistent with the carbon accounting method for mortgage developed by the Partnership for Carbon Accounting Financials⁴⁵. To align with a decarbonization pathway, this methodology requires using the gross floor area of the buildings in the mortgage portfolio to derive the emission intensity metric (e.g. tCO₂ / m²).

Outputs

The output will be an emission intensity target (per m² floor area) at the mortgage portfolio level. Financial institutions can decide to translate this emissions intensity target per m² floor area into an absolute target by taking the growth projection in m² floor area of their mortgage portfolio towards the target year into account.

A sample target output could be: financial institution A commits to reduce its mortgage portfolio GHG emissions with ___% per m² by 2030 from a 2017 base year.

⁴⁵ (PCAF, 2019)

Portfolio weighting

Targets are not weighted within the portfolio with targets on other asset classes.

Instructions for implementation

Calculating the base-year emissions intensity

The first step is to calculate the GHG emissions intensity of the mortgage portfolio in the base year. Specifically, this involves the following steps:

- a) Collecting or estimating the annual energy performance data of residential buildings in the mortgage portfolio for which the financial institution seeks to set a target.
- b) Collecting of the gross floor area of buildings (in m²) for which the financial institution seeks to set a target, if relevant split between residential and service buildings in the portfolio.
- c) Calculating the base-year scope 1 and 2 emissions for these buildings using fuel- and energy-specific emissions factors, such as those provided by the IEA or national energy agencies.
- d) Summing up all scope 1 and 2 emissions to derive at the total annual scope 1 and 2 emissions at portfolio level.
- e) Summing up the gross floor area per building to derive at total gross floor area at portfolio level.
- f) Divide the total annual scope 1 and 2 emissions at portfolio level by the total gross floor area at portfolio level.

The emissions intensity of the mortgage portfolio should be assessed for a certain point in time in line with the financial reporting cycle.

Defining the science-based target

Science-based targets on mortgages shall be set at the portfolio level, in alignment with the global decarbonization pathway for residential buildings. Based on the SDA approach, the current emissions intensity of a mortgage portfolio shall converge to the same level as the sectoral decarbonization pathway by 2050.

The emission intensity target is defined as a decrease in emissions per floor area (tCO₂ / m²). The minimum level of emission intensity decrease is derived from the global decarbonization pathway for the residential buildings. The following formula is used to calculate the emission intensity target for a mortgage portfolio⁴⁶:

$$Portfolio\ intensity\ target_{mortgage} = (PI_{b,i} - SI_{2050,i}) \times \frac{(SI_{t,i} - SI_{2050,i})}{(SI_{b,i} - SI_{2050,i})} + SI_{2050,i}$$

⁴⁶ After the publication of the SDA in Nature Climate Change, the SBTi simplified the formula by removing the correction factor for changes in market share in order to prevent a potential increase of emissions intensity when growth is projected lower as sectoral growth.

Where:

- SI and PI are the sectoral and portfolio emissions per floor area,
- i the selected set of residential buildings,
- b the base year, and
- t the target year.

This approach allows financial institutions to converge their emissions intensity for the mortgage portfolio to the sectoral pathway in 2050, taking into account its base-year performance relative to sector intensity in 2050, and the decarbonization level of the sector in target year.⁴⁷ Box 0-1 below shows an example calculation of an intensity target for a mortgage portfolio based on this formula.

Box 0-2 below shows an example calculation of an intensity target.

Box 0-1. Example on setting an intensity target for a mortgage portfolio

Assume a financial institution has a global mortgage portfolio of residential buildings. Based on annual energy consumption, building certificates and other data the scope 1 +2 emissions of these buildings are assessed. The emission intensity of the portfolio is 37 kgCO₂ / m² for the total floor area of 0.95 million m² in 2017. The projected portfolio growth rate towards 2030 is 4% annually (CAGR).

Based on the IEA ETP B2DS, the global decarbonization pathway for residential buildings has approximately:

- 25 kgCO₂ / m² at 193,862 million m² 2017
- 12 kgCO₂ / m² at 257,077 million m² 2030
- 0.81 kgCO₂ / m² at 339,220 million m² 2050

To set an intensity target for 2030 converging to the 2050 sectoral emissions level:

$$\begin{aligned} \text{Intensity target} &= (PI_{b,i} - SI_{2050,i}) \times \frac{(SI_{t,i} - SI_{2050,i})}{(SI_{b,i} - SI_{2050,i})} + SI_{2050,i} \\ &= (37 - 0.81) \times \frac{(12 - 0.81)}{(25 - 0.81)} + 0.81 \\ &= 17.55 \text{ kgCO}_2 / \text{m}^2 \end{aligned}$$

Since this portfolio started with an emission intensity higher than the sector level in 2017, this approach allows the portfolio to stay at an intensity higher than the sectoral pathway to reduce its emissions at a faster pace, converging to the sectoral level by 2050.

Taking the annual growth projections of 4% towards 2030, the mortgage portfolio will correspond to a total floor area of 1.6 million m² in 2030. The emissions intensity targets can be translated into an absolute emissions target of 27.8 kton CO₂ in 2030.

IEA ETP 2017 B2DS pathways – mortgage

Here are the global floor area projections and emissions intensities (Scope 1 and 2) pathway for residential buildings based on the IEA ETP 2017 data.

⁴⁷ See the SDA methodology paper for more details (SBTi, 2015).

Emission intensity (kgCO₂ / m²)

Region	Sub sector	2016 ⁴⁸	2025	2030	2035	2040	2045	2050
WORLD	Residential buildings	26.30	16.92	11.71	7.69	4.60	2.26	0.81

Gross floor area (million m²)

Region	Sub sector	2016 ⁴⁸	2025	2030	2035	2040	2045	2050
WORLD	Residential buildings	189,288	230,454	257,077	275,529	295,306	316,502	339,220

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2. SDA for Commercial Real Estate

Prepared by technical partner of the SBTi financial sector project, Guidehouse Inc.

⁴⁸ The 2016 data points are estimated based on the 2014 and 2025 data points provided by IEA, assuming linear interpolation between the years.

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SUMMARY

Category		Framework
Scope	Target audience	The target audience for this target-setting framework are financial institutions with portfolios of real estate investment.
	Asset class	Real estate investment (including REITs)
	Sectors	Targets are set at portfolio emissions for service and residential buildings. For a target to qualify, it has to be set for a minimum share of the real estate portfolio emissions, as defined in the SBTi Target Validation Criteria for financial institutions
Mechanics	Inputs –data	Annual emissions data can be sourced and estimated from i) direct disclosure of buildings’ scope 1 and 2 emissions or energy performance; or ii) public database on buildings emissions or energy performance. When using buildings’ energy performance data, emissions factors are required to convert energy (i.e. for heat and electricity) use into emissions.
	Inputs – pathways	Science-based targets are based on a global sectoral decarbonization pathway in line with keeping global warming well below 2°C. Targets set using regional pathways will be assessed against global pathways.
	Attribution approach	Emissions associated with real estate investments should be attributed proportionally to the financial institutions based on the ratio between the outstanding amount versus the total property value at time of origination ⁴⁹ .
	Outputs	The output will be an emission intensity target (per gross floor area) at the portfolio level. Example: Financial institution A commits to reduce its real estate portfolio GHG emissions intensity with ___% per m ² by 2030 from a 2017 base year.
	Portfolio weighting	Targets are not weighted within portfolios with targets on other asset classes.

⁴⁹ [See the report for details on attribution approach](#) (PCAF, 2019). The Partnership for Carbon Accounting Financials (PCAF) will launch the Global Carbon Accounting Standard for the financial industry in January 2021.

Scope

This methodology covers science-based targets for the portfolios of financial institutions consisting of real estate investment. Real estate investments are defined as the allocation of capital for partial or full ownership of property, real estate investment groups, real estate trading, real estate investment trust (REIT), etc. **Both residential and service buildings under real estate investment are included in this methodology.** Residential buildings refer to private dwellings such as apartments and houses, whereas service buildings include properties related to trade, finance, retail, public administration, health, food and lodging, education and commercial services⁵⁰.

This methodology presents a sector-based approach to set a science-based target for the Scope 3, category 15 (investment) emissions for financial institutions. When accounting for the financed emissions of real estate investment portfolio, these emissions are based on the scope 1 and 2 emissions of the buildings, covering:

- Scope 1: direct emissions from onsite fuel combustion for space heating, water heating, cooking purposes in the full building.
- Scope 2: indirect emissions from purchased energy (electricity, steam, heat and cooling) for space heating, water heating, space cooling, lighting, cooking, appliances and miscellaneous equipment's. These indirect emissions include the energy use by the tenants.

Scope 3 emissions of buildings (such as the embodied emissions of the buildings materials) are not currently included due to high data uncertainty. It is recognized though, that as new buildings get more energy-efficient, the scope 3 emissions could become a sizable portion of buildings' life-cycle emissions (e.g. emissions from materials and construction could range from 35% to 51% depending on the building type)⁵¹. When robust approaches and data to measure buildings' scope 3 emissions are developed, the target setting for real estate could expand its coverage to include scope 3 emissions.

For setting targets on a commercial real estate portfolio, the Science Based Targets initiative endorses the Sectoral Decarbonization Approach (SDA). The SDA was developed by CDP, WRI, WWF together with technical partner Guidehouse. In the SDA, emissions reduction targets are assessed based on sectoral emissions reduction pathways, using the absolute emissions and activity data projection from International Energy Agency's (IEA) Energy Technology Perspectives (ETP).

