



SCIENCE
BASED
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

SBTi CORPORATE NET-ZERO STANDARD

Version 1.1

April 2023

DOCUMENT HISTORY

Version	Release date	Effective dates	Updates on earlier version
1.0 SBTi Corporate Net-Zero Standard	28 October 2021	28 October 2021 to 10 April 2023	
1.1 SBTi Corporate Net-Zero Standard	11 April 2023	From 11 April 2023	<ul style="list-style-type: none"> • Edits to improve document's readability. • Minor updates to provide further clarification and context to existing criteria, recommendations and use of terminology. • Clarifications on exclusions, significance thresholds and emissions coverage for scope 1, 2 and 3 targets (criteria 5 and 6). • Clarification that the target year criterion is only relevant for absolute and intensity-based emission reduction near-term targets (criterion 17). • Revision of allowable years for assessing progress to date: for submissions in 2023, a recent year inventory must be provided that is no earlier than 2021 i.e. allowable most recent years are 2021 and 2022 (criterion 18). • Clarification that the neutralization of unabated emissions applies to both the emissions reduction targets boundary and to any unabated emissions that have been excluded from the GHG inventory (criterion 28). • Further guidance for mandatory target recalculations (criterion 32).

			<ul style="list-style-type: none"> • Revision of previous recommendation to criterion for triggered recalculations (criterion 33). • Alignment of criteria 36 and 37 to the revised version of SBTi's policy on fossil fuel companies. • Inclusion of most up to date information on sector developments and sector-specific criteria. • Update on Table 2 "A summary of how the cross-sector pathway and sector-specific pathways can be applied"; changes Figure 3 "SBTi perspective on prioritization of mitigation actions" in SBTi Corporate Net-Zero Standard. • Addition of a table with recommended target language templates and examples (Table 7) in SBTi Corporate Net-Zero Standard.
--	--	--	--

TABLE OF CONTENTS

TABLE OF CONTENTS.....	4
ACRONYMS.....	7
GLOSSARY.....	9
1. BACKGROUND TO THE CORPORATE NET-ZERO STANDARD	14
1.1 The Science Based Targets initiative.....	14
1.2 Purpose of the Net-Zero Standard.....	15
1.3 Who should use the Net-Zero Standard?	15
1.4 The Net-Zero Standard Development process	15
1.5 How the Standard relates to other key SBTi documents.....	16
2. THE NET-ZERO STANDARD FRAMEWORK	18
2.1 Near-term science-based targets	19
2.2 Long-term science-based targets	20
2.3 Neutralization	20
2.4 Beyond value chain mitigation.....	20
2.4.1 Further work on beyond value chain mitigation	20
3. MITIGATION PATHWAYS IN THE NET-ZERO STANDARD.....	22
3.1 The science behind science-based net-zero targets.....	22
3.2 How mitigation pathways are used to inform science-based targets.....	23
3.3 Overview of pathways and which companies should use them.....	24
4. SETTING NEAR-TERM AND LONG-TERM SCIENCE-BASED TARGETS	30
4.1 Select a base year.....	30
4.2 Calculate your company's emissions.....	30
4.2.1 Develop a full GHG emissions inventory	30
4.2.2 Calculate emissions reported separately from the GHG inventory	32
4.3 Set target boundaries	33
4.3.1 Near-term science-based target boundary (scopes 1, 2, and 3).....	33
4.3.2 Long-term science-based target boundary (scopes 1, 2, and 3).....	33
4.3.3 Additional requirements for science-based target coverage	34
4.3.4 Meeting SBTi boundary criteria with several targets.....	36
4.4 Choose a target year	36
4.5 Calculating science-based targets.....	36
4.5.1 Eligible methods for all scopes (both near-term and long-term science-based targets) ...	37
4.5.2 Eligible methods for scope 2 (both near-term and long-term targets)	37

4.5.3 Eligible methods for scope 3 (both near-term and long-term targets)	37
4.5.4 Eligible methods for near-term scope 3 targets only.....	38
4.6 Calculating near and long-term SBTs	40
4.7 Target wording	41
4.7.1 Overarching net-zero target	41
4.7.2 Near-term science-based target wording	41
4.7.3 Long-term science-based target wording	41
5. GUIDANCE FOR COMPANIES IN LAND-INTENSIVE SECTORS	43
5.1 Background on FLAG emissions	43
5.2 SBTi FLAG Guidance	43
5.3 Greenhouse Gas Protocol Land Sector and Removals Guidance	44
5.4 Which companies are required to set FLAG targets?	44
6. UPDATING AND COMMUNICATING TARGETS	45
6.1 How can companies ensure near-term targets align with the Net-Zero Standard?.....	45
6.2 How can companies ensure long-term targets align with the Net-Zero Standard?.....	46
6.3 How to communicate with stakeholders when targets do not meet the Net-Zero Standard requirements	47
7. THE NET-ZERO STANDARD CRITERIA	48
7.1 Background to the Net-Zero Standard Criteria.....	48
7.2 Disclaimer	48
7.3 Terminology	49
7.2 General criteria.....	49
7.4.1 Target boundary	49
7.4.2 Method validity (near and long-term targets).....	50
7.4.3 Emissions accounting requirements.....	51
7.5 Net-zero target formulation.....	52
7.5.1 Net-zero definition.....	52
7.5.2 Structure	52
7.5.3 Timeframe.....	52
7.5.4 Ambition.....	53
7.5.5 Beyond value chain mitigation	55
7.5.6 Neutralization.....	55
7.5.7 Target formulation.....	55
7.6 Reporting, recalculation and target validity	55
7.6.1 Reporting	55

7.6.2 Recalculation and target validity.....	56
7.7 Sector-specific guidance	56
7.7.1 Fossil fuel sales, distribution, and other business	57
8. SECTOR GUIDANCE FOR LONG-TERM SCIENCE-BASED TARGETS.....	58
9. ACKNOWLEDGEMENTS.....	62

ACRONYMS

AFOLU	Agriculture, Forestry and Other Land Use
BECCS	Bioenergy with carbon capture and storage
BVCM	Beyond value chain mitigation
CDR	Carbon Dioxide Removal
COP	Conference of the Parties
CO₂	Carbon dioxide
DAC	Direct Air Capture
EAG	SBTi Net-Zero Expert Advisory Group
FLAG	Forest, Land and Agriculture
GHG	Greenhouse Gas
ICT	Information and Communications Technology
IPCC	Intergovernmental Panel on Climate Change
LUC	Land-use change
LULUCF	Land-use, Land-use change and Forestry
NBS	Nature-based solutions
NZE	IEA's Net Zero Emissions by 2050 Scenario
REC	Renewable energy certificate
REDD	Reducing Emissions from Deforestation and Forest Degradation
REIT	Real Estate Investment Trust
SAG	SBTi Scientific Advisory Group
SBT	Science-based target
SBTi	Science Based Targets initiative
SDA	Sectoral Decarbonization Approach
SME	Small and medium-sized enterprise
SR15	IPCC Special Report on 1.5°C
TAG	SBTi Technical Advisory Group
TTW	Tank-to-wheel
UNEP	The United Nations Environment Program

UNFCCC	United Nations Framework Convention on Climate Change
vPPA	Virtual power purchase agreement
WRI	World Resources Institute
WTT	Well-to-tank
WTW	Well-to-wheel
WWF	World Wide Fund for Nature

GLOSSARY

Term	Definition	Further comments
Abatement	Measures that companies take to prevent, reduce, or eliminate sources of GHG emissions <u>within</u> their value chain. Examples include reducing energy use, switching to renewable energy, and reducing chemical fertilizer use.	Also see: <ul style="list-style-type: none"> Decarbonization Mitigation
Absolute reduction	Method used to calculate absolute emissions reduction targets that requires organizations to reduce annual emissions by an amount consistent with underlying mitigation pathways. Also known as “absolute contraction”.	Also see: <ul style="list-style-type: none"> Sector-specific intensity convergence Science-based target methods
Beyond value chain mitigation (BVCM)	Mitigation action or investments that fall outside a company’s value chain, including activities that avoid or reduce GHG emissions, or remove and store GHGs from the atmosphere.	Examples of BVCM include: <ul style="list-style-type: none"> Forestry, e.g., Jurisdictional (Reducing Emissions from Deforestation and Forest Degradation) REDD+ Conservation projects, e.g., peatland or mangrove Energy efficiency, e.g., cookstove projects Methane destruction, e.g., landfill gas projects Renewable energy, e.g., solar/wind/biogas Industrial gases, e.g., N₂O destruction at nitric acid facilities Scale-up of Carbon Dioxide Removal (CDR) technologies, e.g., Direct Air Capture (DAC) and Storage.
Bioenergy	Energy generated from the combustion of biomass. In certain cases, bioenergy is considered ‘carbon neutral’ because combustion-related CO ₂ emissions are balanced by CO ₂ sequestered during bioenergy feedstock growth.	
Biomass emissions	Organic material available aboveground and belowground, living and dead, e.g., trees, crops, grasses, tree litter, roots etc.	
Carbon Dioxide Removal (CDR)	According to the Intergovernmental Panel on Climate Change (IPCC), “anthropogenic activities removing CO ₂ from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products”. Removals are either nature-based, geological or a hybrid.	
Climate change mitigation	According to the IPCC, “a human intervention to reduce emissions or enhance the sinks of GHGs.”	Also see: <ul style="list-style-type: none"> Mitigation strategy
Compensation (legacy terminology used in earlier versions of the SBTi Net-Zero Standard)	Actions companies take to help society avoid or reduce emissions outside of their value chain.	SBTi is eliminating the term from use within its documentation. Also see: <ul style="list-style-type: none"> Greenhouse gases Value chain emissions

Corporate climate targets	Goals set by a corporation to reduce its impact on the climate. Targets may include a variety of GHG emissions across different corporate activities (i.e., operations, value chain, or products) and may use emissions abatement, compensation, or neutralization.	Also see: <ul style="list-style-type: none"> Abatement Compensation Neutralization
Cross-sector pathway	One-size-fits-all pathway for companies to calculate near-term and long-term absolute reduction science-based targets (SBTs), eligible for all companies except those in the power, maritime transport or (Forest, Land and Agriculture) FLAG sectors.	Also see: <ul style="list-style-type: none"> Sector-specific pathways
Decarbonization	The process by which CO ₂ emissions associated with electricity, industry, and transport are reduced or eliminated.	Also see: <ul style="list-style-type: none"> Abatement
Emissions (or GHG) inventories	According to the GHG Protocol, a “quantified list of an organization’s GHG emissions and sources.” Emissions inventories typically include emissions in scopes 1, 2, and 3.	Also see: <ul style="list-style-type: none"> Scope 1 inventory Scope 2 inventory Scope 3 inventory
Forest, land and agriculture (FLAG) emissions	FLAG designates the SBTi Forest, Land and Agriculture project, sectors, methodologies and targets. The terms <i>FLAG-related emissions</i> and <i>Agriculture, Forestry and Other Land Use (AFOLU) emissions</i> are used interchangeably in the SBTi FLAG Guidance.	Other similar related terms are AFOLU and Land-use, Land-use change and Forestry (LULUCF; AFOLU and agriculture GHGs)
Global emissions budget	A cumulative emissions threshold that must not be exceeded to limit global temperature rise by a specified amount and probability. Emissions budgets can be determined for CO ₂ only or all GHGs.	Also see: <ul style="list-style-type: none"> Greenhouse gases Paris Agreement
Greenhouse gases (GHGs)	Gases which absorb and re-emit infrared radiation, thereby trapping it in Earth’s atmosphere. Includes carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF ₆), and nitrogen trifluoride (NF ₃).	
Greenhouse Gas (GHG) emission reduction targets	Goals set by an organization to reduce direct or indirect emissions by a specified amount.	Also see: <ul style="list-style-type: none"> Greenhouse gases Science-based targets
Insetting	Used to describe projects wholly contained within a Scope 3 supply chain boundary of a company, a project partially within their Scope 3 supply chain boundary (spanning their supply chain and other companies’ supply chains) and a project adjacent to a supply chain boundary.	There are multiple definitions for the term “insetting” in use and no standardization of the term.
Intergovernmental Panel on Climate Change (IPCC)	United Nations body for assessing the science related to climate change.	Also see: <ul style="list-style-type: none"> IPCC Special Report on 1.5°C (SR15) Paris Agreement
IPCC Special Report on 1.5°C (SR15)	A Special Report requested by the United Nations on the impacts of global warming of 1.5°C above pre-industrial levels and related global GHG emission pathways. Issued in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. The report includes over 6,000 scientific references and was prepared by 91 authors from 40 countries.	Also see: <ul style="list-style-type: none"> Paris Agreement
Long-term science-based target	GHG reduction targets in line with what the latest climate science deems is necessary to reach net-zero at the global or sector level in 1.5°C pathways before 2050.	Also see: <ul style="list-style-type: none"> Near-term science-based target
Mitigation	According to the IPCC, “a human intervention to reduce emissions or enhance the sinks of GHGs.”	Also see: <ul style="list-style-type: none"> Mitigation strategy

Mitigation strategy	A set of measures planned by a company to mitigate GHG emissions that may include abatement, insetting, compensation and neutralization.	Also see: <ul style="list-style-type: none"> Mitigation Abatement Insetting Compensation Neutralization
Nature-based Solutions (NBS)	The WWF defines NBS as “Ecosystem conservation, management and/or restoration interventions intentionally planned to deliver measurable positive climate adaptation and/or mitigation benefits that have human development and biodiversity co-benefits managing anticipated climate risks to nature that can undermine their long-term effectiveness.”	Also see: <ul style="list-style-type: none"> Beyond value chain mitigation Carbon Dioxide Removal (CDR) Compensation Neutralization Insetting
Near-term science-based target	GHG reduction targets in line with what the latest climate science deems necessary to limit warming to 1.5°C above pre-industrial levels and are achieved within a 5-10 year timeframe from the date of submission to the SBTi.	Also see: <ul style="list-style-type: none"> Long-term science-based target
Net-zero	Setting corporate net-zero targets aligned with meeting societal climate goals means: (a) reducing scope 1, 2 and 3 emissions to zero or a residual level consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C scenarios or sector pathways and (b) neutralizing any residual emissions at the net-zero target date – and any GHG emissions released into the atmosphere thereafter.	Also see: <ul style="list-style-type: none"> Near-term science-based target Long-term science-based target Residual emissions
Neutralization	Measures that companies take to remove carbon from the atmosphere and permanently store it to counterbalance the impact of emissions that remain unabated.	Also see: <ul style="list-style-type: none"> Nature-based Solutions Carbon credits Carbon Dioxide Removal (CDR)
Physical emissions intensity	A metric describing the emissions per physical unit of an activity (e.g., cement production). The sector-specific intensity convergence method is based on the principle that all companies in a sector will converge to the same physical emissions intensity in a future year of mitigation pathways.	Also see: <ul style="list-style-type: none"> Decarbonization Paris Agreement
Removals	Measures that companies take to remove carbon from the atmosphere and permanently store it within or beyond the value chain. Examples include, but are not limited to: <ul style="list-style-type: none"> DAC and storage Bioenergy with carbon capture and storage (BECCS) Improved soil management Improved forest management Land restoration, e.g., of peatland, terrestrial forests or mangroves <p>Within the value chain, companies in the FLAG sectors are expected to deliver biogenic carbon removals as well as abatement as part of their science-based targets.</p>	Also see: <ul style="list-style-type: none"> Carbon Dioxide Removal (CDR) Neutralization
Residual emissions	Emissions sources that remain unabated in a specific year of a mitigation scenario. Long-term SBTs define the company's maximum level of residual emissions in line with global or sector net-zero in 1.5°C-aligned mitigation pathways with low or no overshoot.	Also see: <ul style="list-style-type: none"> Paris Agreement