⁵⁰ (IEA, 2013)

⁵¹ (RICS, 2017)

Mechanics

Data input

The first step of the science-based target-setting process is defining the baseline emissions of the commercial real estate portfolio for which a target will be set. A 2019 report by the Partnership for Carbon Accounting Financials (PCAF) detailed the carbon accounting methodology for various asset classes, including commercial real estate. When direct disclosure of buildings' scope 1 and 2 emissions is not available, emissions should be calculated based on asset-level energy use and emission factors⁵². In principle, setting science-based target for real estate portfolios requires the following data points:

- Data to estimate scope 1 emissions (i.e. energy performance certificates or labelling, or average/estimated building energy consumption linked to onsite fuel combustion)
- Data to estimate scope 2 emissions (i.e. energy performance certificates or labelling, or average/estimated energy consumption linked to purchased electricity, steam, heat and cooling, including the energy consumption of the tenants)
- Outstanding investment amount of properties
- Property values at the time of investment
- Building type (i.e. residential or service)
- Floor area⁵³ of current properties
- Portfolio growth rate in target year (*optional for setting absolute emissions targets*)

When there is no direct disclosure of scope 1 and 2 emissions of the buildings by for instance the tenant or property manager, there are two approaches to estimate these emissions for establishing the baseline:

- **Based on buildings' energy performance (asset-level data).** Annual energy consumption of buildings can be sourced from energy bills collected from tenants when financial institutions have implemented such data collection systems. Alternatively, annual energy consumption can be estimated based on energy performance certificates or labelling, which mandatory disclosure is in place in some countries. Floor area data can be found as part of the legal document and property registration of the real estate.
- **Public database on average buildings' energy performance.** There are also some sources available to estimate the energy consumption (scope 1 and 2) in the case of limited data availability. Average building energy efficiency in the region is available in publicly available databases such as the [GRESB](#) (global service buildings yet subscription required), [EU Buildings](#)

⁵² [See the report for details on calculation approach](#) (PCAF, 2019). The Partnership for Carbon Accounting Financials (PCAF) will launch the Global Carbon Accounting Standard for the financial industry in January 2021.

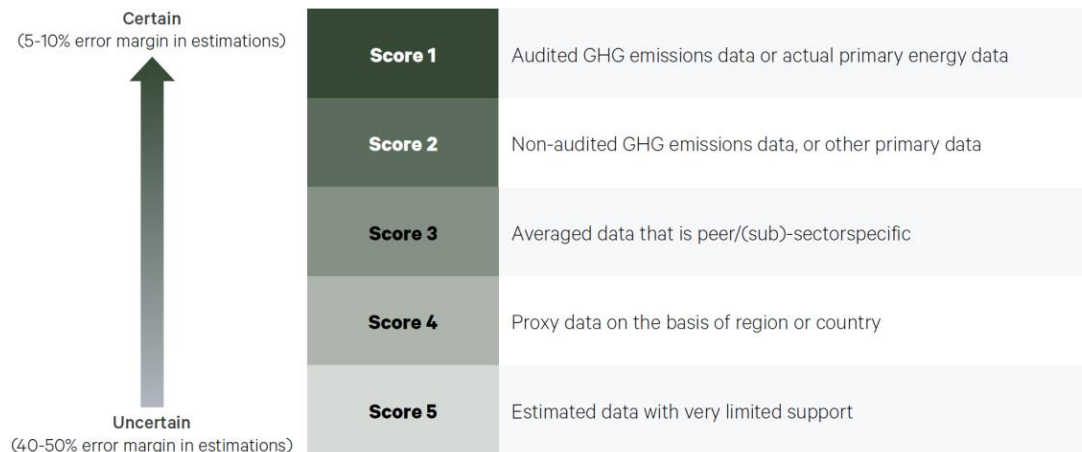
⁵³ Floor area here refers to the total building area (gross floor area) as defined in the IEA Energy Technology Perspective 2017. Financial institutions could possibly apply a different definition of floor area as long as it is consistent with the scenarios used to derive the decarbonization pathway(s).

[Database](#) (service and residential buildings in Europe), [EIA Residential Energy Consumption Survey 2015](#) (residential buildings in the U.S.), [EIA Commercial Buildings Energy Consumption Survey 2012](#) (service buildings in the U.S.). Using regional averages requires less resources on collecting data but does not reflect performance specific to the portfolios nor improvement over time.

Measuring financed emissions of the commercial real estate portfolio to set the baseline should rely on asset-level data as much as possible, filling in any data gaps with regional proxies.

While data availability varies across regions, financial institutions can assess the specificity and accuracy of the available data using a data hierarchy (see Figure 0-1 as an example) and explore ways to improve data quality over time. For example, one may focus on moving from sector average data to building specific energy use data by refining the due diligence or loan application process in countries with the most real estate exposure. Any significant changes to the portfolio emissions should result in recalculation of the target baseline as defined in the SBTi Target Validation Criteria for financial institutions.

Figure 0-3. Data quality score card for portfolio emissions⁵⁴



In order to translate the emissions intensity targets into an absolute target, financial institutions have to project the annual percentage of the activity growth of their portfolio (Compound Annual Growth Rate (CAGR)) towards the target year (i.e. preferably measured in m², kWh, tonne of products). Financial institutions can project this in three ways:

3. By using the activity growth projection in the climate scenario (default growth projection). For instance, for residential buildings, this is 2.16% annually in m² gross floor area from 2020 towards 2030, and for service buildings this is 2.15% annually in m² gross floor area from 2020 towards 2030 (see the Annex).
4. By using the growth of their portfolio over the past 5-10 years

⁵⁴ (PCAF, 2019)

5. By using the growth projections of the specific business departments and extrapolate this towards the target years, if this growth projection is too short term.

Decarbonization pathway

By applying the SDA, the final emissions targets (expressed in emissions intensity per m² or in absolute emissions for the real estate portfolio) have to be consistent with keeping global warming well below 2°C.

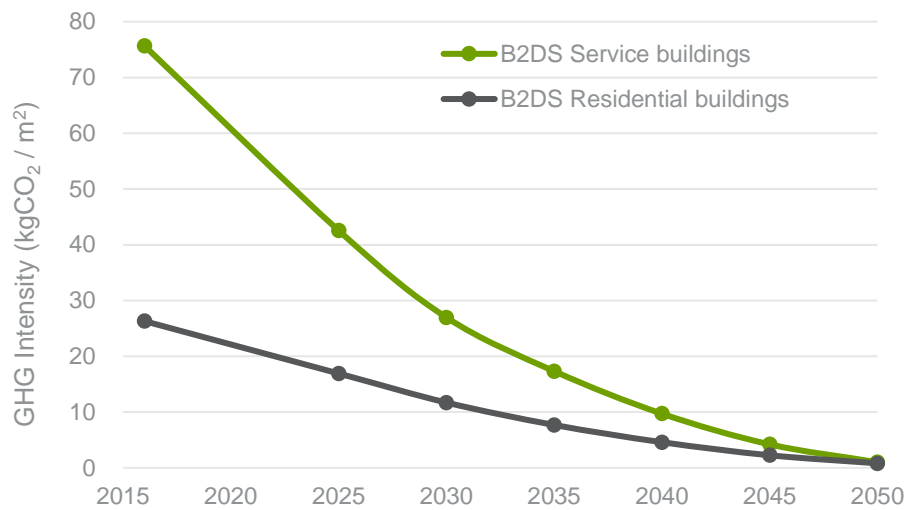
The application of the SDA uses the IEA 2017 ETP's Beyond 2°C Scenario (B2DS). The IEA models the building sector into sub-sectors (residential and services buildings) based on sectoral growth and technology development trajectory. The emissions and floor area projections from the B2DS will serve as the basis to derive the relevant targets for real estate. Figure 0-4 illustrates the B2DS emissions intensity pathways for residential and service buildings.

Currently, there is no 1.5°C scenario available, specific for the residential building. If the IEA or another scientific body publishes a 1.5°C scenario for this sector, the Science Based Targets initiative will consider incorporating this in the future.

The emissions trajectory of a commercial real estate portfolio shall continuously decline from the base year towards the target level, even if the emissions are below the pathway benchmark. The calculation method for portfolio emission intensity pathway will be further explained in section 0. Note that IEA only provides the data of their ETP pathways in a five-year interval; thus, financial institution may derive the pathway data through interpolation if the target year falls in between these five-year intervals. Also see Appendix A for the data of the global and regional ETP B2DS pathways.

In addition, building emissions often vary across regions due to difference in emission trajectory, climatic zone, existing building performance and stock, urban planning and development, etc. Therefore, financial institutions may use regional emission pathways to assess their targets. Targets modelled using regional emissions pathways will be assessed against global pathways.

Figure 0-4. Global decarbonization pathway for buildings



Source: (IEA, 2017)

Attribution approach

This methodology attributes emissions associated to commercial real estate investments proportionally based on the ratio between the outstanding investment amount versus the total property values at the time of investment. This approach is consistent with the carbon accounting method for real estate developed by the Partnership for Carbon Accounting Financials⁵⁵. To align with the IEA decarbonization pathway for the building sector, this methodology requires using the gross floor area of the buildings in the real estate portfolio as the metric to derive the emission intensity (e.g. tCO₂ / m²).

Outputs

The output will be an emission intensity target (per m² floor area) at the commercial real estate portfolio level, split between residential and service buildings if relevant to the financial institutions. Financial institutions can decide to translate this emissions intensity target per m² floor area into an absolute target by taking the growth projection in m² floor area of their real estate portfolio towards the target year into account.

A sample target output could be: Financial institution A commits to reduce its real estate portfolio GHG emissions with ___% per m² by 2030 from a 2017 base year.

Portfolio weighting

Targets are not weighted within the portfolio with targets on other asset classes.

⁵⁵ (PCAF, 2019)

Instructions for implementation

Calculating the base-year emissions

The first step is to calculate the annual GHG emissions of the commercial real estate portfolio in the base year. Specifically, this involves the following steps:

- g) Collecting or estimating the annual energy consumption of buildings for which the financial institution seeks to set a target, if relevant split between residential and service buildings in the portfolio.
- h) Calculating the base-year scope 1 and 2 emissions per building using fuel- and energy-specific emissions factors, such as those provided by the IEA or national energy agencies.
- i) Attributing the annual scope 1 and 2 emissions per building based on the ratio between the outstanding amount versus the total property value at time of origination⁵⁶.
- j) Summing up all scope 1 and 2 emissions per building to derive at the total annual scope 1 and 2 emissions at portfolio level.

Base-year emissions intensity should be assessed at a fixed point in time in line with the financial reporting cycle.

Calculating the base-year emissions intensity

Translating the emissions in the base-year (from section 3.1) into an emissions intensity at portfolio level involves the following steps:

- a) Collecting of the gross floor area of buildings (in m²) for which the financial institution seeks to set a target, if relevant split between residential and service buildings in the portfolio;
- b) Attributing the gross floor area per building (in m²) based on the ratio between the outstanding amount versus the total property value at time of origination¹¹.
- c) Summing up the attributed gross floor area per building to derive at total gross floor area at portfolio level.
- d) Divide the total annual scope 1 and 2 emissions at portfolio level (from section 3.1) by the total gross floor area at portfolio level.

Defining the science-based target

Science-based targets on real estate investments shall be set at the real estate portfolio level, in alignment with the global decarbonization pathway for residential and/or service buildings. Based on the SDA

⁵⁶ [See the report for details on attribution approach](#) (PCAF, 2019). The Partnership for Carbon Accounting Financials (PCAF) will launch the Global Carbon Accounting Standard for the financial industry in January 2021.

approach, the current emissions intensity of a real estate portfolio shall converge to the same level as the sectoral decarbonization pathway by 2050.

The emission intensity target is defined as a decrease in emissions per floor area (tCO₂ / m²). The minimum level of emission intensity decrease is derived from the global decarbonization pathway for the residential and service buildings. The following formula is used to calculate the emission intensity target for a commercial real estate portfolio⁵⁷:

$$Portfolio\ intensity\ target_{real\ estate} = (PI_{b,i} - SI_{2050,i}) \times \frac{(SI_{t,i} - SI_{2050,i})}{(SI_{b,i} - SI_{2050,i})} + SI_{2050,i}$$

Where:

- *SI* and *PI* are the sectoral and portfolio emissions per floor area,
- *i* the subsector for buildings (i.e. residential or service),
- *b* the base year, and
- *t* the target year.

This approach allows financial institutions to converge their emissions intensity for the real estate portfolio to the sectoral pathway in 2050, taking into account its base-year performance relative to sector intensity in 2050, and the decarbonization level of the sector in target year⁵⁸.

Box 0-2 below shows an example calculation of an intensity target.

⁵⁷ After the publication of the SDA in Nature Climate Change, the SBTi simplified the formula by removing the correction factor for changes in market share in order to prevent a potential increase of emissions intensity when growth is projected lower as sectoral growth.

⁵⁸ See the SDA methodology paper for more details (SBTi, 2015).

Box 0-2. Example on setting an intensity target for a real estate portfolio

Assume a financial institution has a global commercial real estate portfolio of various service buildings. Based on energy consumption, building certificates or other data the emissions of these buildings are assessed. Taking the attribution factor per building into account, the emission intensity of the portfolio is 117 kgCO₂ / m² for the total floor area of 2.4 million m² in 2017. The projected annual portfolio growth rate towards 2030 is 2% (CAGR).

Based on the IEA ETP B2DS, the global decarbonization pathway for service buildings has approximately:

- 71 kgCO₂ / m² at 47,404 million m², in 2017
- 27 kgCO₂ / m² at 62,760 million m² 2030
- 1 kgCO₂ / m² at 81,039 million m² 2050

To set an intensity target for 2030 converging to the 2050 sector level:

$$\begin{aligned} \text{Intensity target} &= (PI_{b,i} - SI_{2050,i}) \times \frac{(SI_{t,i} - SI_{2050,i})}{(SI_{b,i} - SI_{2050,i})} + SI_{2050,i} \\ &= (117 - 1) \times \frac{(27-1)}{(71-1)} + 1 \\ &= 44 \text{ kgCO}_2 / \text{m}^2 \end{aligned}$$

Since this portfolio started with an emission intensity higher than the sector level in 2017, this approach allows the portfolio to stay at an intensity higher than the sectoral pathway to reduce its emissions at a faster pace, converging to the sectoral level by 2050.

Taking the annual growth projections of 2% towards 2030, the commercial real estate portfolio will correspond to a total floor area of 3.1 million m² in 2030. The emissions intensity targets can be translated into an absolute emissions target of 136.6 kton CO₂ in 2030.

IEA ETP 2017 b2ds pathways – real estate

Here are the global emissions intensities (Scope 1 and 2) pathways based on the IEA ETP 2017 data.

Emission intensity (kgCO₂ / m²)

Region	Sub sector	2016 ⁵⁹	2025	2030	2035	2040	2045	2050
WORLD	Service buildings	75.64	42.56	26.97	17.33	9.71	4.21	1.00
WORLD	Residential buildings	26.30	16.92	11.71	7.69	4.60	2.26	0.81

Gross floor area (million m²)

Region	Sub sector	2016 ⁵⁹	2025	2030	2035	2040	2045	2050
WORLD	Service buildings	46,292	56,296	62,760	66,901	71,316	76,022	81,039
WORLD	Residential buildings	189,288	230,454	257,077	275,529	295,306	316,502	339,220

References

⁵⁹ The 2016 data points are estimated based on the 2014 and 2025 data points provided by IEA, assuming linear interpolation between the years.

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3. SDA Electricity Generation Project Finance

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SUMMARY

Category		Framework
Scope	Target audience	The target audience for this target-setting framework are financial institutions with project finance portfolios in the power sector.
	Asset class	Project finance for electricity generation
	Sectors	Targets are set at portfolio emissions for project finance for the power sector. For a target to qualify, it has to be set for a minimum share of the financed emissions from portfolio of electricity generation project finance, as defined as defined in the SBTi Target Validation Criteria for financial institutions.

Mechanics	Inputs data –	Annual emissions data can be sourced and estimated from i) direct disclosure of projects' GHG emissions or fuel use; or ii) public database on average emissions factors for power generation.
	Inputs pathways –	Science-based targets are based on a global sectoral decarbonization pathway in line with keeping global warming well below 2°C. Targets set using regional pathways will be assessed against global pathways.
	Attribution approach	Attribution for projects emissions to portfolio should be based on the ratio of outstanding investment versus the total project size on an annual basis (e.g. 2018 project emissions x 2018 year-end outstanding loan principal / project's total assets (equity + debt) ⁶⁰ .
	Outputs	The output will be an emission intensity target (gCO ₂ / kWh) at the portfolio level. Example: Financial institution A commits to reduce its electricity generation project finance portfolio GHG emissions with ___% per kWh by 2030 from a 2017 base-year.
	Portfolio weighting	Targets are not weighted within portfolios with targets on other asset classes.

Scope

This methodology covers science-based targets for the financial portfolios of financial institutions consisting of project finance for electricity generation. Project finance is defined as equity or loan (including mezzanine debt) with known use of proceeds that are designated for a clearly defined activity or set of activities, i.e. the construction and operations of a project to generate electricity.

The scope of the methodology covers projects contributing to electricity generation from fuels such as oil, coal, natural gas, nuclear, biomass and waste, hydro, geothermal, wind, solar photovoltaics (PV) and concentrate solar power (CSP), ocean, hydrogen, and other⁶¹. Treatment of investments leading to negative emissions from the power sector, such as bioenergy with Carbon Capture & Storage (BECCS) and Carbon Capture and Storage (CCS) are currently out of scope. This topic will be revisited once the GHG Protocol removal guidance is developed and as part of SBTi's net zero target discussion.

Project finance for other types of projects are currently out of scope in this methodology and will be considered in the future.

⁶⁰ [See the report for details on attribution approach](#) (PCAF, 2019).

⁶¹ (IEA, 2017)

This methodology details how to align emissions of the underlying projects in the power sector with a low-carbon transition pathway towards well-below 2°C or towards 1.5°C. It applies the decarbonization pathway of power generation to the portfolio of underlying projects and is applicable to pathways from any transition scenarios available in the market⁶².

The emissions subject to target setting are scope 1 and 2 emissions from the underlying projects.

- Scope 1: direct emissions from onsite fuel combustion for electricity generation
- Scope 2: indirect emissions from project's own use of purchased steam, heat and electricity for electricity generation if any

Note that Scope 3 emissions (such as embodied carbon in materials and emissions from waste) are not included in this methodology due to high data uncertainty. When robust approaches and data to measure scope 3 emissions of these projects are well developed, the target setting for electricity generation portfolios could expand its coverage to include scope 3 emissions.

Published well below 2°C alignment methodologies for project finance are currently spread across researches on different project types. Some existing work focuses on the necessary capacity for certain technologies and the required amount of investment per sectors for the alignment. For setting targets on a electricity generation project finance portfolio, the Science Based Targets initiative endorses the Sectoral Decarbonization Approach (SDA). The SDA was developed by CDP, WRI, WWF together with technical partner Guidehouse. In the SDA, emissions reduction targets are assessed based on sectoral emissions reduction pathways, using the absolute emissions and activity data projection from International Energy Agency's (IEA) Energy Technology Perspectives (ETP). In the SDA a decarbonization pathway for the power sector is included⁶³. In June 2020, the Science Based Targets initiative, with technical support from Guidehouse, published [a quick start guide](#) for electric utilities to set 1.5°C-aligned science-based targets using the SDA⁶⁴.