SBTi Net-Zero Expert Advisory Group (EAG)	Advisory body to the SBTi consisting of representatives from civil society organizations, corporate climate action initiatives, research agencies, and other stakeholders contributing specifically to the development of the Net-Zero Standard.	
SBTi Scientific Advisory Group (SAG)	Advisory body to the SBTi consisting of recognized experts in climate change mitigation, integrated assessment modelling, energy system and land-use dynamics, and other topics contributing to developing the SBTi's scientific foundations.	
SBTi Technical Advisory Group (TAG)	Advisory body to the SBTi consisting of practitioners and experts in topics such as corporate sustainability, greenhouse gas accounting, and target-setting, providing feedback on SBTi methods, criteria changes, and guidance.	
Science-based targets (SBTs)	Targets that are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement – to pursue efforts to limit warming to 1.5°C.	Also see: <ul style="list-style-type: none"> Near-term science-based targets Paris Agreement Pre-industrial levels
Science-based target methods	Methods used to calculate science-based targets from a mitigation pathway, company input variables, and an allocation formula.	Also see: <ul style="list-style-type: none"> Absolute reduction Sector-specific intensity convergence
Sector-specific intensity convergence	Method used to calculate emissions intensity targets based on the principle of converging to a sector-wide physical emissions intensity in a future year of a mitigation pathway.	Also see: <ul style="list-style-type: none"> Absolute reduction Science-based target methods
Sector-specific pathways	Absolute emissions or emissions intensity pathways for a specific sector that may be used for calculating near-term and long-term intensity targets – as well as long-term absolute targets, in most cases.	Also see: <ul style="list-style-type: none"> Cross-sector pathway
Scope 1 emissions	Defined by the GHG Protocol accounting standard as: "A reporting organization's direct GHG emissions."	Also see: <ul style="list-style-type: none"> Greenhouse gases
Scope 2 emissions	Defined by the GHG Protocol accounting standard as: "A reporting organization's (indirect) emissions associated with the generation of electricity, heating/cooling, or steam purchased for own consumption."	Also see: <ul style="list-style-type: none"> Greenhouse gases
Scope 3 emissions	Defined by the GHG Protocol accounting standard as: "A reporting organization's indirect emissions other than those covered in scope 2."	Also see: <ul style="list-style-type: none"> Greenhouse gases

<p>The Paris Agreement</p>	<p>Stated by the United Nations Framework Convention on Climate Change (UNFCCC), the Paris agreement is a “legally binding international treaty on climate change. It was adopted by 196 Parties at the Conference of the Parties (COP) 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well-below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.”</p>	
<p>United Nations Climate Change Conference (2021: COP26)</p>	<p>The annual COP brings together the 197 countries that have ratified the UNFCCC. As the twenty-sixth such gathering, it is known as COP26 and took place in Glasgow in November 2021.</p> <p>The United Nations Environment Program (UNEP) states that: “Under the Convention, nations have reached two key agreements on reducing greenhouse gas emissions: the Kyoto Protocol adopted in 1997, and the Paris Agreement adopted in 2015. The Paris accord is built around so-called “nationally determined contributions” as a means of achieving the goal of limiting the global temperature increase, and to step up those contributions over time.”</p>	<p>Also see:</p> <ul style="list-style-type: none"> • Paris Agreement
<p>Value chain emissions</p>	<p>A company’s scope 1, 2, and 3 emissions as defined by the GHG Protocol Corporate Accounting and Reporting Standard.</p>	<p>Also see:</p> <ul style="list-style-type: none"> • Scope 1 inventory • Scope 2 inventory • Scope 3 inventory
<p>Well-to-wheel (WTW)</p>	<p>Tank-to-wheel (TTW) emissions cover all the energy used once transformed. This is emissions occurring during the combustion of the fuels.</p> <p>Well-to-tank (WTT) emissions are based on attributional life-cycle assessment studies of fossil-derived fuels (e.g., gasoline, diesel, compressed and liquefied natural gas), biofuels and electricity (based on time and scenario-specific estimated average grid carbon intensity).</p> <p>Together, TTW and WTT make up WTW GHG emissions. This does not include emissions from vehicle or battery manufacturing, or those offset by material recycling, among others.</p>	

1. BACKGROUND TO THE CORPORATE NET-ZERO STANDARD

The Intergovernmental Panel on Climate Change (IPCC)'s *Special Report on Global Warming of 1.5°C* (SR15, 2018), was widely accepted as a warning that we must limit global temperature rise to 1.5°C above pre-industrial levels and reach net-zero CO₂ emissions by 2050 for the best chance of avoiding catastrophic climate breakdown. More recently, the IPCC's *Sixth Assessment Report* (2021) has confirmed that climate change is already affecting every region on Earth, its impacts increasingly visible in the form of extreme weather, worsened droughts and heightened risk of forest fires.

Against this backdrop, companies are increasingly adopting net-zero targets. The number of businesses committing to reach net-zero emissions has grown rapidly, but not all net-zero targets are equal. Without adhering to a common definition, net-zero targets can be inconsistent, and their collective impact is strongly limited.

While the growing interest in net-zero targets represents an unparalleled opportunity to drive corporate climate action, it has also created a pressing need for a common understanding of 'net-zero' in a corporate context. Business leaders need a robust, science-based framework for setting net-zero targets. Otherwise, they risk continuing to invest in business models that are inconsistent with the goals of the Paris Agreement.

Through a transparent multi-stakeholder process, the Science Based Targets initiative (SBTi) has developed the first global science-based standard for companies to set net-zero targets. The Net-Zero Standard gives business leaders confidence that their targets are aligned with what is needed for a habitable planet, and it provides clarity on business climate action to a wide range of stakeholders.

1.1 The Science Based Targets initiative

The SBTi is a global body enabling businesses and financial institutions to set ambitious emissions reductions targets in line with climate science. It is focused on accelerating companies across the world to halve emissions before 2030 and achieve net-zero emissions before 2050.

The initiative is a collaboration between four of the world's most respected environmental organizations: 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.

The SBTi defines and promotes best practice in science-based target setting, offers resources and guidance to reduce barriers to adoption, and independently assesses and approves companies' targets.

1.2 Purpose of the Net-Zero Standard

The SBTi's Corporate Net-Zero Standard (also referred to as the 'Net-Zero Standard') contains guidance, criteria, and recommendations to support corporates in setting net-zero targets to be validated by the SBTi. The main objective of this standard is to provide a standardized and robust approach for corporates to set net-zero targets aligned with climate science.

It is important to note that while the SBTi does provide some supplementary guidance on greenhouse gas (GHG) accounting, companies should refer to the suite of corporate [Greenhouse Gas Protocol standards](#) on this topic.

1.3 Who should use the Net-Zero Standard?

The intended audience for this document is corporates with more than 500 employees that wish to commit to setting and submitting science-based net-zero targets through the SBTi.

Although not directly intended for small and medium-sized enterprises (SMEs), these organizations should use this document to understand the key elements of a science-based net-zero target and the SBTi's recommended target-setting process. The SBTi offers a simplified route for SMEs to set net-zero targets, meaning that some of the detail contained within this document will not be applicable. SMEs should refer to the [SME FAQ](#) for more information.

This document does not cover net-zero targets for financial institutions. The SBTi is developing a separate [Net-Zero Standard for Financial Institutions](#).

1.4 The Net-Zero Standard Development process

The SBTi initiated a scoping phase of work in 2019 to develop a framework enabling companies to set robust and credible net-zero targets in line with a 1.5°C future. The standard development process formally began after the SBTi's publication of [Foundations for net-zero target setting in the corporate sector](#) in September 2020. After publication, the SBTi convened a dedicated [Net-Zero Expert Advisory Group \(EAG\)](#), which was to be the main consensus building body for the project.

The SBTi then developed detailed criteria and guidance in regular consultation with the EAG, as well as the SBTi's Scientific and Technical Advisory Groups. The SBTi requested feedback from stakeholders to improve the standard through two public consultations and a company road test. The standard was launched on 28 October 2021.

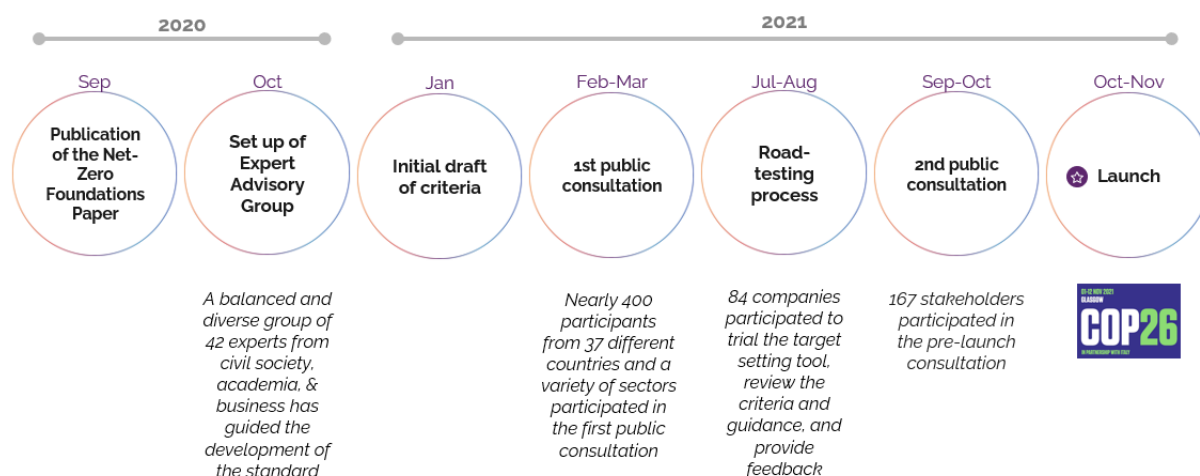


Figure 1 An outline of key milestones in Net-Zero Standard development process.

1.5 How the Standard relates to other key SBTi documents

The table below describes some of the key SBTi resources companies may find useful when going through the target setting process. All resources, including translations, can be found on the [Resources](#) and [Net-Zero](#) sections of the SBTi website.

Table 1 A mapping of key SBTi resources that companies should refer to when setting science-based net-zero targets.

Topic	Document	Description
Target commitments	Commitment Letter	Companies wishing to set targets through the SBTi – both for near-term and net-zero commitments – should complete and submit the commitment letter.
	SBTi Target Validation Application for Small and Medium-Sized Enterprises (SMEs)	SMEs use a streamlined process to set targets in line with climate science for both near-term and net-zero targets. This route enables SMEs to bypass the initial step of committing to set a science-based target and the regular target validation process and to immediately set near-term science-based targets for scope 1 and 2 emissions, and, optionally, net-zero targets, by choosing from one of several predefined target options.
Background and technical resources	Foundations for net-zero target-setting in the corporate sector	This paper lays out the conceptual foundations for credible, science-based net-zero targets for the corporate sector.
	Pathways to Net-Zero: SBTi Technical Summary	Produced in collaboration with more than a dozen pioneering academics, IPCC lead authors and mitigation experts, this technical summary provides an overview of how the SBTi selects mitigation pathways to steer action.
	Beyond value chain mitigation FAQ	The SBTi is continuing its work on beyond value chain mitigation. This FAQ will be used to provide information and updates during this process.
Setting targets	Getting Started Guide for Science-based Target Setting	A simple, step-by-step flow chart helping companies understand how to set science-based targets in their specific situation.
	Net-Zero Standard	This document, providing guidance, criteria, and recommendations to support corporates in setting net-zero targets through the SBTi. The Net-Zero Standard criteria are set out in Chapter 7 of this document.

Net-Zero Standard Criteria	The criteria companies' net-zero targets must meet to be approved as science-based by the SBTi. This is a standalone version of chapter 7 of this document.
Net-Zero tool	Target-setting tool to calculate long-term science-based targets in line with the Net-Zero Standard.
SBTi Target Validation Application for SMEs	See above.
SBTi Corporate Manual	Detailed step-by-step guide on the process of setting a near-term science-based target through the SBTi.
SBTi Near-term Criteria	The criteria companies' near-term targets must meet to be approved as science-based by the SBTi. These criteria are also included within this document.
Target Validation Protocol for Near-term Targets	Guide to the target validation process. To be used in conjunction with other key resources, the Target Validation Protocol explains the target setting process, how targets are assessed and sector-specific requirements.

2. THE NET-ZERO STANDARD FRAMEWORK

As described in more detail in [Foundations for net-zero target setting in the corporate sector](#), there are many different transition pathways to help achieve global net-zero emissions, each with different implications for our climate, nature and society.

Considering these implications, the Net-Zero Standard was developed with the intention of guiding corporates towards a state of net-zero in a way that is consistent with societal climate and sustainability goals and within the biophysical limits of the planet.

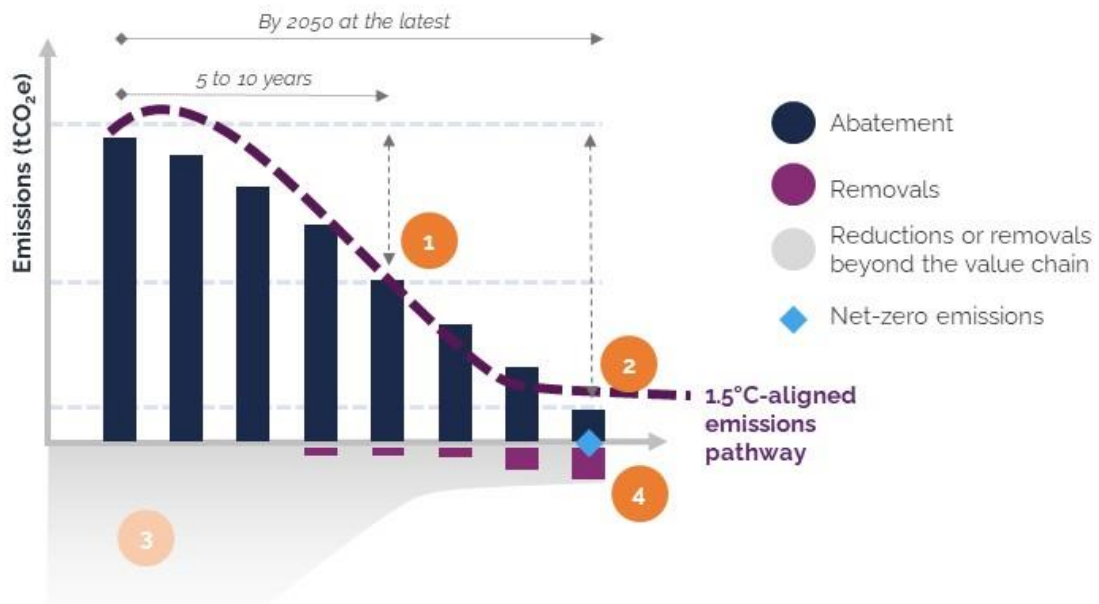
To reach a state of net-zero at the corporate level, companies must deeply reduce emissions and counterbalance the impact of any emissions that remain. The SBTi Net-Zero Standard defines corporate net-zero as:

- Reducing scope 1, 2, and 3 emissions to zero or a residual level consistent with reaching global net-zero emissions or at a sector level in eligible 1.5°C-aligned pathways; and
- Permanently neutralizing any residual emissions at the net-zero target year and any GHG emissions released into the atmosphere thereafter.

To contribute to societal net-zero goals, companies are strongly encouraged to go further than their science-based abatement targets to mitigate emissions beyond their value chains.

The Net-Zero Standard sets out four key elements that make up a corporate net-zero target as depicted in *Figure 1*:

- Near-term science-based target
- Long-term science-based target
- Neutralization of any residual emissions
- Beyond value chain mitigation (BVCM)



- 1 **To set near-term science-based targets:**
5-10 year emission reduction targets in line with 15°C pathways
- 2 **To set long-term science-based targets:**
Target to reduce emissions to a residual level in line with 15°C scenarios by no later than 2050
- 3 **Beyond value chain mitigation:**
In the transition to net-zero, companies should take action to mitigate emissions beyond their value chains. For example, purchasing high-quality, jurisdictional REDD+ credits or investing in direct air capture (DAC) and geologic storage
- 4 **Neutralization of residual emissions:**
GHGs released into the atmosphere when the company has achieved their long-term SBT must be counterbalanced through the permanent removal and storage of carbon from the atmosphere

Required Recommended

Figure 1 Key elements of the Net-Zero Standard

2.1 Near-term science-based targets

What: Previously known as “science-based targets”, these are 5-10 year GHG mitigation targets in line with 1.5°C pathways. When companies reach their near-term target date, they must calculate new near-term science-based targets to serve as milestones on the path towards reaching their long-term science-based target.

Why: Near-term targets galvanize the action required for significant emissions reductions to be achieved by around 2030. Near-term emissions reductions are critical to not exceeding the global emissions budget and are not interchangeable with long-term targets.¹

2.2 Long-term science-based targets

What: These targets show companies how much they must reduce value chain emissions to align with reaching net-zero at the global or sector level in eligible 1.5°C pathways by 2050 or sooner.

Why: Long-term targets drive economy-wide alignment and long-term business planning to reach the level of global emissions reductions needed to meet climate goals based on science.

2.3 Neutralization

What: Measures companies take to remove carbon from the atmosphere and permanently store it, counterbalancing the impact of emissions that remain unabated.

Why: Although most companies will reduce emissions by at least 90% through their long-term science-based targets, some residual emissions may remain. These emissions must be neutralized to reach net-zero emissions and a state of no impact on the climate from GHG emissions.

A company cannot claim to have reached net-zero until the long-term science-based target for all scopes is achieved and the company has neutralized residual emissions.

2.4 Beyond value chain mitigation

What: Mitigation action or investments that fall outside of a company's value chain. This includes activities that avoid or reduce GHG emissions, and those that remove and store GHGs from the atmosphere.

Why: The climate and ecological crises require bold and decisive action from companies. Decarbonizing a company's value chain in line with science and reaching net-zero emissions by 2050 is increasingly becoming the minimum societal expectation for companies. Businesses can play a critical role in accelerating the net-zero transition and addressing the ecological crisis by investing in mitigation action beyond their value chains. Additional investments like these could help increase the likelihood the global community stays within a 1.5°C carbon budget but are not a substitute for the rapid and deep reduction of a company's own value chain emissions.

2.4.1 Further work on beyond value chain mitigation

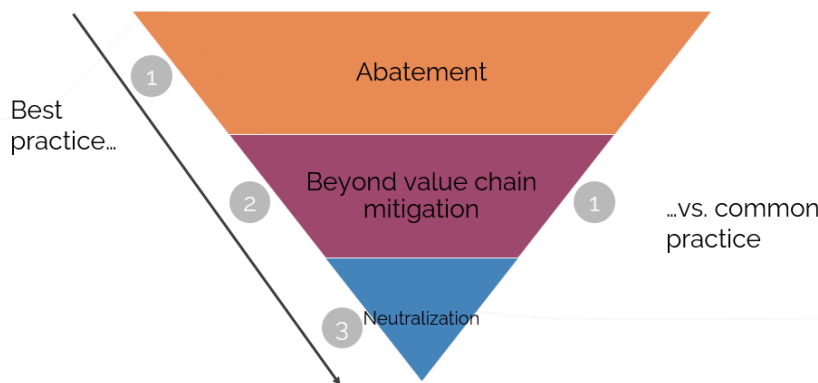
The principle at the heart of the SBTi Net-Zero Standard is the 'mitigation hierarchy'. Under the mitigation hierarchy, companies should set near- and long-term science-based targets to address

¹ Despite this, if a company sets a long-term science-based target to reach the level of decarbonization required to reach net-zero at a global or sectoral level in 1.5°C pathways within a 10-year timeframe, the near-term science-based target is not required.

value chain emissions and implement strategies to achieve these targets as a first order priority ahead of mitigating emissions outside their value chains (see *Figure 3*).

Setting and achieving science-based targets must take precedence – however, companies should go further and invest in mitigation outside their value chains to contribute towards reaching societal net-zero. The SBTi recommends that companies prioritize securing and enhancing carbon sinks (terrestrial, coastal and marine, etc.) to avoid the emissions that arise from their degradation. Examples include purchasing high quality, jurisdictional Reduced Emissions from Deforestation and Forest Degradation (REDD+) carbon credits that support countries to raise their ambition on, and in the long-term, achieving their nationally determined contributions. There is also a critical need for companies to invest in nascent GHG removal technologies (e.g., direct air capture (DAC) and storage) so that the technology is available to neutralize residual emissions at the long-term science-based target date.

Please see the [Beyond Value Chain Mitigation FAQ](#) on our website for more information.



EMISSION REDUCTIONS WITHIN THE VALUE CHAIN TO TRANSITION TO NET-ZERO	BEYOND VALUE CHAIN MITIGATION CAN ACCELERATE THE GLOBAL TRANSITION
<ul style="list-style-type: none"> • Companies must prioritize making real emissions reductions within their value chains that align with 1.5°C pathways. • To do this they must complete emissions inventories following the GHG Protocol and set near and long-term science-based targets. • Implement strategies to achieve these targets. • Disclose progress annually.² • This is the minimum ambition and where possible, decarbonization should be achieved ahead of target years. 	<ul style="list-style-type: none"> • In the near-term, prioritize securing and enhancing carbon sinks (terrestrial, coastal and marine etc.) to avoid emissions that arise from their degradation. There is also a critical need to invest in nascent GHG removal technologies (e.g., direct air capture and storage). These actions do not count towards achieving science-based targets. • In the long-term, when the net-zero target date is reached, companies must neutralize any residual emissions that cannot be abated through permanent emission removals. Companies must continue to neutralize any remaining emissions.

² For further information on how the SBTi recommends companies should publicly report on their GHG emissions inventory and annual progress against their published science-based targets, please visit the section entitled “Disclose your progress” in the [Corporate Manual](#).

Figure 2 SBTi perspective on prioritization of mitigation actions.

3. MITIGATION PATHWAYS IN THE NET-ZERO STANDARD

Through the Paris Agreement, parties and signatories committed to “holding the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.”

In the years since the Paris Agreement was signed, the need to limit warming to 1.5°C has become even stronger. Against the backdrop of increasingly frequent and destructive climate-related disasters, the IPCC’s SR15 report delivered a harrowing scientific consensus: while impacts to human health, society, and nature associated with 1.5°C of warming are worse than previously acknowledged, the risks associated with exceeding 1.5°C are far higher. To mitigate these risks, SR15 highlighted pathways that limit warming to 1.5°C with no or limited overshoot (overshoot <0.1°C).

3.1 The science behind science-based net-zero targets

As described in SR15, scenarios that limit warming to 1.5°C with no or limited overshoot reach net-zero CO₂ emissions around 2050, accompanied by rapid reductions in non-CO₂ GHG emissions. These scenarios entail profound transitions in the global energy, industry, urban and land systems that involve:

- Full or near-full decarbonization for energy and industrial CO₂ emissions achieving a zero-emissions energy supply system by mid-century.
- Eliminating CO₂ emissions associated with agriculture, forestry, and land-use.
- Deep reductions in non-CO₂ emissions from all sectors.
- Removing CO₂ from the atmosphere to neutralize residual emissions and, potentially, sustain net negative emissions that reduce cumulative CO₂ in the atmosphere over time.

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

Pathways used by the SBTi aim to steer voluntary climate action and contribute to achieving the 1.5°C objective of the Paris Agreement and the Sustainable Development Goals (SDGs), reaching net-zero CO₂ emissions at the global level by 2050 and net-zero GHG emissions in 2050 or later.³ In aggregate,

³ Energy efficiency improvements, infrastructural innovation, and phasing-out fossil fuels—characteristic of IPCC “low energy demand” scenarios—can help meet the 1.5°C goal with the fewest adverse impacts. The IPCC states with high confidence that low energy demand scenarios have the most pronounced synergies with sustainable development and the SDGs (IPCC SR15, Summary for Policymakers D.4.2). They also reduce dependence on CO₂ removal, which can pose risks to biodiversity, food security, water resources and human rights.

1.5°C-aligned pathways used by the SBTi stay within a 500 gigaton carbon budget under the assumption of about 20-40 gigatons of cumulative CO₂ removal by 2050.

For a detailed overview of how the SBTi determines 1.5°C-aligned pathways for calculating SBTs, please see [“Pathways to Net-Zero: SBTi Technical Summary”](#).

3.2 How mitigation pathways are used to inform science-based targets

Mitigation pathways play a key role in setting science-based targets. For near-term science-based targets, mitigation pathways inform the **rate** of emissions reductions or emissions intensity reductions that are needed. For long-term science-based targets, they inform the **overall** emissions reduction or convergence intensity that must be reached to be aligned with net-zero at the global or sector level.

Because of this, near-term science-based targets are target year-dependent, while long-term science-based targets are target year-independent. This means that a company’s reduction target will differ depending on the target year for its near-term targets, but the reduction target will not differ depending on the target year for its long-term targets. This is illustrated in *Figure 4* below. Because of this, companies will model long-term targets, and then set their net-zero and long-term target date depending on when the emission reductions can be achieved.

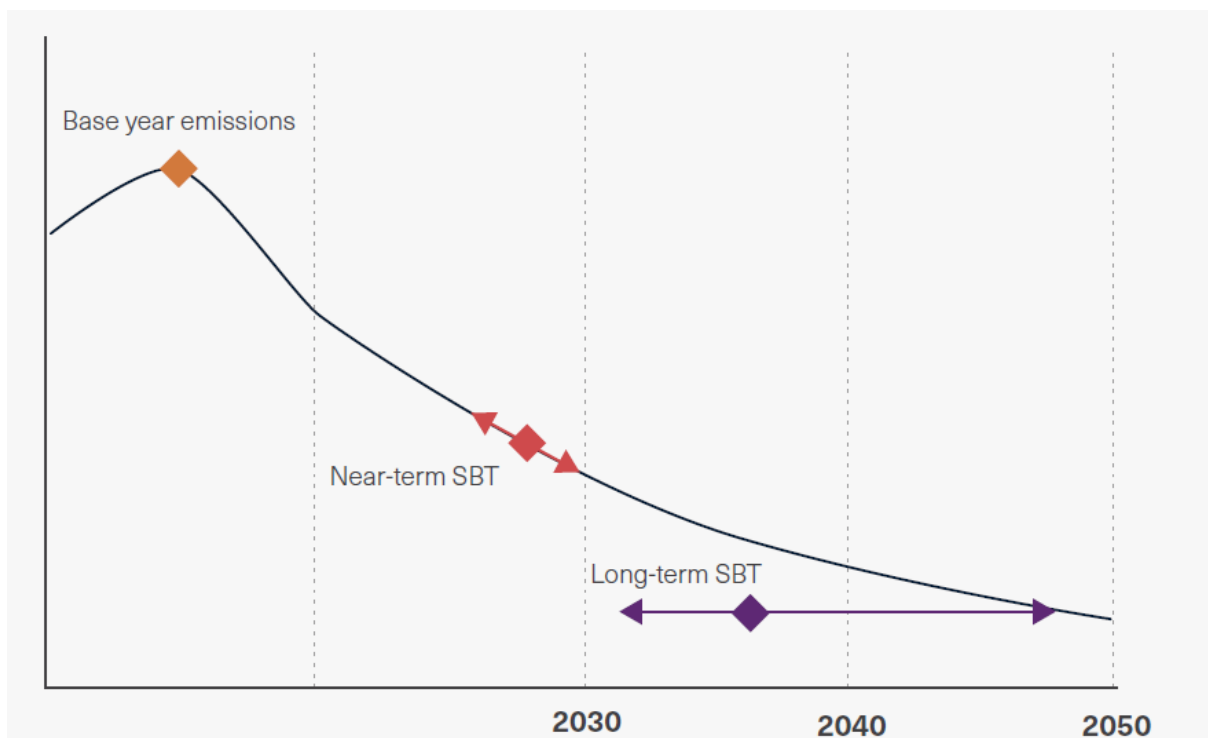


Figure 3 Graph showing target year dependency of near-term science-based targets in comparison to the target year independency of long-term science-based targets. Companies can select a target year of 2050 or earlier for long-term targets, which depends on how quickly it can reduce its emissions.

Box 1. How are residual emissions determined for different sectors of the economy?

Residual emissions levels are grounded in what's needed to achieve net-zero CO₂ emissions at the global level by 2050, limit warming to 1.5°C, and contribute to achieving the SDGs. In pathways used by the SBTi, residual emissions at the cross-sector level reflect the 2020-2050 emissions reduction needed. At the sector level, residual emissions reflect a sector-specific 2020-2050 emissions reduction or a 2050 convergence emissions intensity (except for the power and maritime transport sectors which use 2040 instead of 2050 due to an earlier net-zero year). The same pathways are used to calculate near-term SBTs and residual emissions levels for long-term SBTs and together they:

1. Stay within the remaining carbon budget for a 50% likelihood of limiting warming to 1.5°C.
2. Reduce energy and industrial process CO₂ and CH₄ emissions by an amount roughly consistent with the International Energy Agency (IEA)'s Net-Zero Emissions (NZE) scenario.
3. Mitigate forest, land and agriculture (FLAG) sector GHG emissions by an amount consistent with the detailed land-sector roadmap 'Contribution of the land sector to a 1.5°C world' (Roe et al., 2019).
4. Reach global net-zero CO₂ emissions by 2050, assuming at least low/medium CO₂ removal (1-4 gigaton CO₂/year), and net-zero GHG emissions in 2050 or later, depending on CO₂ removal levels and different mitigation choices across pathways.

To meet these conditions, an economy-wide emissions reduction of at least 90% by 2050 informs the level of residual emissions for most companies, as shown by the cross-sector pathway. The IEA's NZE scenario, which reduces energy and industrial process CO₂ emissions 95% between 2020 and 2050, has been an important reference for this calculation; but ultimately, SBTi's approach to developing the cross-sector pathway was holistic, building from an expansive body of literature and iterative development with the SBTi's Scientific Advisory Group. For more information on the cross-sector pathway and sector-specific pathways used by the SBTi, please see the SBTi's Technical Summary "[Pathways to Net-Zero](#)".

3.3 Overview of pathways and which companies should use them

The SBTi offers a cross-sector pathway and sector-specific pathways for setting science-based targets. Companies in the power generation sector, maritime transport sector and the FLAG sectors are required to set SBTs using sector-specific pathways. For all other companies, the cross-sector pathway is eligible for setting absolute reduction targets.

Using the cross-sector pathway, companies can set near-term targets that reduce emissions at a linear annual rate that is base year dependent. For scope 1 and 2 targets, if the base year is on or before 2020, companies need to at a minimum reduce absolute emissions at an annual linear reduction rate of 4.2% over the target period. If the base year is after 2020, companies will need to reduce at a higher rate that is consistent with limiting warming to 1.5°C. For example, if a company is setting an absolute scope 1 and 2 target with a base year of 2021 and a target year of 2030, the minimum linear reduction over the target period is 42%. Please refer to the [Near-term Target Setting Tool](#). However, some sector-specific pathways vary significantly from the cross-sector pathway in the near-term. For near-term SBTs, sector-specific pathways may only be used to calculate targets using the sector-specific intensity convergence (also referred to as the Sectoral Decarbonization Approach) or the sector-specific absolute reduction for the ICT sector.





In the long-term, emissions in the cross-sector pathway are reduced by at least 90% and most sector-specific pathways also reduce CO₂ emissions by 90% or more from 2020 levels. Consequently, long-term science-based targets will be equivalent to at least a 90% absolute reduction across scopes for many companies, regardless of whether the cross-sector pathway or sector-specific pathways are used. For long-term science-based targets, sector-specific pathways can be used to calculate either intensity or absolute targets, in addition to the option of calculating absolute targets using the cross-sector pathway.

There are various sector-specific pathways that are available or in development. Please refer to the SBTi website or [Getting Started Guide for Science-based Target Setting](#) for the most up to date information.

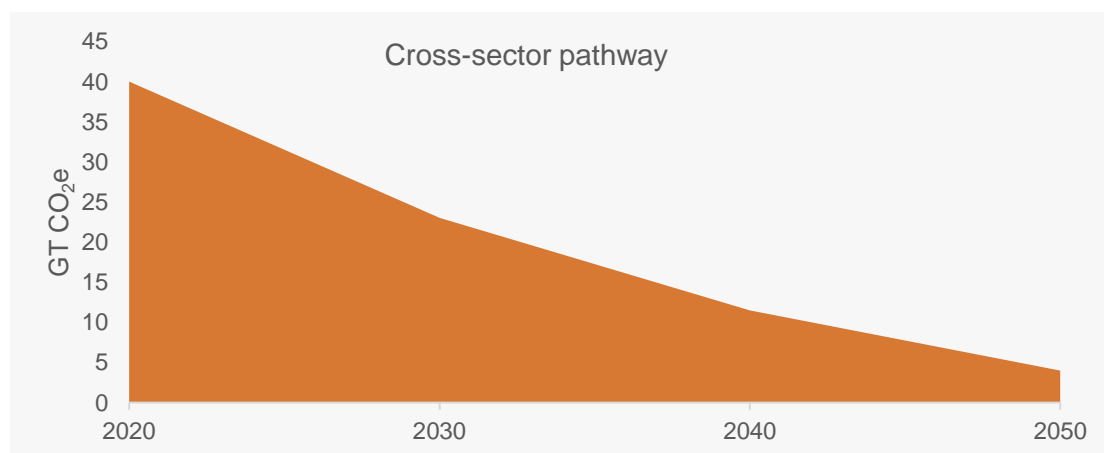
Except for power generation, maritime transport and FLAG, all sectors may use the cross-sector pathway to set 1.5°C-aligned near-term and long-term science-based targets. In the absence of sector-specific pathways, companies are strongly recommended to use the cross-sector pathway.