Mechanics

Data input

The first step of the science-based target-setting process is defining the baseline emissions of the portfolio of electricity generation projects for which a target will be set. A 2019 report by the Partnership for Carbon

⁶² For example, the Energy Technology Perspectives (ETP) and World Energy Outlook (WEO) by the International Energy Agency (IEA), International Renewable Energy Agency (IRENA) Remap, such as the Energy Technology Perspectives (ETP) and World Energy Outlook (WEO) by the International Energy Agency (IEA), Greenpeace Advanced Energy [R]evolution, etc. (TCFD, 2017)

⁶³ (IEA, 2017)

⁶⁴ (SBTi, 2020)

Accounting Financials (PCAF) detailed the carbon accounting methodology for various asset classes, including project finance. It suggested that project's emissions should be calculated based on asset-level energy use and emission factors and attributed to the financial institutions based on the proportional share in the total project size⁶⁵.

In principle, setting science-based target for electricity generation project finance portfolios requires the following data points:

- Scope 1 emissions from electricity generation projects
- Scope 2 emissions from electricity generation projects if any
- Outstanding loans/investment per project
- Total project size per project (equity, debt and mezzanine)
- (Estimated) annual electricity production per project (kWh)
- (Estimated) future electricity production of portfolio (kWh) or portfolio growth target (%) towards the target year (*optional for setting absolute emissions targets*)

There are two approaches to sourcing data to measuring alignment:

- **Disclosure of projects' energy use or GHG emissions.** Fuel type, annual electricity generation (e.g. MWh), annual GHG emissions, installed capacity (e.g. MW) or operating hours of electricity generation projects are often included in project descriptions. Actual annual fuel use and emission data of each project are most accurate and effective to reflect any improvement over time.
- **Public database on average emissions factors for power generation.** Sources such as IEA, national energy agencies, or utilities often provide average emissions factors for electricity generation by regions or fuel type. Financial institutions could use these proxies to estimate the emissions for power generation projects if they have the annual output (e.g. MWh) of projects by fuel type or region. Using regional averages requires less resources on collecting data but does not reflect performance specific to the portfolios nor improvement over time.

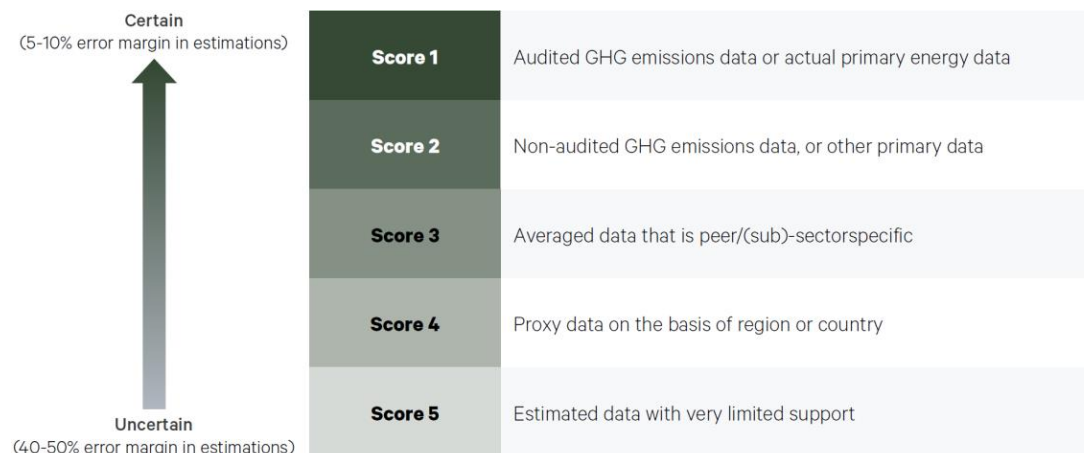
Science-based target analysis for electricity generation projects should rely on asset-level data as much as possible and fill in any data gaps with regional proxies.

While data availability varies across regions, financial institutions could assess the specificity and accuracy of the available data using a data hierarchy (see Figure 0-1 as an example) and explore ways to improve data quality over time. For example, one may focus on moving from sector average data to region- or project-specific energy use data by refining the due diligence or loan application process in countries with

⁶⁵ [See the report for details on calculation approach](#) (PCAF, 2019)

the most project finance exposure. Any significant changes to the portfolio emissions should result in recalculation of target baseline as defined in the SBTi Target Validation Criteria for financial institutions.

Figure 0-5. Data quality score card for portfolio emissions⁶⁶



In order to translate the emissions intensity targets into an absolute target, financial institutions have to project the annual percentage of the activity growth of their portfolio (Compound Annual Growth Rate (CAGR)) towards the target year (i.e. preferably measured in m², kWh, tonne of products). Financial institutions can project this in three ways:

4. By using the activity growth projection in the climate scenario (default growth projection). For instance, for electricity generation projects, this is 1.69% in kWh from 2020 towards 2030 (see the Annex)
5. By using the growth of their portfolio over the past 5-10 years
6. By using the growth projections of the specific business departments and extrapolate this towards the target years, if this growth projection is too short term.

Decarbonization Pathway

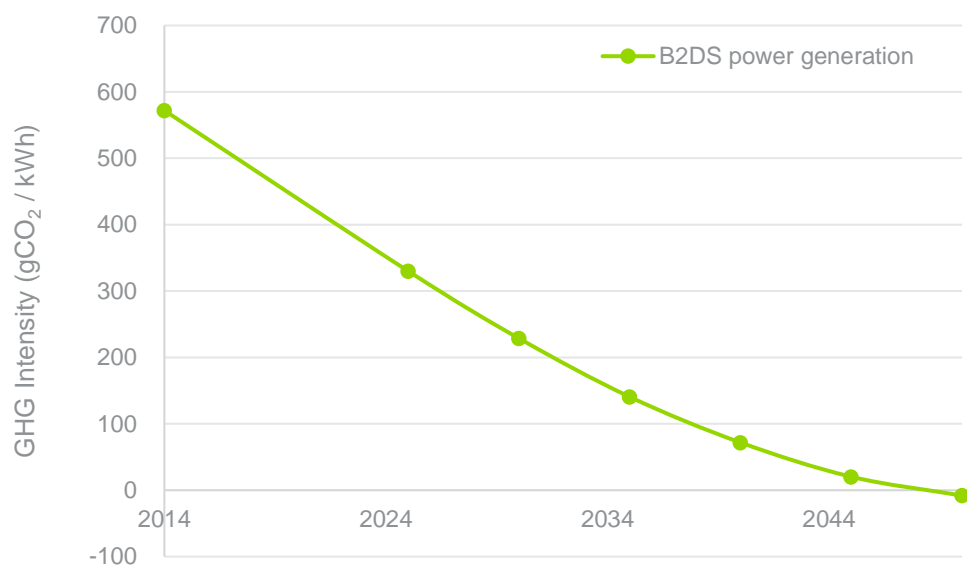
By applying the SDA, the final emissions targets, expressed in emissions intensity (gCO₂/ kWh), have to be consistent with keeping global warming well below 2°C.

The SDA for the power sector details how to align emissions of investments in electricity generation projects with a decarbonization pathway towards well below 2°C and uses the IEA ETP's Beyond 2°C Scenario (B2DS). The IEA models the power sector based on sectoral growth and technology development trajectories. The emissions and electricity growth projections from the B2DS will serve as the basis to derive the relevant targets for electricity generation project finance. Figure 0-6 illustrates the emissions intensity pathways for the power sector in the B2DS.

⁶⁶ (PCAF, 2019)

The emissions intensity trajectory of a project portfolio in the power sector shall continuously decline from the base year towards the target level, even if the emissions are below the pathway benchmark. The calculation method will be further explained in section 0. Note that IEA only provides pathways in a five-year interval, financial institution may derive the pathway data through interpolation if the target year falls in between these five-year intervals. Also see 0 for the data on the global B2DS pathway.

Figure 0-6. Global decarbonization emission pathway for the power sector



Source: (IEA, 2017)

Attribution approach

Attribution of projects' emissions to a financial portfolio are based on the ratio of outstanding loan or investment over the total project size on an annual basis (e.g. 2018 project emissions x 2018 year-end outstanding loan / project's total size (equity + debt)⁶⁷. This approach is consistent with the carbon accounting method for project finance developed by the Partnership for Carbon Accounting Financials⁶⁸. To align with a decarbonization pathway, this methodology requires using the total electricity output (e.g. kWh) to derive the emission intensity of electricity generation projects (i.e. gCO₂ / kWh).

Outputs

The output will be an emission intensity target (in gCO₂ / kWh) at the portfolio level of all electricity generation projects. Financial institutions can decide to translate this emissions intensity target per kWh

⁶⁷ [See the report for details on attribution approach](#) (PCAF, 2019).

⁶⁸ (PCAF, 2019)

into an absolute target by taking the growth projection in kWh of their electricity generation project portfolio towards the target year into account.

A sample target output could be: Financial institution A commits to reduce the GHG emissions of its electricity generation project finance portfolio with ___% per kWh by 2030 from a 2017 base-year.

Portfolio weighting

Targets are not weighted within the portfolio with targets on other asset classes.

Instructions for implementation

To assess the science-based targets for electricity generation project finance, financial institutions can use the SDA in the general [Science-based Target Setting Tool \(version 1.1\) that is available on the Science Based Targets website](#). Next to this resource, also the quick start guide for electric utilities to set 1.5°C-aligned science-based targets using the SDA⁶⁹ is a valuable resources, including the [updated SDA Tool to set targets in line with 1.5°C](#).

As input into this tool, base-year emissions and base-year output should be calculated following the instructions below.

Calculating the base-year emissions

The first step is to calculate the annual GHG emissions of the portfolio of electricity generation projects in the base year. Specifically, this involves the following steps:

- k) Collecting or estimating the fuel and energy use of each electricity generation project in the portfolio for which the financial institution seeks to set a target.
- l) Calculating the base-year scope 1 and 2 emissions per project using fuel- and energy-specific emissions factors, such as those provided by the IEA or national energy agencies.
- m) Attributing the annual scope 1 and 2 emissions per project based on the ratio between the outstanding amount versus the total project size (equity + debt)⁷⁰.
- n) Summing up all scope 1 and 2 emissions per project to derive at the total annual scope 1 and 2 emissions at portfolio level.