Companies in heavy-emitting sectors often use sector-specific pathways to calculate both near-term and long-term intensity targets. Other companies with scope 3 emissions from heavy-emitting sector activities often use a mix of approaches to calculate targets. For example, a real estate development company may have significant scope 3 emissions attributed to both the steel and cement sectors. When setting targets that cover upstream scope 3 emissions, these companies may use a sector-specific pathway to set intensity targets as long as the pathway reflects both supply-side and demand-side mitigation where relevant (see sector-specific guidance for more information).

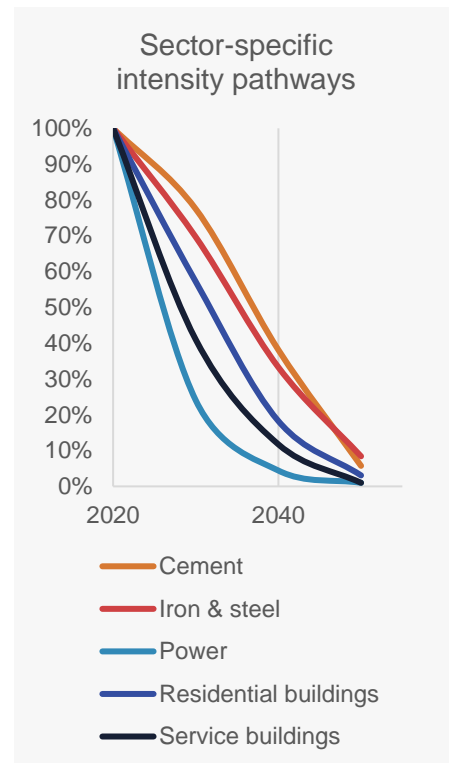
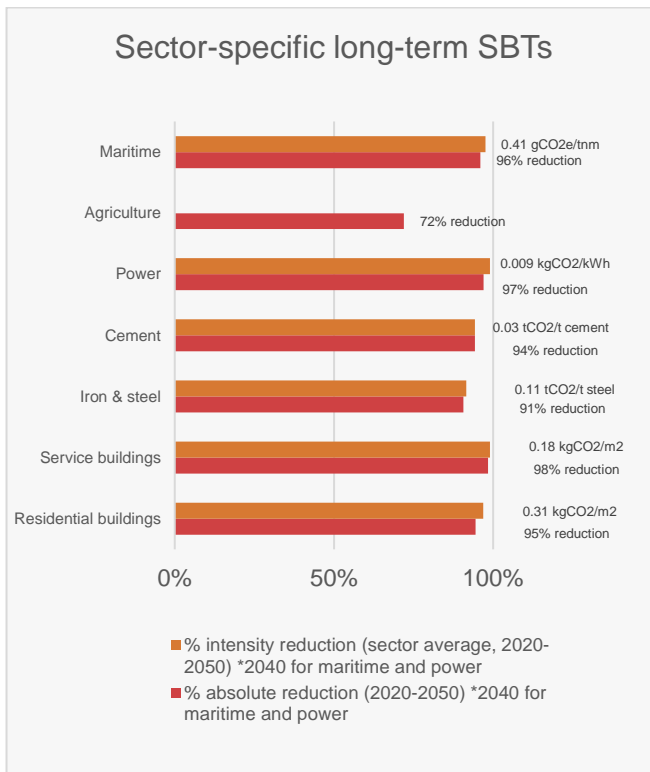
Table 2 A summary of how the cross-sector pathway and sector-specific pathways can be applied

	Which companies can use these pathways?		What types of targets can be modelled?	
	Near-term 	Long-term 	Near-term 	Long-term 
Cross-sector pathway	All companies, except those in the power generation sector, maritime transport sector and FLAG sectors		Absolute	Absolute
Sector-specific pathways	<p>For scope 1: typically, companies in heavy-emitting sectors or a FLAG sector</p> <p>For scope 3: companies with scope 3 emissions dominated by one or more heavy-emitting sectors or FLAG sectors</p>		<p>For the FLAG sectors: absolute or intensity</p> <p>For the ICT sector: absolute</p> <p>For all other sectors: intensity</p>	Absolute or intensity ⁴

3.4 Transformative mitigation is required from all sectors



⁴ Companies setting targets on upstream scope 3 emissions that arise from high-emitting sectors should review relevant sector guidance to understand when it is appropriate to set absolute or intensity targets using sector-specific pathways (i.e., a professional services firm setting intensity targets on air travel emissions should review aviation sector guidance).



a, 5b and 5c show the ambition of the cross-sector pathway and sector-specific pathways used to calculate near-term and long-term SBTs. Some sectors reduce emissions more than the cross-sector pathway in 2050, while other sectors reduce emissions less, but all pathways reflect transformative mitigation efforts. All companies – except those in the power generation, maritime transport or FLAG sectors – may set SBTs using the cross-sector pathway. Companies in the power generation, maritime transport and FLAG sectors must use the sector-specific pathway to calculate SBTs. Some other sectors where emissions are reduced more in the sector-specific pathway can still use the cross-sector pathway for two main reasons: (1) the difference is small (<10% of base year emissions) and (2) companies are required to neutralize unabated emissions regardless, which aims to counteract the impact of any residual emissions and incentivize continued abatement once net-zero is reached.

Figure 5b shows sector-specific long-term SBTs for sectors included the Net-Zero Standard. At the company level, absolute targets are based on the sector’s 2020-2050 absolute emissions reduction (red bars and data labels), except for power and maritime transport sectors. Intensity targets are based on the 2050 convergence intensity (data labels only), except for power and maritime transport sectors. For the power sector and maritime transport sector, long-term SBTs are calculated based on 2040 instead of 2050 due to an earlier net-zero year. Orange bars show the 2020-2050 sector average intensity reduction, which may differ from company targets.

Figure 5c shows sector-specific intensity pathways (2020-2050) for scope 1 only. After the completion of the steel and built environment sector projects, scope 2 emissions will be added, iron and steel will be disaggregated, and other adjustments may be incorporated. For these reasons, iron and steel sector pathways are currently eligible to calculate long-term SBTs – but not near-term SBTs.

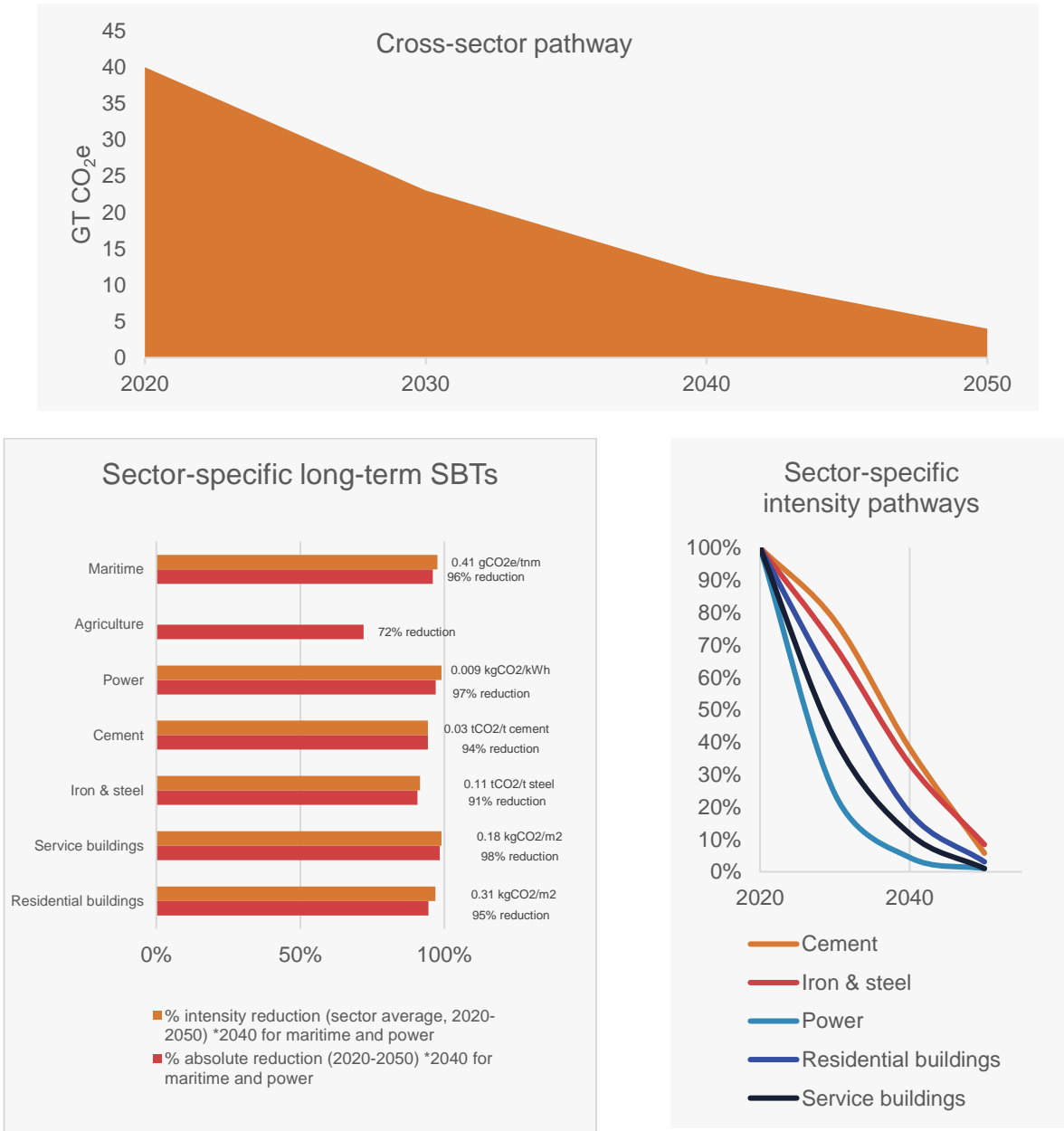


Figure 5a. GHG emissions in the cross-sector emissions pathway, which covers CO₂, CH₄, and N₂O from energy supply, transport, industry, and buildings. **b.** Sector-specific long-term SBTs for sectors included in V1.1 of the Net-Zero Standard. For the maritime and power sector, long-term SBTs are calculated based on 2040 instead of 2050 due to an earlier net-zero year. **c.** Sector-specific intensity pathways (2020-2050) for scope 1 only.



PARTNER ORGANIZATIONS



United Nations
Global Compact



WORLD
RESOURCES
INSTITUTE



4. SETTING NEAR-TERM AND LONG-TERM SCIENCE-BASED TARGETS

Companies can take a variety of approaches to developing near-term and long-term science-based targets; however, the SBTi recommends following the five steps described in this section.



Figure 4 The SBTi recommends a five-step approach to setting science-based targets

4.1 Select a base year

Companies need to establish a base year to track emissions performance consistently and meaningfully over the target period. The following considerations are important for selecting a base year:

1. Scope 1, 2, and 3 emissions data should be accurate and verifiable.
2. Base year emissions should be representative of a company's typical GHG profile.⁵
3. The base year should be chosen so that targets have sufficient forward-looking ambition.
4. The base year must be no earlier than 2015.

Companies that have already set near-term science-based targets must use the same base year for their long-term science-based target. For more information on setting the base year, please see the section entitled "Choose a base year" in the [SBTi Corporate Manual](#).

4.2 Calculate your company's emissions

4.2.1 Develop a full GHG emissions inventory

Companies are required to have a comprehensive emissions inventory that covers at least 95% of company-wide scope 1 and 2 GHG emissions and includes a complete scope 3 inventory. The following points are important for aligning with the GHG Protocol and SBTi Criteria.

Ensure the target boundary is aligned with the GHG Inventory boundary: A company must select a single GHG Protocol consolidation approach (operational control, financial control or equity share)

⁵ Companies must provide all the relevant GHG inventory data including a most recent year GHG inventory even if business activities were impacted by the COVID-19 pandemic. For submissions in 2023, a recent year inventory must be provided that is no earlier than 2021 i.e., allowable most recent years are 2021 and 2022.

to determine its organizational boundary. The same method should be used to calculate its GHG emissions inventory and to define its science-based target boundaries. Both the emissions inventory and target boundary should cover all seven GHGs or classes of GHGs covered by the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

For more information on organizational boundary-setting, please see the section entitled “Ensure the target boundary is aligned with the GHG inventory boundary” in the [SBTi Corporate Manual](#) and the [GHG Protocol Corporate Standard](#) (WRI & WBCSD 2004).

Determine how to treat subsidiaries: Parent companies should set science-based targets that include subsidiaries according to the selected consolidation approach. When required by the consolidation approach, parent companies must include emissions from subsidiary operations in their GHG inventory.

The SBTi does allow subsidiaries to submit targets. Regardless of whether the subsidiary has approved science-based targets, parent companies must include subsidiaries in their target boundary, as required by the selected consolidation approach used to determine its organizational boundary.

For more information on subsidiaries, please see the section entitled “Determine how to treat subsidiaries” in the [SBTi Corporate Manual](#) and page 19 of the [GHG Protocol Corporate Standard](#).

Exclude the use of carbon credits: Carbon credits do not count as reductions toward meeting science-based targets. Companies should only account for reductions that occur within their operations and value chain.

Exclude avoided emissions: Companies are often interested in understanding the GHG impacts of their products, relative to the situation where those products do not exist. Positive impacts are commonly referred to as “avoided emissions”. Avoided emissions occur outside of the product’s life cycle and therefore do not count as a reduction of a company’s scope 1, 2 and 3 inventory.

For more information on avoided emissions, please see the section entitled “Exclude avoided emissions” in the [SBTi Corporate Manual](#) and the World Resources Institute’s [paper on avoided emissions](#).

Include all mandatory scope 3 emissions: Companies must develop a complete scope 3 inventory, which is critical for identifying emissions hotspots, reduction opportunities, and areas of risk up and down the value chain. The [GHG Protocol Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#) (WRI & WBCSD, 2011), together with the [Scope 3 Calculation Guidance](#), provide detailed guidance on how to complete a scope 3 inventory. The Scope 3 Standard defines 15 distinct categories of upstream and downstream emissions sources and requires companies to include all relevant categories in an inventory, based on criteria such as the magnitude of emissions or the level of influence exerted over the categories. See Chapter 7 of the [Scope 3 Standard](#) for further details. To ensure a complete GHG inventory for science-based targets submission, companies must include

all emission sources for their company as categorized as the minimum boundary in Table 5.4 in the Scope 3 Standard (p. 34).

A useful approach to calculating scope 3 emissions is to first calculate a high-level screening inventory that is typically based on secondary financial data. Many companies use the [Scope 3 Evaluator tool](#) to conduct their scope 3 inventory. A scope 3 inventory can be used to directly set a target on these emissions or to identify high-impact categories where more accurate data is needed. Over time, companies should strive to develop complete inventories and improve data quality for high-impact categories (e.g., collect primary data) to better track progress against targets.

For more information on calculating a scope 3 emissions inventory, please see the section entitled “Conduct a scope 3 inventory” in the Corporate Manual and the GHG Protocol’s [Corporate Value Chain \(Scope 3\) Accounting and Reporting standard](#).

Determine how to treat optional scope 3 emissions: Optional scope 3 emissions are not counted towards the required target boundary for science-based targets.⁶ If companies have significant optional scope 3 emissions and have levers to address them, they are encouraged to calculate these emissions and set optional targets.

More information on optional scope 3 emissions can be found in “Table 5.4 Description and boundaries of scope 3 categories” in the GHG Protocol’s [Corporate Value Chain \(Scope 3\) Accounting and Reporting standard](#).

Indirect use-phase emissions are classified as optional and can sometimes contribute significantly to a company’s impacts. Indirect use-phase emissions are generated by products that only consume energy indirectly during use over their expected lifetime. Examples of such emissions include the washing and drying of apparel for apparel manufacturers and the cooking and refrigeration of food products for food retailers. Indirect use-phase emissions are not within the “minimum boundary” for category 11 (use of sold products) and are listed as “optional”.

Review any sector-specific guidance: The SBTi publishes a wide range of resources to support businesses in their target-setting journey. For some sectors, sector-specific guidance developed with industry experts lays out best practice for inventory and target boundary-setting, emissions accounting, and target calculation, in line with the GHG Protocol. For more information on sector-specific guidance, visit the [sector guidance webpage](#).

4.2.2 Calculate emissions reported separately from the GHG inventory

To meet SBTi criteria, companies that use bioenergy must report direct CO₂ emissions from biomass combustion, processing, and distribution, as well as the land-use emissions and removals associated with bioenergy feedstock. These emissions are reported separately from the company’s GHG inventory, in line with Greenhouse Gas Protocol guidance.