Base-year emissions of all electricity generation project finance in the portfolio should be assessed at a fixed point in time in line with the financial reporting cycle.

⁶⁹ (SBTi, 2020)

⁷⁰ [See the report for details on attribution approach](#) (PCAF, 2019). The Partnership for Carbon Accounting Financials (PCAF) will launch the Global Carbon Accounting Standard for the financial industry in January 2021.

Calculating the base-year output

Next to emissions, also base-year output should be provided as input in the Science-based Target Setting Tool. Calculating the base-year output should involve the following steps:

- e) Collecting or estimating the annual electricity generated (in kWh) of the portfolio of electricity generation projects for which the financial institution seeks to set a target.
- f) Attributing the annual electricity generated (in kWh) based on the ratio between the outstanding amount versus the total project size (equity + debt)¹².
- g) Summing up the attributed annual electricity generated (in kWh) per project to derive at total annual electricity generated (in kWh) at portfolio level.

Defining the science-based target

Science-based targets shall be set at the electricity generation project portfolio level, in alignment with the decarbonization pathway for power generation. Based on the SDA approach, the base-year emissions intensity of an electricity generation project finance portfolio shall converge to the same level as the power decarbonization pathway by 2050.

The emission intensity target is defined as a decrease in emissions per electricity production (gCO₂ / kWh). The minimum level of emission intensity decrease is derived from the global decarbonization pathway for the power sector.

The following formula is used to calculate the emission intensity target for an electricity generation project finance portfolio⁷¹:

$$\text{Portfolio intensity target}_{\text{power generation}} = (PI_b - SI_{2050}) \times \frac{(SI_t - SI_{2050})}{(SI_b - SI_{2050})} + SI_{2050}$$

Where:

- *SI* and *PI* are the sectoral and portfolio emissions per kWh,
- *b* the base year, and
- *t* the target year.

This approach allows financial institutions to converge their emissions intensity for their electricity generation project portfolio to the sectoral pathway in 2050, taking into account its base-year performance relative to sector intensity in 2050, and the decarbonization level of the sector in target year⁷².

⁷¹ After the publication of the SDA in Nature Climate Change, the SBTi simplified the formula by removing the correction factor for changes in market share in order to prevent a potential increase of emissions intensity when growth is projected lower as sectoral growth.

⁷² See the SDA methodology paper for more details (SBTi, 2015).

Box 3-1 below shows an example calculation of an intensity target.

Box 0-3. Example on setting an intensity target for an electricity generation project finance portfolio

Assume a financial institution has a project finance portfolio of various electricity generation projects. Based on electricity output and fuel type, the emissions of these projects are assessed. The emission intensity of the portfolio is 600 gCO₂ / kWh for the total electricity production of 15 TWh in 2017. The annual projected portfolio growth rate for 2030 is 5% (CAGR).

Based on the IEA ETP B2DS, the global decarbonization pathway for power generation has approximately:

- 497 gCO₂ / kWh at 25,062 TWh in 2017
- 229 gCO₂ / kWh at 30,959 TWh in 2030
- -8 gCO₂ / kWh at 44,321 TWh in 2050

To set an intensity target for 2030 converging to the 2050 sectoral emissions level:

$$\begin{aligned} \text{Intensity target} &= (PI_b - SI_{2050}) \times \frac{(SI_t - SI_{2050})}{(SI_b - SI_{2050})} + SI_{2050} \\ &= (600 - [-8]) \times \frac{(229 - [-8])}{(497 - [-8])} + [-8] \\ &= 277 \text{ gCO}_2 / \text{kWh} \end{aligned}$$

Since this portfolio started with an emission intensity higher than the sector level in 2017, this approach allows the portfolio to stay at an intensity higher than the sectoral pathway to reduce its emissions at a faster pace, converging to the sectoral level by 2050.

Taking the annual growth projections of 5% towards 2030, the electricity generation project portfolio will correspond to a total electricity production of 28.3 TWh in 2030. The emissions intensity targets can be translated into an absolute emissions target of 7.83 Mton CO₂ in 2030.

Global b2ds pathway – project finance

Here are the global activity and emissions intensities (Scope 1 and 2) pathway based on the IEA ETP 2017 data:

Power generation	2014	2025	2030	2035	2040	2045	2050
Production (TWh)	23,819	28,377	30,959	33,825	37,015	40,481	44,321
Emission intensity (gCO ₂ / kWh)	572.02	330.18	228.79	140.69	71.91	20.35	-8.02

References

- IEA. (2017). *Energy Technology Perspectives 2017*. Paris: International Energy Agency.
- PCAF. (2017). *Paving the way towards a harmonised carbon accounting approach for the financial sector*. Utrecht: Platform Carbon Accounting Financials.
- PCAF. (2019, November). *Harmonising and implementing a carbon accounting approach for the financial sector*. Retrieved from Partnership for Carbon Accounting Financials: <https://carbonaccountingfinancials.com/files/downloads/1911-pcaf-report-nl.pdf?6253ce57ac>

TCFD. (2017). *The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities*. Basel: Task Force on Climate-Related Financial Disclosures.

4. SDA for Corporate Debt and Equity

Prepared by technical partner of the SBTi financial sector project, Guidehouse Inc.

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Table 1: SDA Characteristics for Financial Institutions

Category		Framework
Scope	Target audience	The target audience for this target-setting framework are financial institutions with portfolios of financial assets issued by companies.
	Asset classes	Corporate debt, listed equity and bonds, and private equity and debt
	Sectors	Targets are set at individual sector level within the portfolio, for which specific sectoral decarbonization approaches (SDA) are available (electricity, iron & steel, cement, aluminum, pulp & paper, transport, and service buildings).
Mechanics	Inputs – Company data	The SDA method requires physical activity and emissions data per sector. Activity and GHG emissions data can be sourced from (i) direct emission disclosures by issuers / clients; and/or (ii) business intelligence databases (e.g. asset-level data)
	Inputs – Scenarios	Global decarbonization pathways of the sectors for which targets will be set, i.e. the IEA ETP 2017 B2DS scenarios are the basis of the SDA.
	Allocation approaches	Both GHG emissions and activity data are allocated to the financial institutions based on a balance-sheet approach. <ul style="list-style-type: none"> • For listed companies the attribution is the ratio of outstanding investment versus the Enterprise Value Including Cash (EVIC). • For non-listed companies the attribution is the ratio of outstanding investment or outstanding loan versus the total balance sheet (equity + debt).⁷³

⁷³ This approach is based on the attribution rules for GHG emissions accounting developed by the Partnership for Carbon Accounting Financials.

	Outputs	The output will be an emission intensity target at the portfolio level. Example: Financial institution A commits to reduce CO ₂ e emissions from the steel sector in its equity portfolio with ___% per tonne of steel by 2030 from a 2017 base year.
--	---------	--

Scope

This methodology covers science-based targets for the financial portfolios consisting of corporate debt, listed equity and bonds, and private equity and debt. The methodology presents a sector-based approach to set a science-based target for the Scope 3, category 15 (investment) emissions for financial institutions. When accounting for the emissions of a portfolio of listed equity, private equity, corporate bonds and corporate loans, these emissions are based on the scope 1 and 2 emissions of the assets in each sector covered.

- Scope 1: direct emissions from sources (i.e. onsite fuel combustion) owned or controlled by the company (i.e. investee or borrower).
- Scope 2: indirect emissions from purchased energy (electricity, steam, heat and cooling) by the company (i.e. investee or borrower).

Scope 3 emissions of the underlying company are not included in this methodology. However, as GHG emissions accounting for listed and private equity, corporate bonds and loans evolve, scope 3 emissions could be considered in the future⁷⁴.

Sector targets are set at individual sector level within the portfolio, for which specific sectoral decarbonization approaches (SDA) are available. It is expected that there will be portions of the portfolio that are not covered by the SDA.

Data input

To assess the science-based targets for a portfolio of corporate instruments, financial institutions can use the SDA in the general [Science-based Target Setting Tool \(version 1.1\)](#), or the specific [SDA Transport Tool](#) that is available on the Science Based Targets website. In addition, the quick start guide for electric utilities

⁷⁴ The Global Carbon Accounting Standard for the financial industry provides methods for measuring emissions associated with these asset classes. It includes scope 1 and 2 emissions for all sectors and the phase in of scope 3 emissions for business loans and listed equity and bonds, in line with the recommendation for the EU Benchmark by the EU Technical Expert Group on sustainable finance (TEG) sector list. In practice this means a gradual phase in of scope 3 emissions of lenders and investees over 4 years. Starting with the most carbon intensive sectors (Oil, gas and mining) for the first 2 years.

to set 1.5°C-aligned science-based targets using the SDA⁷⁵ is a valuable resources for corporate instruments to electric utilities.

As input into these tool, base-year emissions and base-year activity/output should be calculated following the instructions below.

The first step of the process is defining the base-year emissions of the portfolio for which a target will be set. A 2019 report by the Partnership for Carbon Accounting Financials (PCAF) detailed the emissions accounting methods for various asset classes, including listed/private equity, corporate bonds and corporate loans⁷⁶.