⁶ For near-term science-based targets, companies must include two-thirds of mandatory scope 3 emissions, and for long-term science-based targets companies include 90% of scope 3 emissions.

Companies that sell or distribute fossil fuels are required to report the use-phase emissions associated with those fossil fuels in scope 3 category 11 (use of sold products) and cover these emissions with a target. For companies that transport or distribute, but do not sell, fossil fuels, these emissions must be calculated and covered by a target but are typically reported outside a company's GHG inventory.

4.3 Set target boundaries

4.3.1 Near-term science-based target boundary (scopes 1, 2, and 3)

Near-term science-based targets must cover at least 95% of company-wide scope 1 and 2 emissions. When scope 3 emissions make up 40% or more of total emissions (scope 1, 2, and 3 emissions), companies must set one or more emission reduction targets and/or supplier or customer engagement targets that collectively cover(s) at least two-thirds (67%) of total scope 3, considering the minimum boundary of each category in conformance with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Companies in certain heavy-emitting sectors are required to include specific emissions sources or scope 3 categories in their science-based target boundary, please see *Table 9* for a detailed list of sector-specific requirements.

4.3.2 Long-term science-based target boundary (scopes 1, 2, and 3)

Long-term SBTs must cover at least 95% of company-wide scope 1 and 2 emissions and 90% of scope 3 emissions. See *Box 2* for more information.

Box 2. The 'expansive boundary' approach for scope 3

A comprehensive target boundary is necessary for companies to make credible net-zero claims. However, acknowledging the challenges that companies encounter with scope 3, the SBTi Net-Zero Standard is following an expansive boundary approach and a gradual increase in ambition.

In the near-term (5 to 10 years), a scope 3 target is required when a company's scope 3 emissions represent more than 40% of their total emissions. Near-term scope 3 targets need to cover two-thirds of scope emissions and align with well-below 2°C ambition **at a minimum**. In the long-term – by 2050 at the latest – the boundary of the target will increase to cover all material sources of emissions in the value chain (materiality threshold of 90%), decarbonizing in line with 1.5°C scenarios.

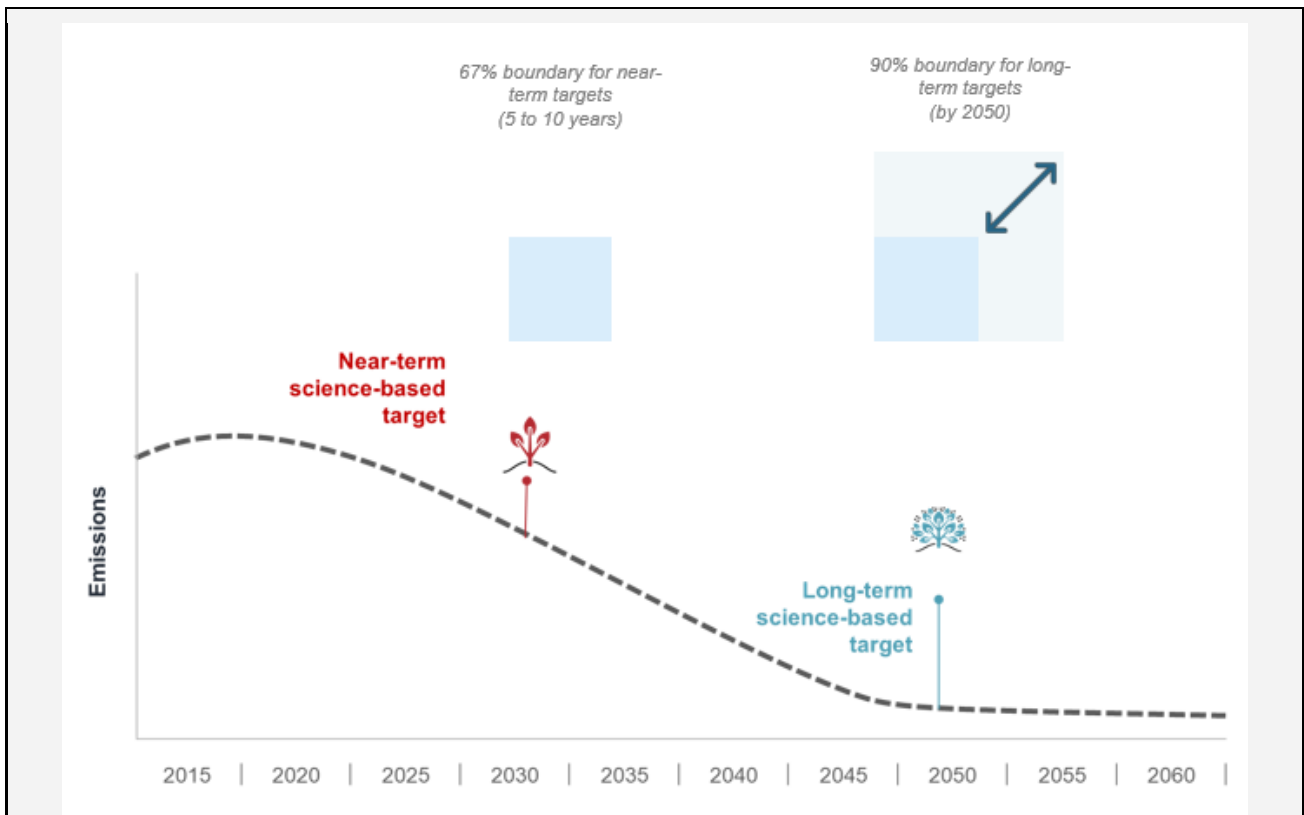


Figure 5 A visual explanation of the ‘expansive boundary’ approach the Net-Zero Standard takes to scope 3 target boundaries.

Increasing the scope 3 boundary requirements from 67% for near-term SBTs to 90% for long-term SBTs will be challenging, but it will also drive major opportunities to collaborate across the value chain to support suppliers and customers to decarbonize. Through the expansive boundary scope 3 approach from the near to long-term, companies have time to work through the complexity of scope 3 and long-term scope 3 reductions, focusing on their most material emissions sources in the near-term.

4.3.3 Additional requirements for science-based target coverage

Companies using bioenergy must include direct CO₂ emissions from biomass combustion, processing, and distribution, as well as the land-use emissions and removals associated with bioenergy feedstock, in their target boundary, even though these emissions are reported outside a company’s GHG inventory. Similarly, companies transporting or distributing fossil fuels must include use-phase emissions in their target boundary, even though these emissions may not typically be reported in a company's GHG inventory.





The SBTi requires companies that meet either of the following two conditions to set a FLAG specific target separate from their target(s) for other emissions:

- Companies from the following SBTi-designated sectors are required to set a FLAG target: forest and paper products (forestry, timber, pulp and paper); food production (agricultural production); food production (animal source); food and beverage processing; food and staples retailing; and tobacco.
- Companies in any other sector with FLAG-related emissions that total more than 20% of overall emissions across scopes. The 20% threshold should be accounted for as gross emissions, not net (gross minus removals).

Companies meeting either of the above conditions must include emissions from LUC using either direct LUC or statistical LUC, as aligned with the Greenhouse Gas Protocol's [Land Sector and Removals Guidance](#).

A summary of near-term and long-term science-based targets required coverage is shown in 3.

Table 3 Minimum boundary coverage for near-term targets and long-term targets

MINIMUM % BOUNDARY COVERAGE BY SCOPE		
GHG inventory scope	Near-term targets 	Long-term targets 
Scopes 1 and 2	95% minimum coverage	
Scope 3	67% minimum coverage (if scope 3 emissions are at least 40% of total scope 1, 2 and 3 emissions)	90% minimum coverage (all companies)
SPECIAL BOUNDARY COVERAGE REQUIREMENTS BY EMISSIONS SOURCE		
Emissions source	Near-term targets 	Long-term targets 
Use-phase emissions from sold or distributed fossil fuels	Must be covered by an absolute reduction target	
Direct CO ₂ emissions from biomass combustion, processing and distribution, as well as land-use emissions and carbon removals from bioenergy feedstock	Must be included in target boundary	

Sector-specific target boundary requirements	See <i>Table 9</i> for a detailed list of sector-specific requirements
Biogenic emissions and removals	<p>FLAG companies are required to account for land-related emissions (gross biogenic land CO₂ emissions and removals). This includes all emissions from direct land use change (LUC) and land management (biogenic CO₂, N₂O and CH₄) related to on-farm activities.</p> <p>Companies with land emissions below the 20% FLAG threshold (as per FLAG-C1) that choose not to set a separate FLAG target must account for gross biogenic land emissions separately in the traditional (non-FLAG) target. Removals shall not be used in this case.</p> <p>Companies with bioenergy emissions in scopes 1, 2 and 3 are required to account for the biogenic emissions as per the SBTi C10 criteria (non-FLAG) criteria. This includes all emissions from direct land use change (LUC) and land management (biogenic CO₂, N₂O and CH₄) related to on-farm activities.</p>

4.3.4 Meeting SBTi boundary criteria with several targets

Companies often set several targets that collectively meet the boundary requirements described above. This is a valid approach to meeting the SBTi Criteria and Net-Zero Standard. Companies may consider setting targets covering emissions from various sectors or different scope 3 categories.

4.4 Choose a target year

Near-term targets must have a target year 5-10 years from the date of submission to the SBTi,⁷ while long-term targets must have a target year of 2050 or sooner (2040 for companies in the power sector and maritime transport sector).

Because the ambition of long-term science-based targets is target year-independent, companies should begin by choosing any eligible target year. Based on the results of their target calculation, the company may adjust their chosen target year to be sooner or later depending on its ability to achieve its long-term target.

4.5 Calculating science-based targets

Target methods are used to calculate near-term and long-term targets based on a mitigation pathway and company inputs. Companies may choose from the science-based target methods described in this section.

⁷ The maritime transport sector cannot have a target year for near-term targets before 2030.

4.5.1 Eligible methods for all scopes (both near-term and long-term science-based targets)

- **Cross-sector absolute reduction:** Using this method, companies reduce absolute emissions by an amount that is, at minimum, consistent with the cross-sector pathway. Also referred to as “absolute contraction”. For near-term SBTs, the minimum reduction is calculated as a linear reduction rate (e.g., 4.2% p.a. dependent on a company’s base year), whereas for long-term SBTs the minimum reduction is calculated as an overall amount (e.g., 90% overall).
- **Sector-specific absolute reduction:** absolute emissions are reduced by an amount that is, at minimum, consistent with a sector-specific pathway.
- **Sector-specific intensity convergence:** Using this method, all companies in a sector converge to a sector-specific emissions intensity in 2050 (2040 for the power and maritime transport sectors). Also referred to as “physical intensity convergence” or “Sectoral Decarbonization Approach (SDA)”. For near-term targets, the SDA formula is used, which adjusts a company’s target based on their starting point, target year, and projected output growth. For long-term targets, the target year emissions intensity is equal to the sector’s emissions intensity in 2050 (2040 for the power and maritime transport sectors).

4.5.2 Eligible methods for scope 2 (both near-term and long-term targets)

- **Renewable electricity (scope 2 only):** Using this method, companies set targets to actively procure at least 80% renewable electricity by 2025 and 100% renewable electricity by 2030. Renewable electricity targets are accepted as a substitute for targets that cover scope 2 emissions.

4.5.3 Eligible methods for scope 3 (both near-term and long-term targets)

- **Scope 3 physical intensity reduction:** Using this method, companies define their own physical intensity metric and set targets to reduce physical emissions intensity by an amount that is, at minimum, consistent with limiting warming to well-below 2°C for near-term targets and 1.5°C for long-term targets. For near-term targets, the minimum reduction is calculated as a 7% year-on-year reduction; whereas for long-term targets, the minimum reduction is calculated as an overall 97% reduction.⁸
- **Scope 3 economic intensity reduction:** Using this method, companies reduce economic emissions intensity (e.g., tCO₂ per unit of value added) by an amount that is, at minimum, consistent with limiting warming to well-below 2°C for near-term targets and 1.5°C for long-term targets. For near-term targets, the minimum reduction is calculated as a 7% year-on-year reduction while for long-term targets, the minimum reduction is calculated as an overall 97% reduction.

⁸ In previous versions of the SBTi Near-term Criteria, the minimum ambition for scope 3 physical intensity targets was a 2% linear annual reduction with no increase in absolute emissions. It has been updated to a 7% compound reduction, to align with well-below 2°C scenarios.

4.5.4 Eligible methods for near-term scope 3 targets only

- **Engagement targets (scope 3 near-term targets only):** Using this method, companies set a target for suppliers or customers representing a certain percentage of emissions to set their own science-based targets.



Using the methods listed above, companies must set near-term targets with a minimum ambition of 1.5°C for scopes 1 and 2 and a minimum ambition of well-below 2°C for scope 3. Long-term targets must have a minimum ambition of 1.5°C across scopes.

Table 4 Ambition ranges for target classification of near-term science-based targets

Long-term temperature goal	Minimum annual linear reduction rate over target period
Well-below 2°C (scope 3) ~66% chance of limiting peak warming between now and 2100 to below 2°C.	$\text{Absolute reduction target}_{\text{Scope 3}} = \begin{cases} \text{Base year} \leq 2020, & 2.5\% \times (\text{Target year} - \text{Base year}) \\ \text{Base year} > 2020, & 2.5\% \times (\text{Target year} - 2020) \end{cases}$
1.5°C (scopes 1 and 2) ~50% chance of limiting warming in 2100 to 1.5°C.	$\text{Absolute reduction target}_{\text{Scope 1,2}} = \begin{cases} \text{Base year} \leq 2020, & 4.2\% \times (\text{Target year} - \text{Base year}) \\ \text{Base year} > 2020, & 4.2\% \times (\text{Target year} - 2020) \end{cases}$

A summary of eligible methods as described in this section is shown in *Table 5* below.

Table 5 A summary of eligible methods for near-term and long-term targets.





	Near-term targets 	Long-term targets 	Eligibility
Absolute reduction	<p>Cross-sector pathway:</p> <ul style="list-style-type: none"> Scopes 1 and 2: Minimum 4.2% p.a. dependent on choice of base year Scope 3: minimum 2.5% p.a. dependent on choice of base year 	<p>Cross-sector pathway: 90% reduction</p> <p>Sector-specific pathways:</p> <ul style="list-style-type: none"> Agriculture: 72% reduction Cement, iron and steel, residential buildings, and service buildings: >90% Other sector-specific pathways to be added 	<ul style="list-style-type: none"> Scopes 1-3 Default option
Sector-specific intensity convergence	Requirements vary dependent on sector-specific and commodity-specific pathways.	Requirements vary dependent on sector-specific and commodity-specific pathways	<ul style="list-style-type: none"> Scopes 1-3 Most commonly used by heavy-emitting and FLAG sectors
Renewable electricity	<p>Use of renewable energy certificates (RECs) or virtual power purchase agreements (vPPAs):</p> <ul style="list-style-type: none"> 80% minimum by 2025 100% minimum by 2030 	Use of RECs or vPPAs: 100% by 2030	<ul style="list-style-type: none"> Scope 2
Engagement	Suppliers or customers to set SBTs at a minimum ambition of well-below 2°C.	N/A	<ul style="list-style-type: none"> Scope 3 near-term
Scope 3 economic intensity reduction	At least 7% year-on-year reduction of emissions per unit value added.	97%	<ul style="list-style-type: none"> Scope 3
Scope 3 physical intensity reduction	At least 7% year-on-year reduction for a company-defined physical emissions intensity metric	97%	<ul style="list-style-type: none"> Scope 3

4.6 Calculating near and long-term SBTs

There are important differences when setting near-term and long-term science-based targets, as summarized in the table below. For in-depth guidance on calculating near-term targets, please see the [SBTi Corporate Manual](#).

Calculating long-term targets is relatively simple because target ambition does not depend on the chosen target year and targets are less dependent on company input data. Companies must use the [SBTi Net-Zero Tool](#) to calculate long-term science-based targets.

Table 6 A comparison of boundary, ambition, timeframe, and methods between near and long-term targets

		Boundary  <i>What percentage emissions inventory coverage is required?</i>	Ambition  <i>What is the ambition level of limiting temperature rise?</i>	Timeframe  <i>What is the timeframe to meet targets?</i>	Methods  <i>What are the eligible methods to set targets?</i>
Near-term SBTs	Scope 1 and 2	95%	1.5°C	5-10 years ⁹	Cross-sector absolute reduction Sector-specific absolute reduction Sector-specific intensity convergence Renewable electricity
	Scope 3	If >40% of total emissions, 67% coverage	Well-below 2°C		Cross-sector absolute reduction Sector-specific absolute reduction Sector-specific intensity convergence Supplier/customer engagement Scope 3 economic intensity reduction Scope 3 physical intensity reduction
Long-term SBTs	Scope 1 and 2	95%	1.5°C	2050 latest (2040 for the power and maritime transport sectors)	Cross-sector absolute reduction Sector-specific absolute reduction Sector-specific intensity convergence Renewable electricity
	Scope 3	90%			Cross-sector absolute reduction Sector-specific absolute reduction Sector-specific intensity convergence Scope 3 economic intensity reduction Scope 3 physical intensity reduction

⁹ The maritime transport sector cannot have a target year for near-term targets before 2030.