In principle, setting science-based target for these asset classes requires the following data points:

- Company's disclosed annual scope 1 and 2 emissions (e.g. company sustainability report or verified third-party data providers); alternatively, company physical activity data that serves to estimate scope 1 and 2 emissions in the base year.
- Annual activity/output data per company in the base year (e.g., MWh, building gross floor area, tonne-km transported, passenger-km travelled, tonne of product etc.)
- Outstanding investment amount (equity and/or debt) per company
- Enterprise value/balance sheet total per company
- Portfolio growth rate per sector in target year (*optional for setting absolute emissions targets at sector level*)

When direct disclosure of scope 1 and 2 emissions is not available, emissions can be calculated via two approaches⁷⁷:

- **Approach 1: Physical activity-based emissions:** primary physical activity data of the investee or borrower (e.g. MWh of natural gas consumed or tonne of steel produced) is converted to emissions, using verified emission factors expressed per physical activity (e.g. tCO₂e/MWh or tCO₂e/t of steel), issued or approved by a credible independent body.
- **Approach 2: Economic activity-based emissions:** economic activity data of the investee or borrower (e.g. euro of turnover or euro of asset) is converted to emissions, using official statistical data and/or acknowledged Environmentally Extended Input Output (EEIO) tables providing region/sector-specific average emission factors expressed per economic activity (e.g. tCO₂e/EUR of revenue or tCO₂e/EUR of asset).⁷⁸

⁷⁵ (SBTi, 2020)

⁷⁶ The corporate loans method can also be applied for private equity investments.

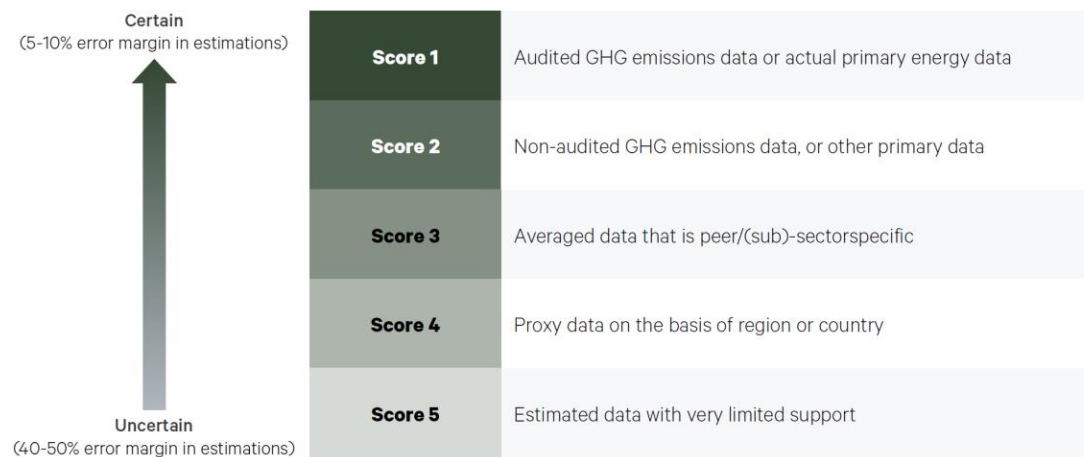
⁷⁷ [See the report for details on calculation approach](#) (PCAF, 2019). The most update methods will be available at the end of 2020, when the Partnership for Carbon Accounting Financials (PCAF) will launch the Global Carbon Accounting Standard for the financial industry.

⁷⁸ Sampling tests based on actual data on company level, which is extrapolated to portfolio level can help to test the accuracy of calculations based on this data from statistics and/or EEIO Tables. This may also be used to refine the data for specific sectors or regions,

It is important to note, that from a data quality perspective, approach 2 is preferred when scope 1 and 2 emissions disclosure is not available to the financial institution.

While data availability varies across regions, financial institutions can assess the specificity and accuracy of the available data using a data hierarchy (see Figure 0-7 as an example) and explore ways to improve data quality over time.

Figure 0-7. Data quality score card for portfolio emissions⁷⁹



Decarbonization Pathway

By applying the SDA, the final emissions targets expressed in emissions intensity (e.g. CO₂ per kWh, tonne of product etc) shall be consistent with keeping global warming well below 2°C at a minimum.

The SDA uses the B2DS scenarios developed by the IEA (IEA 2017), which are compatible with the RCP2.6 scenario from IPCC AR5.⁸⁰ The SDA assumes global convergence of key sectors' emissions intensity by 2050. For example, the emissions intensity of steel production in China, the U.S., and Brazil

if the reporting financial institution has a strong presence in and specific knowledge of the respective sector and/or region. National agencies and regional data providers or statistical offices in individual regions may assist reporting Financial institutions and investee companies in various regions in finding regional and more relevant financial and/or emissions data information.

⁷⁹ (PCAF, 2019)

⁸⁰ The B2DS scenario are emissions scenarios modelled by IEA. Based on this scenario data, sectoral emissions intensity pathways are derived.

is assumed to reach the same level in 2050, regardless of its current diversity.⁸¹ Regional pathways have not been incorporated into the SDA method.

Currently, the SDA provides sector-specific pathways for the following homogenous and energy-intensive sectors⁸²:

- Power Generation
- Iron & Steel
- Cement
- Aluminum
- Pulp & Paper
- Services / commercial buildings
- Passenger and freight transport

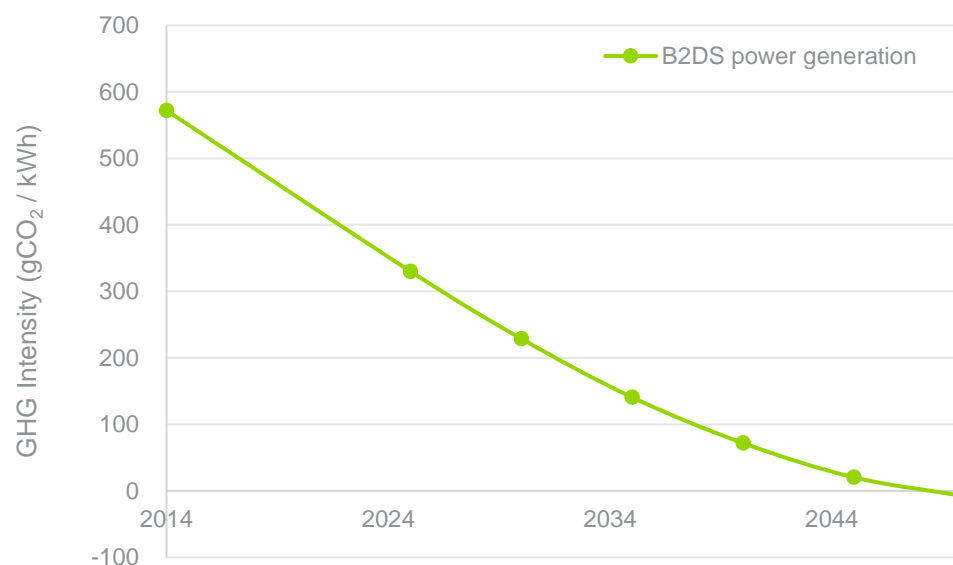
The IEA models these sectors based on sectoral growth and technology development trajectories. The emissions and sector activity growth projections from the B2DS will serve as the basis to derive the relevant targets for each sector under the selected asset class. Figure 0-8 illustrates the emissions intensity pathways for the power sector in the B2DS.

In this example, the emissions intensity trajectory of the power utilities in the portfolio shall continuously decline from the base year towards the target level, even if the emissions are below the pathway benchmark. Note that IEA only provides pathways in a five-year interval, financial institution may derive the pathway data through interpolation if the target year falls in between these five-year intervals.

⁸¹ For specific values and background, see Krabbe, O., G. Linthorst, K. Blok, W. Crijns-Graus, D.P. van Vuuren, N. Höhne, P. Faria, N. Aden, and A.C. Pineda. 2015. Aligning corporate greenhouse-gas emissions targets with climate goals. *Nature Climate Change* 5(12): 1057–1060.

⁸² The SDA sectors are drawn from the International Energy Agency (IEA). An appendix of the SDA user guidance maps the IEA sectors against common industrial classification systems: <http://sciencebasedtargets.org/wp-content/uploads/2015/05/Sectoral-Decarbonization-Approach-Report.pdf>.

Figure 0-8. Global decarbonization emission pathway for the power sector



Attribution approach

Setting the emissions baseline requires the allocation of companies' (i.e. investees or borrowers) emissions and activity data to the financial institutions. In line with GHG Protocol and the Partnership for Carbon Accounting Financials (PCAF), emissions should be allocated to the financial institutions based on the financial institution's proportional share of investment in the investee⁸³.

For listed companies, the attribution is calculated by the ratio of outstanding investment versus the Enterprise Value Including Cash (EVIC).

- **Outstanding investment (numerator):** the actual outstanding investment (if listed equity or bonds) or loan amount (if corporate loan)
- **Company value (denominator):** the Enterprise Value Including Cash (EVIC) of the respective company. In case elements of the enterprise value are not available, e.g. due to data issues, the total balance sheet value expressed as the sum of total company equity and debt is used.

⁸³ This differs from a portfolio weight approach that works by applying the portfolio weight of each investment to the emissions intensity of the underlying company. For example, if 10% of the total equity portfolio in assets under management (AuM) is invested in company A, the emissions intensity of the portfolio is calculated by applying the 10% to the emissions intensity of company A etc and sum up all allocated emissions intensity of the companies in the portfolio. This approach is often used for (ESG-)benchmarking of funds. However, this approach deviates from accounting principles in the GHG Protocol and the Partnership for Carbon Accounting Financials (PCAF).

For non-listed companies, the attribution is the ratio of outstanding investment or outstanding loan versus the total balance sheet (equity + debt)

- **Outstanding investment (numerator):** the actual outstanding investment (if private equity) or loan amount (if corporate loan).
- **Company value (denominator):** the total balance sheet value expressed as the sum of total company equity and debt.

The Global Carbon Accounting Standard aligns the definition of EVIC with the definition provided by:

1. The Technical Expert Group on sustainable finance set-up by the European Commission (EU TEG) in their '[Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks' ESG Disclosure](#)' (December 2019)⁸⁴.
2. The (draft) 'Supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards minimum standards for EU Climate Transition Benchmarks and EU Paris-aligned Benchmarks' which has defined that the 'Enterprise Value Including Cash' should be used to determine the GHG intensities for the benchmarks.

After applying the attribution factor to both absolute emissions, the same attribution factor should be applied to calculate the total activity/output of the portfolio companies in a specific sector. This total activity/output data is needed as input into the SBTi tools to calculate the emission intensity in the base year (i.e. the ratio of absolute emissions to activity data, e.g. tonne CO₂e/kWh, tonne CO₂e/tonne of steel, etc.)

Method output

The output will be a percentage reduction in emissions intensity relative to a specific activity/production output of the companies in the portfolio (e.g., tonne CO₂e per MWh, per tonne of steel etc.).

Sample target outputs could be:

- Financial institution A commits to reduce CO₂e emissions from the power sector in its loan portfolio with 30% per kWh by 2025 from a 2019 base year.
- Financial institution B commits to reduce CO₂e emissions from the steel sector in its equity portfolio with 20% per tonne of steel by 2025 from a 2019 base year.

⁸⁴ Hoepner, A. G. F.; Masoni, P.; Kramer, B.; Slevin, D.; Hoerter, S.; Humphreys, N.; Viñes Fiestas, H.; Lovisolò, S.; Wilmotte, J.-Y.; Latini, P.; Fettes, N.; Kidney, S.; Claquin, T.; Blasco, J. L.; Dixson-Decleve, S.; Kusterer, T.; Martínez Pérez, J.; Suttor Sorel, L.; Löffler, K.; Vitorino, E.; Pfaff, N.; Brockmann, K. L.; Micilotta, F.; Coeslier, M.; Menou, V.; Aho, A.; Fabian, N.; Philipova, E.; Hartenberger, U.; Lacroix, M.; Baumgarts, M.; Bolli, C.; Pinto, M.; Bukowski, M. & Krimphoff, J. (2019) 'Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks' ESG Disclosure'. Brussels: European Commission.

5. Temperature Scoring and Alignment Method

This method is an open source framework to enable the translation of corporate GHG emission reduction targets into temperature scores at a target, company, and a portfolio level. The method can be used to generate temperature scores for individual targets to translate target ambition to a common intuitive metric.

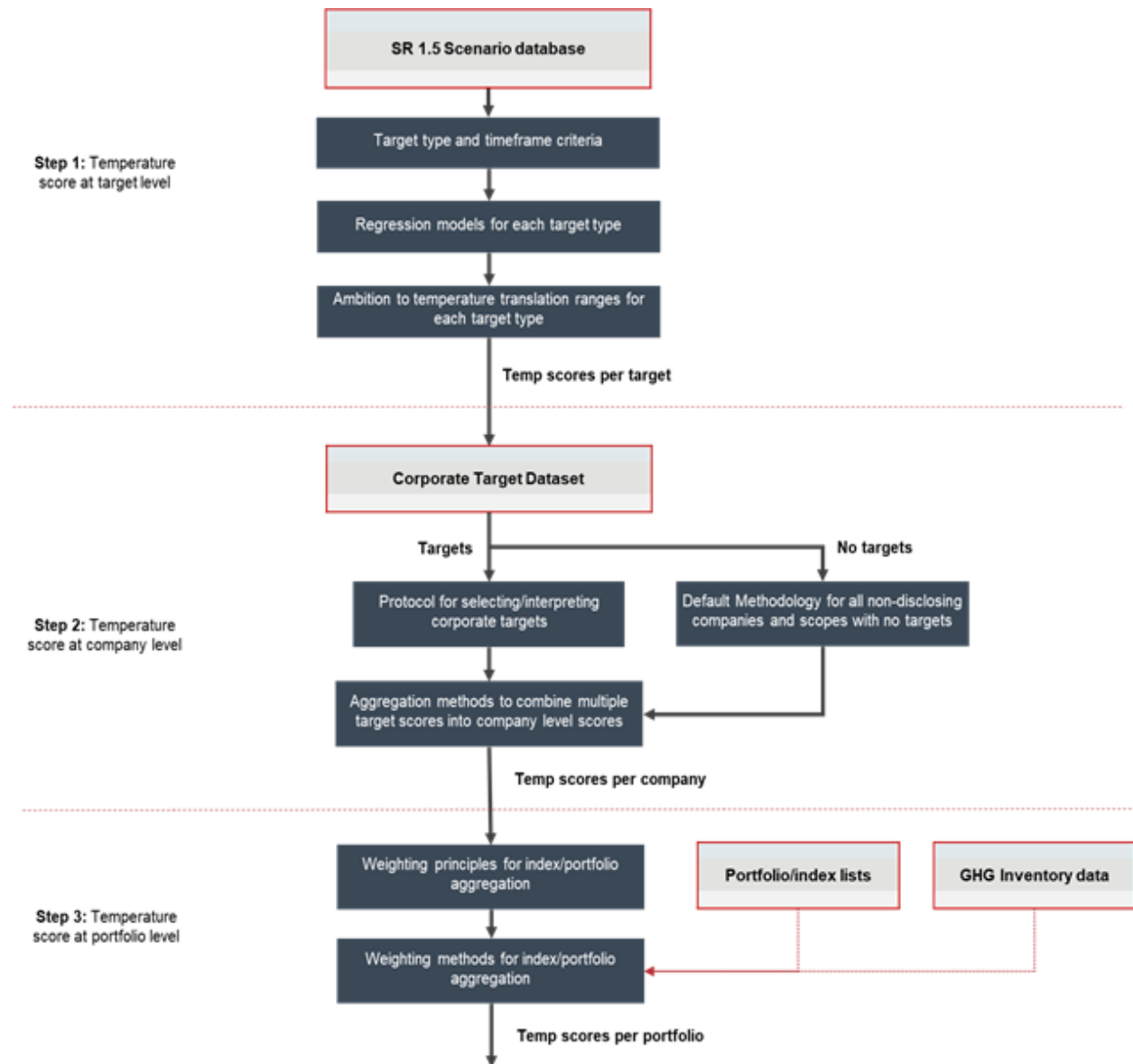
The method provides a protocol to enable the aggregation of target level scores to generate a temperature rating for a company based on the ambition of its targets. Finally, the method defines a series of weighting options that can enable financial institutions and others to produce portfolio level temperature ratings.

Built on the work of the Science based targets initiative, the methodology provides a public, transparent, and science-based protocol to assess the ambition of corporates and portfolios based on the ambition of targets. It enables users to assess the ambition of any public GHG emission reduction target and can help users compare the relative ambition of one company versus another. The method may also be used to temperature score investment portfolios and allow financial institutions to calculate the current temperature score of the portfolio, which is a key starting point for aligning the portfolio with long term temperature goals such as 1.5C.

The target protocol represents the first step of the process, which is to convert individual targets of various formats into temperature scores. This is achieved by generating simple regression models for estimated warming in 2100 from climate scenarios with short, medium, and long-term trends in metrics like absolute emissions or emissions intensities. Regression models are generated based on scenarios in the IPCC Special Report on 1.5°C scenario database. In addition to defining methods for disclosed targets, this step outlines the methodology used to define a default score to be applied to all non-disclosing companies.

Since companies have multiple climate targets, covering different scopes and timeframes, a protocol is then used to aggregate all target data into scores at a company level (step 2). This protocol defines the minimum quality criteria for determining the acceptability of a target to be scored and the steps required to identify and aggregate multiple targets to produce an overall company score.

The final step is used to weight company scores when assessing an index or portfolio of companies, such as in the context of financial portfolios. The following figure presents an overview of how the three protocols fit together to form the temperature scoring methodology.



The final step in the temperature scoring approach is to weight company scores when assessing an index or portfolio of companies, such as in the context of financial portfolios.

Seven potential options for aggregating individual company temperature scores at the index/portfolio are presented for consultation. These include:

- Option 1: Weighted average temperature score (WATS)
- Option 2: Total emissions weighted temperature score (TETS)
- Option 3: Market Owned emissions weighted temperature score (MOTS)
- Option 4: Enterprise Owned emissions weighted temperature score (EOTS).
- Option 5: EV + Cash emissions weighted temperature score (ECOTS)
- Option 6: Total Assets emissions weighted temperature score (AOTS)
- Option 7: Revenue owned emissions weighted temperature score (ROTS)

The Table below provides a description and formula for calculating the portfolio temperature scores using each of these options.

Option	Method	Temperature score formula (where TS = Company temperature score)
Weighted average temperature score (WATS)	Temperature scores are allocated based on portfolio weights.	$\sum_n^i (Portfolio\ weight_i \times TS_i)$
Total emissions weighted temperature score (TETS)	Temperature scores are allocated based on historical emission weights using total company emissions.	$\sum_n^i \left(\frac{Company\ emissions_i}{Portfolio\ emissions} \times TS_i \right)$
Market Owned emissions weighted temperature score (MOTS)	Temperature scores are allocated based on an equity ownership approach.	$\sum_n^i \left(\left(\frac{Investment\ value_i}{Company\ market\ cap} \times Company\ emissions_i \right) \times TS_i \right)$
Enterprise Owned emissions weighted temperature score (EOTS)	Temperature scores are allocated based on an enterprise ownership approach	$\sum_n^i \left(\left(\frac{Investment\ value_i}{Company\ enterprise\ value} \times Company\ emissions_i \right) \times TS_i \right)$
Enterprise Value + Cash emissions weighted temperature score (ECOTS)	Temperature scores are allocated based on an enterprise value (EV) plus cash & equivalents ownership approach	$\sum_n^i \left(\left(\frac{Investment\ value_i}{Company\ EV + Cash} \times Company\ emissions_i \right) \times TS_i \right)$
Total Assets emissions weighted	Temperature scores are allocated based on a total assets ownership approach	$\sum_n^i \left(\left(\frac{Investment\ value_i}{Company\ Total\ Assets} \times Company\ emissions_i \right) \times TS_i \right)$

temperature score (AOTS)		
Revenue owned emissions weighted temperature score (ROTS)	Temperature scores are allocated based on the share of revenue	$\sum_n^i \left(\left(\frac{\text{Investment value}_i \times \text{Company emissions}_i}{\text{Total Revenue owned emissions}} \right) \times TS_i \right)$

The full methodology can be found [here](#).