4.7 Target wording

Finally, it is important to consider how the net-zero target and underlying target(s) can be expressed clearly and succinctly. There are three components that make up net-zero target wording:

- Overarching net-zero target
- Near-term science-based target
- Long-term science-based target

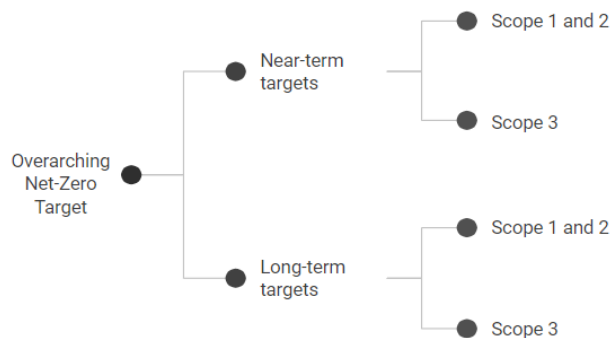


Figure 6 Net-zero target wording structure.

4.7.1 Overarching net-zero target

The company net-zero date is determined by the latest long-term SBT target date. Companies can express their overarching net-zero targets as:

Company X commits to reach net-zero GHG emissions across the value chain by [insert latest long-term SBT target date] from a [insert base year] base year.

4.7.2 Near-term science-based target wording

Companies must include the near-term science-based target wording within their overall net-zero target. More details can be found in the [Target Validation Protocol for Near-term Targets](#).

4.7.3 Long-term science-based target wording

The SBTi has specific guidance for target wording to increase comparability and transparency among approved targets. Companies are required to follow specific guidelines for target wording and the SBTi reserves the right to not approve targets that deviate from this guidance. What may appear to be minor nuances may significantly alter the target's intention. *Table 7* provides recommended target template wording for each type of target. Please see the SBTi's Target Submission Form to see the latest recommendations for the target language. Please note that *Table 7* contains examples of overall target language, but companies should refer to their sector specific guidance for further information on all targets required.

Table 7 Recommended long-term SBT language templates and examples

Target type	Recommended target language
Absolute reduction target using the cross-sector pathway	[Company name] commits to reduce absolute [enter scopes] GHG emissions [percent reduction]% by [target year] from a [base year] base year. ¹⁰
Absolute reduction target using the FLAG pathway	[Company name] commits to reduce [enter scopes] FLAG GHG emissions [72% or more] by [target year] from a [base year] base year. *Note: a mandatory footnote must be included detailing that this target includes FLAG emissions and removals.
Steel intensity target	[Company name] commits to reduce [enter scopes] GHG emissions [91% or more] per ton of steel by [target year] from a [base year] base year.
Cement intensity target	[Company name] commits to reduce [enter scopes] GHG emissions [percentage reduction]% per ton of cementitious materials by [target year] from a [base year] base year.
Power sector target	[Company name] commits to reduce [enter scopes] emissions from [source: e.g., power generation/all sold electricity] [percentage] per MWh by [target year: 2040 or earlier] from a [base year] base year.
Buildings sector target	[Company name] commits to reduce [enter scopes] GHG emissions [percentage reduction]% per square meter by [target year] from a [base year] base year.
Maritime sector target	[Company name] commits to reduce well-to-wake GHG emissions [percentage] per [tonne nautical mile or GT nautical mile] from [vessel type] operations by [target year: 2040 or sooner] from a [base year] base year
Combined absolute target that covers the same emissions scope(s) or scope 3 category(s). For example, a company setting an absolute target that covers upstream transport and waste generated in operations, may combine them into a single target. ¹¹	[Company name] also commits to reduce scope 3 emissions from upstream transport and waste generated in operations [percent reduction]% by [target year] from a [base year] base year.
Intensity target covering a subset of scope 1 and 2 emissions and an absolute target covering the remaining emissions	[Company name] commits to reduce scope 1 and 2 emissions [percent reduction]% per [unit]% by [target year] from a [base year] base year. [Company name] commits to reduce all other scope 1 and 2 emissions 90% by [target year] from a [base year] base year.

¹⁰ If covering less than 100% of scope 3 emissions, companies should also list the GHG Protocol category names in their target language.

¹¹ Despite this, the SBTi will need to review each sector-specific target to validate long-term targets.

5. GUIDANCE FOR COMPANIES IN LAND-INTENSIVE SECTORS

Few companies have comprehensively accounted for agriculture, forestry, and other land use (AFOLU) emissions or removals in their targets or disclosures. A key challenge has been the lack of available standards, guidance and methods, but this challenge is solved with the Forest, Land and Agriculture (FLAG) Guidance and the forthcoming GHG Protocol Land Sector and Removals Guidance ([draft guidance](#) released September 2022).

Companies with land-intensive activities in their value chain are expected to set a FLAG target – that includes both emission reductions and removals. The FLAG target indicates how much and how quickly a company needs to reduce its land-based emissions to limit global warming to 1.5°C.

5.1 Background on FLAG emissions

The FLAG sectors, also known in the scientific community as the AFOLU sector, have been historically difficult to evaluate through GHG accounting and target setting approaches. However, AFOLU represents about 22% of global anthropogenic GHG emissions (~13 GtCO₂e per year), around half coming from agriculture and the other half from land use, land-use change, and forestry (LULUCF) (IPCC, 2022). GHG emissions from FLAG sectors need to be halved by 2050, and at the same time agricultural production is expected to increase 50%.¹²

The AFOLU sector has the potential to deliver up to 37% of the emissions reductions and removals needed through 2030, and 20% through 2050 (Griscom et al., 2017). Because of this, mitigation in the land sector also requires accounting for GHG removals (enhancing sinks) due to the potential for forests and soils to store carbon. GHG removals include restoring natural ecosystems, improving forest management practices, and enhancing soil carbon sequestration (Roe et al., 2019).

Aligning the AFOLU sector with 1.5°C pathways through both reductions and removals is feasible by stopping deforestation and land conversion, reducing peat burning and forest degradation, lowering agricultural emissions, and reducing emissions via demand shifts (e.g., addressing diet shift, food loss and waste); GHG removal can be achieved by restoring natural ecosystems, deploying silvopasture, improving forest management practices, and enhancing soil carbon sequestration on pasture and farmland.

5.2 SBTi FLAG Guidance

The FLAG guidance is aimed at companies in land-intensive sectors, including food, agriculture, and forestry. FLAG pathways include not only emissions reduction, but also removals *within* the land sector. It includes an overall FLAG sector mitigation pathway as well as 11 specific FLAG mitigation pathways for major commodities: beef, chicken, dairy, leather, maize, palm oil, pork, rice, soy, wheat, and timber and wood fiber. All FLAG pathways include CO₂ and non-CO₂ gases, as well as emissions

¹² WRI, [Creating a Sustainable Food Future](#).

related to agriculture and forestry ‘to farm gate’ – excluding energy-related emissions from processing of biomass – which are covered under other SBTi pathways.

It is important to consider that companies are required to report emission reductions and removals separately, and removals are only included in FLAG targets. Crucially, FLAG science-based targets are separate from SBTs that cover emissions from energy and industrial processes – therefore, **FLAG mitigation cannot be used to meet non-FLAG targets** (e.g., a company cannot bring forests into its value chain to meet another SBT).

5.3 Greenhouse Gas Protocol Land Sector and Removals Guidance

The two FLAG approaches available in the FLAG Guidance (FLAG sector approach and FLAG commodity approach) seek to align with the upcoming GHG Protocol Land Sector and Removals Guidance (final version expected early 2023). The guidance will explain how companies should account for emissions and removals from land management, LUC, biogenic products, technological CO₂ removals and related activities in GHG inventories. FLAG guidance and tools will be updated as needed to align with the GHG Protocol Land Sector and Removals Guidance, once finalized, and as new and improved data become available.

Starting from April 30, 2023, companies that fall under the relevant sector classifications and emission threshold will be required to account for FLAG-related emissions and appropriate removals/storage in alignment with the forthcoming GHG Protocol Land Sector and Removals Guidance and to include these emissions in their target boundary (FLAG-C3). While the GHG Protocol guidance is still under development, companies with land-intensive operations can still prepare for and set FLAG targets. Companies setting targets before the release of the final version may proceed with target setting using the [draft version](#).

5.4 Which companies are required to set FLAG targets?

Companies with land intensive activities in their value chain from the following sectors are required to set a FLAG science-based target:

- Forest and paper products such as timber, pulp and paper, and rubber.
- Agricultural production.
- Food production from animal sources.
- Food and beverage processing.
- Food and staples retailing.
- Tobacco.

Companies in any other sector that have land-related emissions that total more than 20% of overall emissions across scopes 1, 2 and 3 are also required to set a FLAG target.

6. UPDATING AND COMMUNICATING TARGETS

The number of businesses committing to reach net-zero emissions has grown rapidly over the last few years, and many companies have already made net-zero commitments in advance of the Net-Zero Standard's launch.¹³ The guidance below is designed to help align existing commitments with the Net-Zero Standard and provides recommendations for communicating these changes with stakeholders.

More information can be found on the [Communications Guidance for Companies and Financial Institutions](#) page on the SBTi website.

6.1 How can companies ensure near-term targets align with the Net-Zero Standard?

In response to the urgency and scale of the climate emergency and the success of science-based targets to date, the SBTi ratcheted its expectations for businesses by ensuring all targets align with a 1.5°C future. Since 15 July 2022, the SBTi only validates targets aligned with a minimum level of ambition of 1.5°C for scope 1 and 2 and well-below 2°C for scope 3. The SBTi has also reduced the maximum timeframe for near-term targets from 15 to 10 years.




These updated requirements for near-term science-based targets are summarized in *Table 8* below. If your company is setting new near-term science-based targets, they must meet these criteria to be eligible for net-zero validation. If your company already has a validated SBT that does not fulfil the ambition criteria for scope 1 and 2 or scope 3, it must be updated. Companies will not be required to update targets to meet the new timeframe requirement.¹⁴

Companies with emissions reduction targets that do not already align with the changes to near-term SBTi criteria are invited to update their science-based targets, if interested in net-zero target submission. More information can be found on our [website](#) and in the [Target Validation Protocol for Near-term Targets](#).

¹³ Analysis by [Climate Action Tracker](#) tells us that 73% of global emissions are covered by net-zero targets, and the [ECIU and Oxford's March 2021 report](#) showed that of the 2,000 publicly-traded companies included in the Forbes Global 2000 list, 21% of these companies had net-zero targets.

¹⁴ Companies that committed to the Business Ambition for 1.5°C via Option 2 may still gain validation for their net-zero targets if their Scope 1 and 2 targets are aligned to well-below 2°C. However, these targets must be eventually upgraded. Please see the [Business Ambition for 1.5°C campaign FAQ](#) for more details.

Table 8 Summary of changes to near-term SBTi criteria

	Updates to criteria	
Timeframe 	Under the previous versions of the SBTi criteria, near-term science-based targets could have a target year 5-15 years from the date of submission. Under SBTi criteria V5.0 and V5.1, target years must be 5-10 years from the date of submission.	
Scope 1 & 2 ambition 	The minimum scope 1 and 2 ambition of near-term science-based targets has increased from well-below 2°C to 1.5°C.	
Scope 3 ambition 	The minimum scope 3 ambition of near-term science-based targets has increased from 2°C to well-below 2°C. Supplier/customer engagement targets will remain eligible.	

6.2 How can companies ensure long-term targets align with the Net-Zero Standard?

An essential component of a corporate net-zero strategy is a long-term science-based target. While companies may reach a balance between emissions and removals before they reach the depth of decarbonization required to limit warming to 1.5°C, this is a transient state on the journey to net-zero emissions. Companies must reduce emissions to this level before claiming to have reached net-zero. In other words, a company's net-zero target date may not come before its long-term science-based target date.

For companies that have not set long-term emission reduction targets, we encourage you to model long-term science-based targets and validate them through the SBTi to demonstrate commitment to aligning with science as part of your net-zero ambition.

For companies that have set long-term emission reduction targets to reach net-zero that are not as ambitious as long-term science-based targets, we recommend modeling long-term science-based targets, revisiting your implementation strategy and consider increasing the ambition of current long-term targets to align with science.

For companies that have set net-zero target dates but feel they will be unable to reach the level of emission reductions required by their long-term science-based target in that timeframe, we advise reviewing your implementation strategies to explore additional opportunities to reduce emissions as a first step. If you expect you will not be able to meet the required level of emission reductions by that date, the next option is to consider moving the net-zero target date further into the future.

6.3 How to communicate with stakeholders when targets do not meet the Net-Zero Standard requirements

When companies have already set net-zero targets, we understand that navigating communication with stakeholders can be challenging if current targets do not comply with the Net-Zero Standard. In this section, we provide advice and guidance on how to communicate with stakeholders in this situation by developing messages to support companies with this process. Please note that these are only suggestions and companies may adapt these points to suit their needs.

- To ensure our actions are in line with climate science and avoid following a pathway that may not be consistent with addressing the climate crisis, we have reviewed our net-zero targets against the SBTi's Net-Zero Standard.
- Responding to the urgency and scale of the climate emergency, the SBTi is ratcheting up its expectations for businesses. To support this, we must listen to the science and enhance the ambition of our net-zero commitment.
- As part of this process, we have identified clear next steps to adjust our current commitment and/or target(s) to align with this first global science-based Net-Zero Standard. We believe this will help ensure the robustness and impact of our targets.
- We are committed to following a science-based net-zero pathway, which is why we are reviewing our climate mitigation strategy to better understand opportunities and enhance our ambition.

7. THE NET-ZERO STANDARD CRITERIA

7.1 Background to the Net-Zero Standard Criteria

The Net-Zero Standard Criteria was developed through extensive stakeholder consultation, in collaboration with the Net-Zero Expert Advisory Group. It includes all criteria that must be met for net-zero target(s) to be validated by the SBTi as well as recommendations which are important for transparency and best practice. It is important to note that criteria and recommendations are subject to change and may be updated.

Although this document contains all criteria for setting near-term science-based targets, companies should refer to the [SBTi Near-term Criteria](#), which outlines additional recommendations for near-term targets not included in this document.

These criteria apply only to companies not classified as financial institutions or SMEs. Financial institutions can set targets using the [Financial Sector Science-based Targets Guidance](#). SMEs must use the [streamlined process](#) to set targets in line with climate science.

Companies must also follow the [GHG Protocol Corporate Standard](#), [Scope 2 Guidance](#), and [Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#).

The [Target Validation Protocol for Near-term Targets](#) describes the underlying principles, process, and criteria followed to assess targets and to determine conformance with criteria.¹⁵ The SBTi strongly recommends companies to review Table 1 in the Target Validation Protocol that further details SBTi criteria compliance and non-compliance before developing targets.

7.2 Disclaimer

While every effort is made to keep companies informed of the latest criteria and recommendations, the SBTi reserves the right to make adjustments as needed to reflect the most recent emissions scenarios, partner organization policies, and GHG accounting practices.

The initiative also reserves the right to withdraw validation if it becomes apparent that incorrect information was communicated during the target validation process which leads to criteria not being met during the assessment – or if requirements following the approval of the target are not respected (i.e., target progress reporting and recalculations).

Unless otherwise noted (including specific sections), all criteria apply to scopes 1, 2, and 3.

¹⁵ The Target Validation Protocol currently only applies to near-term SBT criteria but will be updated to include net-zero targets.

7.3 Terminology

This document explains the criteria, which are requirements that companies must follow, and recommendations, which companies should follow, to align with the Net-Zero Standard. This document uses precise language to indicate requirements, recommendations, and allowable options that companies may choose to follow.

- The terms “shall” or “must” are used throughout this document to indicate what is required for targets to be in conformance with the Net-Zero Standard.
- The term “should” is used to indicate a recommendation, but not a requirement.
- The term “may” is used to indicate an option that is permissible or allowable.

The terms “required” or “must” are used in the guidance to refer to requirements. “Can” and “is encouraged” may be used to provide recommendations on implementing a requirement or “cannot” may be used to indicate when an action is not possible. The letter “C” preceding a number indicates a criterion and the letter “R” preceding a number indicates a recommendation.

7.2 General criteria

7.4.1 Target boundary

7.4.1.1 Organizational boundary

C1 – Organizational boundary: Companies should submit targets only at the parent- or group level, not the subsidiary level. Parent companies must include the emissions of all subsidiaries in their target submission, in accordance with the boundary criteria outlined below. In cases where both parent companies and subsidiaries submit targets, the parent company’s target must also include the emissions of the subsidiary if it falls within the parent company’s emissions boundary given the chosen inventory consolidation approach.¹⁶

R1 – Setting organizational boundaries: The SBTi strongly recommends that a company’s organizational boundary, as defined by the GHG Protocol Corporate Standard, is consistent with the organizational boundary used in the company’s financial accounting and reporting procedures.

7.4.1.2 GHG coverage

C2 – Greenhouse gases: The targets must cover all relevant GHGs as required by the GHG Protocol Corporate Standard.

7.4.1.3 Scope coverage

C3 – Scope 1 and scope 2: The targets must cover company-wide scope 1 and scope 2 emissions, as defined by the GHG Protocol Corporate Standard.

¹⁶ This criterion applies only to subsidiaries. Brands, licensees, and/or specific regions or business divisions of a company will not be accepted as separate targets, unless they fall outside of a parent company’s chosen consolidation approach.

C4 – Scope 3: If a company’s relevant scope 3 emissions are 40% or more of total scope 1, 2, and 3 emissions, they must be included in near-term science-based targets. All companies involved in the sale or distribution of natural gas and/or other fossil fuels shall set scope 3 targets for the use of sold products, irrespective of the share of these emissions compared to total scope 1, 2, and 3 company emissions. All companies shall include emissions from all relevant scope 3 categories in long-term science-based targets.

7.4.1.4 Emissions coverage

C5 – Scope 1, 2, and 3 allowable exclusions: Companies may exclude up to 5% of scope 1 and scope 2 emissions combined in the boundary of the inventory and target.¹⁷ Companies may exclude a maximum of 5% of emissions from their total scope 3 inventory.¹⁸

C6 – Scope 3 emissions coverage for near-term targets: Companies must set one or more emission reduction near-term targets and/or supplier or customer engagement targets that collectively cover(s) at least two-thirds (67%) of total reported and excluded scope 3 emissions considering the minimum boundary of each category in conformance with [the GHG Protocol Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#).

C7 – Scope 3 emissions coverage for long-term targets: The boundary of long-term science-based targets shall cover at least 90% of total scope 3 emissions. Exclusions in the GHG inventory and target boundary must not exceed 10% of total scope 3 emissions.

R2 – Targets covering optional scope 3 emissions: Targets to reduce scope 3 emissions that fall outside the minimum boundary of scope 3 categories are not required but are nevertheless encouraged when these emissions are significant. Companies may cover these emissions with a scope 3 target, but such targets cannot count towards the thresholds defined in C6 and C7 for scope 3 emissions (i.e., these targets are above and beyond the company’s scope 3 targets). For a definition of optional emissions for each scope 3 category, please see Table 5.4 (page 34) of [the Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#).

7.4.2 Method validity (near and long-term targets)

C8 – Method validity: Targets must be modeled using the latest version of methods and tools approved by the initiative. Targets modeled using previous versions of the tools or methods may only be submitted to the SBTi for validation within 6 months of the publication of the revised method or sector-specific tools.

¹⁷ Where a company’s scope 1 or 2 emissions are deemed immaterial (i.e., under 5% of total combined scope 1 and 2 emissions), companies may set their SBT solely on the scope (either scope 1 or scope 2) that covers more than 95% of the total scope 1 and 2 emissions. The company must continue to report on both scopes and adjust their targets as needed, according to the GHG Protocol’s principle of completeness, and as per C32 and C33.

¹⁸ The SBTi does not recognize emissions perceived to be “negligible” as a rationale for not reporting them. Even if emissions from certain activities or operations are perceived to be negligible, these emissions still must be quantified and reported in the reporting company’s GHG inventory. This is regardless of whether the reporting company chooses to exclude them or not, as exclusions must also be quantified and reported.

7.4.3 Emissions accounting requirements

C9 – Scope 2 accounting approach: Companies shall disclose whether they are using a location- or market-based accounting approach as per the [GHG Protocol Scope 2 Guidance](#) to calculate base year emissions and to track performance against a science-based target. The GHG Protocol requires measuring and reporting scope 2 emissions using both approaches. However, a single and consistent approach must be used for setting and tracking progress toward a SBT (e.g., using location-based approach for both target setting and progress tracking).

C10 – Scope 3 inventory: Companies must complete a scope 3 inventory covering gross scope 3 emissions for all its emissions sources according to the minimum boundary of each scope 3 category set out by the [GHG Protocol Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#).¹⁹

C11 – Bioenergy accounting: CO₂ emissions from the combustion, processing and distribution phase of bioenergy – as well as the land use emissions and removals²⁰ associated with bioenergy feedstocks – shall be reported alongside a company's GHG inventory. Furthermore, these emissions shall be included in the target boundary when setting a science-based target (in scopes 1, 2 and/or 3, as required) and when reporting progress against that target.

Land-related emissions accounting shall include CO₂ emissions from direct land use change (LUC) and non-LUC emissions, inclusive of N₂O and CH₄ emissions from land use management. Including emissions associated with indirect LUC is optional.

Companies are expected to adhere to any additional GHG Protocol Guidance on bioenergy accounting when released to maintain compliance with C11.

C12 – Carbon credits: The use of carbon credits must not be counted as emission reductions toward the progress of companies' near-term or long-term science-based targets. Carbon credits may only be considered as an option for neutralizing residual emissions (see C28) or to finance additional climate mitigation beyond their science-based emission reduction targets (see R9).

C13 – Avoided emissions: Avoided emissions fall under a separate accounting system from corporate inventories and do not count toward near-term or long-term science-based emission reduction targets.

R3 – Biofuel certification: The SBTi recommends that companies using or producing biofuels for transport should support their bioenergy GHG accounting with recognized biofuels certification(s) to disclose that the data on land-related emissions and removals represents the relevant biofuel feedstock production.

¹⁹ For a definition of the minimum boundaries of scope 3 categories and emissions sources that fall outside the minimum boundaries, see Table 5.4 (page 34) of the Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

²⁰ The positive impact of exceeding zero emissions due to biogenic removals shall not be accounted for in a company's target formulation or as progress towards SBTs. In addition, removals that are not directly associated with bioenergy feedstock production are not accepted to count as progress towards SBTs or to net emissions in a company's GHG inventory.

R4 – Bioenergy data reporting: The SBTi recommends that companies report direct biogenic CO₂ emissions and removals from bioenergy separately. Emissions and CO₂ removals associated with bioenergy shall be reported as net emissions, according to C11, as a minimum. However, companies are encouraged to report gross emissions and gross removals from bioenergy feedstocks.

7.5 Net-zero target formulation

7.5.1 Net-zero definition

C14 – State of net-zero emissions: Companies shall set one or more targets to reach a state of net-zero emissions, which involves: (a) reducing scope 1, 2 and 3 emissions to zero or a residual level consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C scenarios or sector pathways and (b) neutralizing any residual emissions at the net-zero target date – and any GHG emissions released into the atmosphere thereafter.

7.5.2 Structure

C15 – Net-zero target structure: Companies aiming to reach a state of net-zero emissions in a timeframe exceeding 10 years shall set both near-term and long-term science-based emission reduction targets according to the requirements and recommendations outlined in this standard. If a company's near-term target meets the ambition requirements of a long-term target, then the latter is not required.

7.5.3 Timeframe

C16 – Base year: The base year must be no earlier than 2015. The company shall use the same base year for its long-term science-based targets as its near-term SBTs.

C17 – Target year(s): Absolute and intensity-based emission reduction near-term targets must cover a minimum of 5 years and a maximum of 10 years from the date the target is submitted to the SBTi for validation.²¹ Long-term targets shall have a target year no later than 2050. For companies in sectors that reach net-zero before 2050 (e.g., power generation), long-term SBTs covering relevant activities must have a target year no later than the sector's year of net-zero in eligible 1.5°C pathways.

C18 – Progress to date: The minimum forward-looking ambition of near-term targets is consistent with reaching net-zero by 2050 at the latest, assuming a linear absolute reduction, linear intensity reduction, or intensity convergence between the most recent year and 2050 (not increasing absolute emissions or intensity).²²

²¹ For targets submitted for validation in the first half of 2023, valid target years are 2027-2032 inclusive. For targets submitted in the second half of 2023 (from 1 July), valid target years are between 2028 and 2033 inclusive.

²² Companies must provide all the relevant GHG inventory data including a most recent year GHG inventory even if business activities were impacted by the COVID-19 pandemic. For submissions in 2023, a recent year inventory must be provided that is no earlier than 2021 i.e., allowable most recent years are 2021 and 2022.

R5 – Consistency: It is recommended that companies use the same base years for all near-term targets.

7.5.4 Ambition

7.5.4.1 Scope 1 and 2 near- and long-term targets

C19 – Level of ambition for scope 1 and 2 targets: At a minimum, scope 1 and scope 2 targets must be consistent with the level of decarbonization required to keep global temperature increase to 1.5°C compared to pre-industrial temperatures. This applies to both near-term and long-term targets.

C20 – Absolute targets: Absolute reduction targets for scope 1 and scope 2 are eligible when they are at least as ambitious as the minimum of the approved range of emissions scenarios consistent with the 1.5°C goal or aligned with the relevant 1.5°C sector-specific absolute pathway (long-term targets only).

C21 – Intensity targets: Intensity targets for scope 1 and scope 2 emissions are eligible when they are modeled using an approved 1.5°C sector pathway applicable to companies' business activities.

7.5.4.2 Scope 3 near- and long-term targets

C22 – Level of ambition for scope 3 emissions reductions targets: At a minimum, near-term scope 3 targets (covering the entire value chain or individual scope 3 categories) must be aligned with methods consistent with the level of decarbonization required to keep global temperature increase well-below 2°C compared to pre-industrial temperatures. For long-term scope 3 targets, this minimum ambition is increased to 1.5°C.

C23 – Supplier or customer engagement targets: Near-term targets to drive the adoption of science-based emission reduction targets by their suppliers and/or customers are acceptable when the following conditions are met:

- **Boundary:** Companies may set engagement targets around relevant and credible upstream or downstream categories.
- **Formulation:** Companies shall provide information in the target language on what percentage of emissions from relevant upstream and/or downstream categories is covered by the engagement target or, if that information is not available, what percentage of annual procurement spend is covered by the target.²³
- **Timeframe:** Companies' engagement targets must be fulfilled within a maximum of 5 years from the date the company's target is submitted to the SBTi for validation.²⁴
- **Ambition level:** The company's suppliers/customers shall have science-based emission reduction targets in line with the latest version of the SBTi Criteria for Near-term Targets.

²³ If measuring coverage by spend, the company shall provide an estimate of the emissions coverage associated with that spend for validation purposes to demonstrate that criterion C23 has been met, by the supplier or customer target alone, or together with other scope 3 target(s).

²⁴ For targets submitted for validation in the first half of 2023, valid target years are up to 2027 inclusive. For those submitted in the second half (from 1 July) of 2023, valid target years are up to 2028 inclusive.

C24 – Absolute targets (scope 3): Absolute targets for scope 3 are eligible when they are at least as ambitious as the minimum of the approved range of emissions scenarios consistent with the well-below 2°C goal (near-term targets), the 1.5°C goal (long-term targets), or aligned with the relevant 1.5°C sector-specific absolute pathway (long-term targets only).

C25 – Intensity targets (scope 3): Intensity targets for scope 3 are eligible when they are modeled using an approved sector-specific physical intensity pathway where applicable to companies' business activities or using eligible physical intensity or economic intensity approaches. This applies to both near-term and long-term targets. Intensity targets on upstream scope 3 categories must reflect both supply-side and demand-side mitigation levers, where specified by sector-specific guidance.

R6 – Supplier engagement: Companies should recommend that their suppliers use the SBTi guidance and tools available to set science-based targets. SBTi validation of supplier science-based targets is recommended but not required. It is recommended that suppliers classified as SMEs, submit targets through the SME streamlined route.

7.5.4.3 Combined targets (near and long-term targets)

C26 – Combined scope targets: Targets combining scopes (e.g., 1 and 2, or 1, 2 and 3) are permitted if the SBTi can review the ambition of the individual target components and confirm each meets the relevant ambition criteria.

7.5.4.4 Renewable electricity targets (near and long-term targets)

C27 – Renewable electricity (scope 2 only): Targets to actively source renewable electricity at a rate consistent with 1.5°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 electricity over total electricity use) for this approach, in line with the recommendations of RE100.²⁵ Companies that already source electricity at or above these thresholds shall maintain or increase their use of renewable electricity to qualify.

R7 – Purchased heat and steam: When modeling targets using the SDA, it companies should model purchased heat and steam related emissions as if they were part of their direct emissions, i.e., scope 1.

R8 – Efficiency considerations for target modeling: If companies are using a method that does not already embed efficiency gains for the specific sector, market – and the decarbonization projected for the power sector is based on a 1.5°C scenario – these factors should be considered when modeling electricity-related scope 2 targets.

²⁵ [RE100 guidance](#) states that setting a 100% renewable electricity target by 2030 at the latest shows a strong level of leadership.

7.5.5 Beyond value chain mitigation

R9 – Beyond value chain climate mitigation: Companies should take action or make investments outside their own value chains to mitigate GHG emissions in addition to their near-term and long-term science-based targets. For example, a company could provide annual support to projects, programs and solutions providing quantifiable benefits to climate, especially those that generate additional co-benefits for people and nature. Companies should report annually on the nature and scale of those actions, pending further guidance.

7.5.6 Neutralization

C28 – Neutralization of unabated emissions to reach net-zero: Companies shall remove carbon from the atmosphere and permanently store it to counterbalance the impact of any unabated emissions that remain once companies have achieved their long-term science-based target, and for subsequent years thereafter. The neutralization of unabated emissions applies to both the emissions reduction target(s) boundary and to any unabated emissions that have been excluded from the GHG inventory.

R10 – Neutralization milestones: Companies should disclose information such as planned milestones and near-term investments that demonstrate the integrity of commitments to neutralize unabated emissions at net-zero.

7.5.7 Target formulation

C29 – Target formulation: Companies shall publicly set a net-zero target that clearly and transparently communicates each of the target's relevant components including (a) net-zero target year, (b) magnitude of emissions reductions that will be achieved for near-term and long-term SBTs, and (c) a base year.

7.6 Reporting, recalculation and target validity

7.6.1 Reporting

C30 – Frequency: The company shall publicly report its company-wide GHG emissions inventory and progress against published targets on an annual basis.

C31 – Reporting completeness: Companies shall publicly report information pertaining to progress against validated targets, including separately reporting emissions and removals in the annual GHG inventory.

R11 – Where to disclose: There are no specific requirements regarding where the inventory and progress against published targets should be disclosed, as long as it is publicly available. The SBTi recommends disclosure through standardized, comparable data platforms such as CDP's climate change annual questionnaire. Annual reports, sustainability reports and the company's website are also acceptable platforms.

7.6.2 Recalculation and target validity

C32 – Mandatory target recalculation: To ensure consistency with the most recent climate science and best practices, targets must be reviewed, and if necessary, recalculated and revalidated, at a minimum every 5 years. For companies with targets approved in 2020 or earlier, targets must be reviewed and revalidated by 2025, if necessary. Companies with an approved target that requires recalculation must follow the most recent applicable criteria at the time of resubmission. A company's base year emissions recalculation policy must include a significance threshold of 5% or less that is applied to emission recalculations or in the absence of a base year emissions recalculation policy, a company must agree to apply a 5% significance threshold for emission recalculations.

C33 – Triggered target recalculation: Targets shall be recalculated, as needed, to reflect significant changes that could compromise relevance and consistency of the existing target. The following changes shall trigger a target recalculation:

- Scope 3 emissions become 40% or more of aggregated scope 1, 2 and 3 emissions (applies only to near-term SBTs).
- Emissions of exclusions in the inventory or target boundary change significantly.
- Significant changes in company structure and activities (e.g., acquisition, divestiture, merger, insourcing or outsourcing, shifts in goods or service offerings).
- Significant adjustments to the base year inventory, data sources or calculation methodologies, or changes in data to set targets such as growth projections (e.g., discovery of significant errors or a number of cumulative errors that are collectively significant).
- Other significant changes to projections/assumptions used in setting the science-based targets.