6. Temperature Scoring and SBT Portfolio Coverage Tool Instructions

Note: this refers to the beta version of the tool; the final version is expected to include significant revisions.

How to import your portfolio:

First step when using the SBTi FI tool is importing your portfolio holdings.

Select portfolio excel file:

Portfolio sample.xlsx

Should include company name, company ID, ISIN and investment value.

Skip rows

0

Map your columns to input fields

Company_name

company_name

Company_ID

company_id

ISIN

ISIN

Investment value

investment_value

engagement targets

engagement_target

- **Required portfolio information:** company name, company ID, investment value
- **Optional portfolio information:**
 - ISIN code (for identification of approved SBTs. If none is available, company ID is used).
 - Possible engagement targets: You can identify companies as possible engagement targets by adding an extra column and marking the relevant companies with TRUE. This can be used for so called “what-if” scenarios, see Target setting for more information.
 - Extra column(s) for other variables on which to aggregate your portfolio
- **Import format:** You can specify an Excel file and on what line the data starts. Then upload the Excel file.
- **Mapping:** After uploading the Excel-file, you must map the columns in the Excel-file to the required fields above (and optionally ISIN codes and engagement targets).
- **Extra columns:** It is possible to specify additional information per company by adding extra columns in this import file such as custom classifications. These columns can be used later to get more detailed outputs, e.g. for industry aggregation and rating.
- If you don't have any portfolio holdings data that you want to use in the tool, you can still test the functionality with a dummy_portfolio_sample.xlsx that you find in <http://docs.sbti-tool.org/>. Upload this in the very first step of this guide.

Choosing your data provider(s) / data source(s):

In the final version, connections to data providers will be available, so that you can choose to use your own data (via Excel import) or a preferred data provider with whom you have a data license agreement. For beta testing, only Excel-file import is currently available.

- You can specify an Excel file to use. If you have received a dataset from a data provider in the correct (Excel) format, this can be selected here. See the documentation/sample and templates folder at <http://docs.sbti-tool.org/> for information on required fields and formats.
- The Excel file should be in a specific format, with separate tabs for the fundamental data and one for the target data. Sample data and templates are available on the beta testing SharePoint [here](#).
 - **Fundamental data:** a single line for each company containing classifications, financial data and GHG emissions data
 - **Target data:** one line per target, so this can be anywhere from none to multiple per company. Each line should contain target information such as target type, intensity metric, coverages per scope, reduction ambition, etc.
- Other data provider options are shown (Bloomberg, CDP, ISS, Trucost, Urgentem, etc.) but they are currently disabled.
- In case you don't not have a dataset available, randomized sample fundamental and target datasets are available in the tool (and at <http://docs.sbti-tool.org/>) that can be used to test it. In that case do not upload any file. Just use the default.
- Please note that the randomized sample fundamental and target datasets can only be used in combination with the sample portfolio file provided at the same location.

Select data provider (without selection, dummy sample data is used)

For BETA-release only use Excel.

Excel

Choose File DataProvider_Sample.xlsx

Use this file upload to provide your own dataprovider.

Upload Dataprovider

Upload succeeded

SBTi Tool Functionality - User Options:

Once you have uploaded the portfolio and dataset, the SBTi Finance tool has various other user options for analyzing the data, based on your preferences.

1. **Choosing your 'Default Score':** We refer to the beta release of the [CDP & WWF Temperature Rating methodology](#) and the SBTi Guidance draft (to be published 6th August) for more information about the Default Score. A Default Score is assigned to all companies within your portfolio that do not have a emission reduction target that passes the Target Validation Protocol (see beta release of the [CDP & WWF Temperature Rating methodology](#)). You can choose to use the following temperatures as your Default Score: 3.2°C, 3.9°C or 4.5°C
2. **Choosing your preferred 'Aggregating Method':** We refer to the beta release of the [CDP & WWF Temperature Rating methodology](#) for more information about the Aggregation Method. For the Beta Testing you can choose from the seven aggregation method options listed below:
 - Option 1: Weighted average temperature score (WATS)
 - Option 2: Total emissions weighted temperature score (TETS)
 - Option 3: Market Owned emissions weighted temperature score (MOTS)
 - Option 4: Enterprise Owned emissions weighted temperature score (EOTS).
 - Option 5: EV + Cash emissions weighted temperature score (ECOTS)
 - Option 6: Total Assets emissions weighted temperature score (AOTS)
 - Option 7: Revenue owned emissions weighted temperature score (ROTS)
3. **Choosing your preferred time frames:** You can select which timeframes to show in the output (default: medium term).
 - Short-term: up to 4 years
 - Medium-term: 5 to 15 years
 - Long-term: longer than 15 years
4. **Choosing your preferred scopes:** You can select which emission scopes to show in the outputs (default: S1+S2 & S1+S2+S3)
5. **Choosing additional columns to display:** As default, the tool shows all temperature scores for each company, time frame and scope combination.
It is possible to add extra outputs: all optional extra columns that are imported via either the portfolio import or the data provider/data source imports.
6. **Choosing how to aggregate the output:** You can choose to get aggregated temperature scores per Region/Country/Industry (level 1-4, lvl1-4)/Sector/own columns added via portfolio import.

API settings (leave empty to use the defaults)

Choose the following filters for data-filtering or aggregation of columns.

Use CTR-click to deselect items.

Default temperature score

Aggregation method

[Time frame \(default: mid\)](#)

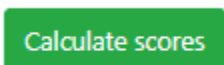
[Scope \(default: s1s2, s1s2s3\)](#)

[Select additional columns to display](#)

[Choose categories to group the output by](#)

Calculate the temperature scores:

After having customized the analysis based on the user options, the first action is to press the “Calculate scores” button. This starts the calculation. When finished, you will see the following output:



Temperature scores

1. Portfolio temperature scores for the selected timeframes/scopes

- For all portfolio scores the % calculated using target and default scores is displayed.
- For all portfolio scores you can analyze the contributions for each company.

2. Aggregated temperature scores based on your selection

- Scores for each category within the selection, showing temperature score and the % of this category compared to the total (i.e. Europe 2.6°C temperature score, 30% of

portfolio; Asia 1.8°C temperature score, 40% of portfolio; North America 3.2°C temperature score, 30% of portfolio)

3. Temperature scores for all individual companies

Portfolio temperature scores

Group	Time frame	Temperature score	Companies with vs. without targets	
s1s2	mid	2.80°C	18.6% / 81.4%	Contributors
s1s2s3	mid	3.09°C	6.8% / 93.2%	Contributors

Temperature scores grouped by categories

Group	Time frame	Category	Temperature score	Category contribution	
s1s2	mid	Africa	3.20°C	6.06 %	Contributors
s1s2	mid	Asia	2.78°C	21.21 %	Contributors
s1s2	mid	Europe	3.20°C	33.33 %	Contributors
s1s2	mid	North America	1.83°C	24.24 %	Contributors
s1s2	mid	Oceania	3.20°C	3.03 %	Contributors
s1s2	mid	South America	3.20°C	12.12 %	Contributors

Temperature scores per company

[Download selection](#)

[Download all](#)

company_name	scope_category	time_frame	temperature_score
Company A	s1s2	mid	1.51
Company B	s1s2	mid	3.2
Company C	s1s2	mid	3.2
Company D	s1s2	mid	3.2

SBT Portfolio Coverage Calculation

For analyzing SBT Portfolio Coverage, the tool also displays the percentage of SBTi approved companies on the portfolio based on the chosen weighting approach.

Portfolio coverage

Portfolio coverage
30.09%

Target setting

After the initial score calculations, the tool can help to get insight into the effect your action can have on your temperature score. This can be done by changing your exposure to your holdings in the portfolio import file or by rerunning the calculations using hypothetical scenarios.

These scenarios give an insight to how your score will be affected by certain engagement actions.

After selecting a scenario, press the calculate scores button to get new temperature scores given the hypothetical scenario.

Please note that scenarios 4a & 4b can only be chosen if you have imported your engagement targets via the portfolio import.

Scenarios (default: With current targets, rest of portfolio business as usual)

Choose the preferred scenario for calculation of the temperature scores.

- With current targets, rest of portfolio business as usual
- Scenario 1: "What-if" - all companies without targets set 2 °C targets
- Scenario 2: "What-if" - all companies with targets set well below 2 °C targets
- Scenario 3a: "What-if" - the 10 highest contributors to the portfolio set 2 °C targets
- Scenario 3b: "What-if" - the 10 highest contributors to the portfolio set well below 2 °C targets
- Scenario 4a: "What-if" all engagement target companies set 2 °C targets
- Scenario 4b: "What-if" all engagement target companies set well below 2 °C targets

Please note: in order to use scenario 4a and 4b, you should specify which companies you'd like to target for engagement by adding a column to the portfolio import file and marking the relevant companies with TRUE.

Calculate scores

Output Download options:

The beta testing version of the tool offers two options for downloading results:

1. All individual company scores + selected columns
2. All data including all fields used the tool (incl. underlying information such as SR15 regression used, slope, intersect, etc.), to provide complete transparency of the calculations.

Please note that the data download can be anonymized. This means that all company names are changed to A,B,C etc., all company IDs and ISINs are removed. This is especially useful for sharing your results with the development team for tool and methodology improvement. As you get the download of data in an Excel file you have complete control over what data points you want to share.

Download options

Non-anonymized Anonymized

Choose whether to anonymize the downloadable data.

Temperature scores per company

Download selection

Download all

company_name	scope_category	time_frame	temperature_score
Company A	s1s2	mid	1.51
Company B	s1s2	mid	3.2

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