C34 – Target validity: Companies with approved targets must announce their target publicly on the SBTi website within 6 months of the approval date. Targets unannounced after 6 months must go through the approval process again unless a different publication time frame has been agreed in writing with the SBTi.

R12 – Validity of target projections: The SBTi recommends companies check the validity of their target-related projections on an annual basis. The company should notify the SBTi of any significant changes and report these major changes publicly, as relevant.

7.7 Sector-specific guidance

C35 – Requirements from sector-specific guidance: Companies must follow requirements for target setting and minimum ambition levels as indicated in relevant sector-specific methods and guidance – at the latest, 6 months after sector guidance publication. A list of the sector-specific guidance and requirements is available below in Table 9 and in the [Target Validation Protocol for Near-term Targets](#).

7.7.1 Fossil fuel sales, distribution, and other business

C36 – Companies in the fossil fuel production business, or with significant revenue from fossil fuel business lines: The SBTi will not currently validate targets for:

- Companies with any level of direct involvement in exploration, extraction, mining and/or production of oil, natural gas, coal or other fossil fuels, irrespective of percentage revenue generated by these activities.
- Companies that derive 50% or more of their revenue from the sale, transmission and distribution of fossil fuels, or by providing equipment or services to fossil fuel companies.
- Companies with more than 5% revenue from fossil fuel assets (e.g., coal mine, lignite mine, etc.) for extraction activities with commercial purposes.

These companies must follow the respective sector methodology, once published.

C37 – Sale, transmission, distribution of oil, natural gas, coal as well as other fossil fuels: Companies that sell, transmit, or distribute natural gas – or other fossil fuel products – shall set emission reduction scope 3 targets for the “use of sold products” category, that are at a minimum consistent with the level of decarbonization required to keep global temperature increase to 1.5°C compared to pre-industrial temperatures, irrespective of the share of these emissions compared to the total scope 1, 2, and 3 emissions of the company, company's sector classification, or whether fossil fuel sale/distribution is the company's primary business. Customer engagement targets are not eligible for this criterion.

8. SECTOR GUIDANCE FOR LONG-TERM SCIENCE-BASED TARGETS

Sector-specific guidance and methods are currently available for many sectors. All new sector-specific guidance that becomes available will be uploaded to the sector development page on the SBTi website. The SBTi has sector-specific requirements related to the use of target-setting methodologies and minimum ambition levels.

Table 9 Sector-specific guidance for long-term SBTs.

Sector	Eligible methods	Guidance and further notes
Aluminium	When setting long-term SBTs, companies can set targets using the cross-sector pathway (absolute reduction targets only).	Guidance is being developed for the aluminium sector and is currently in the scoping phase.
Apparel and footwear	When setting long-term SBTs, companies in these sectors must use the cross-sector pathway (absolute reduction targets only).	Optional guidance is available for companies in the apparel and footwear sector.
Aviation	When setting long-term SBTs, companies providing air transport services are recommended to set physical intensity targets using the aviation pathway or cross-sector pathway (absolute targets only). The target boundary must cover well-to-wake emissions (WTW), as specified in the SBTi Aviation Guidance.	For all transport-related emissions across all sectors, companies shall report these emissions on a well-to-wheel (WTW) basis in their GHG inventory (well-to-wake for aviation and maritime transport). Aviation target formulation and communication must explicitly state that targets are exclusive of non-CO ₂ factors. Targets must include a footnote stating that non-CO ₂ factors which may also contribute to aviation-induced warming are not included in this target and whether the company has publicly reported or commits to publicly report its non-CO ₂ impacts.
Buildings	When setting long-term SBTs, companies in these sectors are recommended to set absolute reduction targets or intensity targets using the residential buildings pathway, service buildings pathway, or cross-sector pathway (absolute targets only).	Real Estate Investment Trusts (REITs) wishing to set targets must specify if they are a mortgage-based or equity-based REIT. Equity REITs must pursue the regular target validation route for companies. Mortgage REITs must instead utilize the Financial Institutions guidance for setting SBTs. The SBTi is developing guidance for companies operating in the built environment.

<p>Cement</p>	<p>When setting long-term SBTs, companies are recommended to set absolute targets or intensity targets using the cement pathway, or cross-sector pathway (absolute targets only).</p>	<p>The SBTi has released guidance to aid companies in the cement industry in setting science-based targets.</p>
<p>Chemicals</p>	<p>See “all other sectors”.</p>	<p>The SBTi is developing guidance for companies in the chemicals sector.</p>
<p>Financial institutions</p>	<p>The SBTi is developing a Net-Zero Standard for financial institutions and cannot validate net-zero targets for this sector before the guidance is completed.</p> <p>Please note that financial institutions can still set near-term science-based targets.</p>	<p>The initiative defines a financial institution as one engaging in investment activities as part of its core functions. These include the following:</p> <ul style="list-style-type: none"> • Asset management/asset owners; • Retail and commercial banking activities; • Insurance companies (when functioning asset managers); and • Mortgage REITs. <p>Additionally, if at least 5% of a company’s revenue comes from activities such as those described above, they would be considered a financial institution.</p>
<p>Forest, land-use & agriculture (FLAG)</p>	<p>Companies with significant FLAG emissions are required to set targets (see criteria in the next table column). These are separate from their SBTs that cover all non-FLAG emissions. FLAG targets must use the FLAG-sector pathway (absolute targets) or a commodity pathway (intensity targets).</p> <p>Commodity pathways are available for 11 commodities: beef, chicken, dairy, leather, maize, palm oil, pork, rice, soy, wheat, and timber and wood fiber. Companies in the forest products sector are required to use the commodity pathway for timber and wood fiber.</p> <p>The FLAG target must cover at least 95% of FLAG-related scope 1 and 2 emissions. The FLAG target must cover at least 67% of FLAG-related scope 3 emissions. Please see the FLAG Guidance for further guidance and criteria.</p>	<p>The following companies are required to set FLAG targets:</p> <p>1.) Companies with FLAG emissions that total 20% or more of overall emissions across scopes; and</p> <p>2.) Companies in the following sectors:</p> <ul style="list-style-type: none"> • Forest and Paper Products– Forestry, Timber, Pulp and Paper, Rubber. • Food Production– Agricultural Production. • Food Production– Animal Source. • Food and Beverage Processing. • Food and Staples Retailing. • Tobacco. <p>Please see the FLAG Guidance.</p>

<p>Fossil fuel sale/ transmission/ distribution²⁶</p>	<p>In addition to the guidance for the primary sector, companies must set targets for scope 3 category 11, irrespective of the share of these emissions compared to the total scope 1, 2 and 3 emissions of the company. Separate scope 3 targets may need to be set in this case.</p>	<p>This is applicable to companies that derive less than 50% of revenue from the sale, transmission and distribution of fossil fuels.</p>
<p>Information and communication technology providers</p>	<p>When setting long-term SBTs, companies in these sectors must use the cross-sector pathway (absolute reduction targets only).</p>	<p>The optional guidance for ICT companies including mobile networks operators, fixed networks operators, and data centers operators outlines in detail the target setting requirements for setting near-term science-based targets.</p>
<p>Iron and steel</p>	<p>When setting long-term SBTs, companies in these sectors can set targets using the cross-sector pathway (absolute reduction targets) or using the long-term sector intensity pathway (intensity targets).</p>	<p>The SBTi is developing guidance for companies in the steel sector.</p>
<p>Maritime Transport</p>	<p>Companies in Maritime Transport must use the sector-specific pathway.</p> <p>Near-term targets can be no earlier than 2030.</p> <p>All companies setting near-term science-based targets covering emissions from own operations (e.g., vessel owners or operators) shall also submit long-term science-based targets along with their near-term target submission. For maritime transport emissions, a long-term science-based target means reducing emissions to a residual level in line with 1.5°C scenarios by no later than 2040.</p>	<p>On the transport sector page, you will find the Maritime Transport Guidance and the Maritime Transport Target Setting Tool.</p> <p>Please note that companies using this guidance to set near-term science-based targets covering scope 3 emissions from subcontracted maritime transport operations (e.g., cargo owners or shippers) are not required to submit long-term science-based targets.</p> <p>For all transport-related emissions across all sectors, companies shall report these emissions on a well-to-Wheel (WTW) basis in their GHG inventory (well-to-wake for aviation and maritime transport).</p>
<p>Oil and gas</p>	<p>The SBTi is developing a new methodology for companies in the oil and gas sector to set science-based targets. Currently, the SBTi is unable to accept commitments or validate targets for companies in the oil and gas or fossil fuels sectors. Please see our policy for further information.</p>	<p>Companies in this sector include – but are not limited to – integrated oil and gas companies, integrated gas companies, exploration and production pure players, refining and marketing pure players, oil products distributors, gas distributors and retailers and traditional oil and gas service companies. Please see the Oil</p>

²⁶ This information is only applicable to companies that receive less than 50% of their revenue from fossil fuel sale, transmission, or distribution. For companies receiving 50% or more of their revenue from these activities, please refer to the Oil and Gas section above.

		and Gas sector page on our website for more information.
Power generation	The intensity convergence method must be used by power generation companies, as specified in the Guidance for Electric Utilities. For power sector companies, long-term science-based targets must reduce emissions to a residual level in line with 1.5°C scenarios by no later than 2040 using the Sectoral Decarbonization Approach.	Please see the Power/Electric utilities Guidance . Companies in the power sector with scope 3 emissions representing 40% or more of overall emissions must set an intensity target covering all sold electricity (including purchased and resold electricity in scope 3, category 3), as well as a target covering power generation in scope 1. Companies in this sector must set targets to reach net-zero no later than 2040.
Pulp and paper	When setting long-term SBTs, companies can set targets using the cross-sector pathway (absolute reduction targets only).	Guidance is being developed for the pulp and paper sector and is currently in the scoping phase.
Road and rail	Road and rail transport can follow the cross-sector pathway (absolute reduction targets), no sector intensity pathway is available.	Target setting guidance will be updated along with sector trajectory but you can view the transport sector guidance here . For all transport-related emissions across all sectors, companies shall report these emissions on a well-to-wheel (WTW) basis in their GHG inventory (well-to-wake for aviation and maritime transport).
Transport OEMs/Automakers	The SBTi is temporarily pausing near- and long-term target validations and target updates for automakers until 1.5°C scope 3 targets for use-phase emissions from new road vehicles are developed and approved. Please see our policy for further information.	This applies to automakers. Auto part manufacturers can still set targets using the cross-sector absolute reduction.
All other sectors	When setting long-term SBTs, companies in all other sectors are recommended to set absolute reduction targets using the cross-sector pathway. Sector-specific absolute or intensity targets may be used instead for emissions allocated to a relevant sector.	Companies should allocate emissions to relevant activities as per the Greenhouse Gas Protocol, where guidance is available. Emissions in scopes 1, 2, or 3 allocated to activities with a sector-specific pathway may be covered by a sector-specific absolute or intensity target, except for upstream scope 3 categories where supply-side mitigation is important and not reflected by the pathway.

9. ACKNOWLEDGEMENTS

Primary authors

- Emma Watson, CDP
- Andres Chang, CDP
- Alberto Carrillo Pineda, CDP
- Christa Anderson, WWF
- Cynthia Cummis, WRI
- Martha Stevenson, WWF

Editorial contributions and review

- Brad Schallert, WWF
- Heidi Huusko, UN Global Compact
- Maxine Meixner, CDP
- Méabh Byrne, CDP
- Paola Delgado, WWF
- Paulina Tarrant, CDP
- Rebekah Hughes, Earthbound Consulting
- Rosie Williams, CDP
- Sarah Savage, CDP
- Tereza Bicalho, WWF

Net-Zero Working Group

- Alberto Carrillo Pineda, CDP
- Alexander Farsan
- Andres Chang, CDP
- Brad Schallert, WWF
- Chris Weber
- Christa Anderson, WWF
- Cynthia Cummis, WRI
- Daniela Castellanos, WWF
- Emma Watson, CDP
- Fernando Rangel Villasana, WWF
- Martha Stevenson, WWF
- McKenna Smith, WWF
- Miranda (Burnham) Nayyar, CDP
- Nate Aden, WRI
- Paola Delgado, WWF
- Paulina Tarrant, CDP
- Pedro Faria, CDP
- Rebecca Wynn
- Rosie Williams, CDP
- Tatiana Boldyreva, CDP
- Tom Dowdall, CDP
- Zola Berger-Schmitz, WRI
- Zniko Nhlapho, WWF

Expert Advisory Group

The following individuals provided expert feedback and direction on guidance development. They did so in a personal capacity, and their views did not necessarily represent the views of their employers.

- Alexia Kelly, Netflix
- Ankita Kumari, Survival International
- Anthony Hobbey, WEF

- Candace Vinke, Verra
- Carsten Warnecke, New Climate Institute
- Chris Bayliss, Aluminum Stewardship Initiative
- Cynthia McHale, Climate Action 100+
- Daniel Salter, Amazon
- Dean Cambridge
- Derik Broekhoff, Stockholm Environment Institute
- Doreen Stabinsky, College of the Atlantic
- Emily Hickson, The B Team
- Erwan Saouter
- Eveline Speelman, Energy Transitions Commission
- Faustine Delasalle, Energy Transitions Commission
- Frances Seymour, WRI
- Gary Cook, Stand.Earth
- Gilles Dufrasne, Carbon Market Watch
- Giulio Berruti, BSR
- Helen Wiggs Marshall, ShareAction
- Jen Austin, UN High-Level Champions
- Jessica Andrews, Net Zero Asset Owners Alliance
- John Reves, WBCSD
- Karol Gobczynski, IKEA
- Luca de Giovanetti, WBCSD
- Michael Hugman, Children's Investment Fund Foundation (CIFF)
- Mischa Reppman, Swiss Re
- Nafkote Dabi, Oxfam
- Owen Hewlett, Gold Standard
- Pedro Martins Barata, Environmental Defense Fund
- Ramiro Fernández, High-Level Champions/ Fundación Avina
- Rasmus Valanko, We Mean Business
- Richard Batten, JLL
- Robert Höglund
- Roy Vissers, DSM
- Salla Sulasuo, DSM
- Sam Van den plas, Carbon Market Watch
- Stephan Singer, Climate Action Network
- Thomas Lingard, Unilever
- Tom Hale, Oxford University
- Valentina Lira, Viña Concha y Toro

External support

- Emilie Wesseling, SYSTEMIQ
- Scarlett Benson, SYSTEMIQ

The SBTi would also like to thank BCG for support during the road testing phase of the project.

Company road testers

The following organizations provided valuable feedback on the robustness and practicality of the draft Net-Zero Standard through the road test during July and August 2021.

- AB InBev
- A.P. Møller-Mærsk
- ABOUT YOU AG & Co. KG
- ACCIONA Energía
- ACCIONA S.A.
- AstraZeneca
- Baluarte Cultura
- Bayer AG
- Bloomberg LP
- BMW Group
- Bonava
- Boston Consulting Group
- Capgemini SE
- CBRE
- Colgate-Palmolive Company
- Companhia Brasileira de Alumínio
- Co-op
- CVS Health
- Danone
- Dentsu International
- Deutsche Telekom AG
- DSM
- easyJet
- EDF Group
- EDP Energias de Portugal
- Elopak
- Emira Property Fund
- Enel S.p.A.
- Ferrovial
- FLSmidth A/S
- Givaudan
- Globant
- Guidehouse
- HEINEKEN Company
- Holcim Ltd.
- Informa
- International Consolidated Airlines Group S.A. (IAG)
- Jacobs
- JLL
- Kesko Corporation
- Lenovo
- Magyar Telekom Plc.
- Mahindra Lifespace Developers Ltd.
- Mars, Incorporated
- McCain Foods
- Moody's
- Multiplex Construction Europe
- Ørsted
- Outokumpu Oy
- PepsiCo
- Pfizer Inc.
- Pilgrim's UK
- Ralph Lauren Corporation
- Rolls-Royce plc
- Slaughter and May
- Sodexo
- Sopra Steria Group
- Starbucks
- Swire Properties Limited
- Swiss Re
- Telenor ASA
- Transurban
- Tubacex
- Unilever
- Veritas Technologies
- Volkswagen
- WayCarbon
- Wipro Ltd
- Worley
- WSP Global Inc.

SBTi funders

The SBTi is grateful to the organizations and companies who provide funding to support our mission.

Core funding for the Science Based Targets initiative is provided by IKEA Foundation, Bezos Earth Fund, We Mean Business, The Rockefeller Brothers Fund, The UPS Foundation and Amazon.

Public consultation participants

We would also like to thank everyone who participated in the two public consultations survey which helped strengthen this Standard.