SCIENCE BASED TARGETS

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Net-Zero Criteria Draft for Public Consultation

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DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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Introduction

According to the 2018 report by the Intergovernmental Panel on Climate Change (IPCC), to limit global warming to 1.5°C above pre-industrial levels and avoid the most catastrophic impacts of climate change, the world must halve CO2 emissions by 2030 and reach net-zero CO2 emissions by 2050 (IPCC, 2018, p. 14). Moreover, to reach a state in which human-caused greenhouse gas (GHG) emissions no longer contribute to global warming means preventing the accumulation of *all* GHGs in the atmosphere, which the Paris Agreement calls to achieve in the second half of the century (*Paris Agreement*, 2015, p. 4).

Recognizing the importance of keeping global warming to 1.5°C, companies are increasingly adopting net-zero climate targets. While the growing interest in net-zero targets represents an unparalleled opportunity to drive corporate climate action, it also creates the pressing need for a common understanding of "net-zero," as existing targets vary widely in boundaries, definitions, timeframes, and mitigation strategies used. To avoid confusion and inconsistent claims that potentially undermine the credibility and impact of corporate net-zero targets, a science-based framework is needed to translate the growing momentum behind net-zero targets into action consistent with achieving climate stabilization.

To address this need, the SBTi is undertaking an inclusive, stakeholder-informed process to develop the Net-Zero Standard, which will enable companies to set robust and credible net-zero targets in line with a 1.5°C future. The Standard will include a set of criteria for net-zero targets, allowing companies to have their net-zero targets validated by the SBTi, as well as user friendly guidance for net-zero target-setting.

This document provides the first draft of criteria for net-zero targets, a significant milestone following the SBTi's publication of Foundations for Net-Zero Target-setting in the Corporate Sector in September 2020. This document has been produced with input from an Expert Advisory Group consisting of scientific experts, academics, company representatives and civil society groups. Due to the growing importance of and interest in corporate net-zero target-setting, this document is now open for public consultation and input until February 26, 2021. We encourage all interested parties to review this document and provide input via the feedback survey. The full Net-Zero Standard will be finalized in late 2021.

Business Ambition for 1.5°C

As of January 2021, more than 375 companies have committed to do their share through the SBTi Business Ambition for 1.5°C campaign and are counted among the global leaders supporting the transition to a net-zero future through the Race to Zero campaign of the UNFCCC leading up to COP26 later this year. We encourage you to join them by signing the SBTi Business Ambition for 1.5°C commitment letter and commit to science-based net-zero emissions targets by 2050 with interim science-based targets (SBTs).

About the criteria

Overview

The SBTi's Net-Zero Criteria aim to ensure that corporate net-zero targets, which are commitments to reach a state of no impact on the climate from greenhouse gas (GHG) emissions, are consistent and robust. Guided by science, these criteria provide a definition of what is needed for companies to set science-based net-zero targets that are aligned with the ambition of the Paris Agreement. As explained in detail in *Foundations for Science-based Net-Zero Target Setting in the Corporate Sector*, this objective implies two conditions:

1. Achieving a scale of value chain emissions reductions consistent with the depth of abatement in pathways that limit warming to 1.5°C with no or low overshoot and;
2. Neutralising the impact of any source of residual emissions that is unfeasible to eliminate by permanently removing an equivalent volume of atmospheric CO2.[1]

Both these conditions – deep decarbonisation and neutralisation of residual emissions with permanent carbon removal – need to be met by science-based net-zero targets and are addressed by the criteria. Net-zero targets also must include a target year by when a company plans to achieve its target.

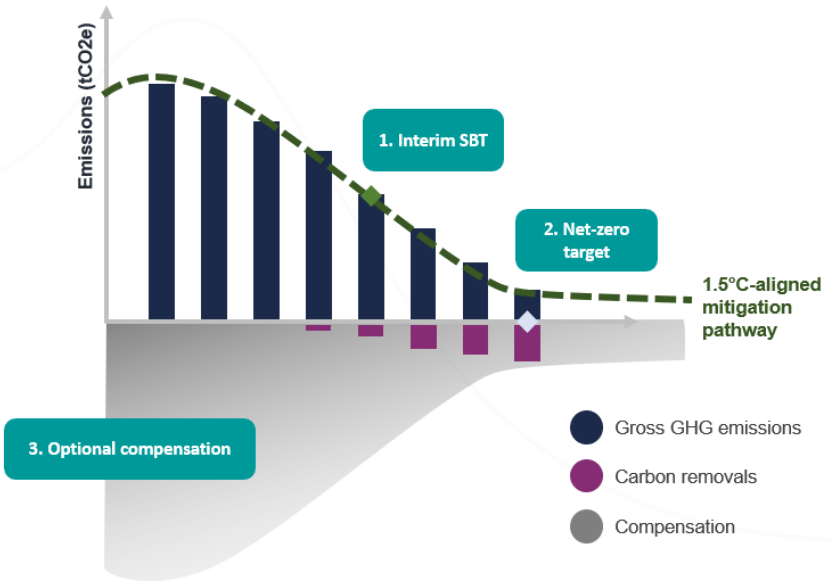
Pathways that limit warming to 1.5°C with no or low overshoot require rapid transformative climate action in all sectors, consistent with reducing global emissions by about half by 2030 (United Nations Environment Programme, 2020, p. 10). From an emissions budget perspective, near-term reductions are crucial. Accordingly, when companies set net-zero targets with a target year more than 10 or 15 years from the target-setting date, interim science-based targets (SBTs) are also required. These targets provide accountability by indicating clear milestones during a company's transition to net-zero. Throughout this document, the term "SBT" refers specifically to 5-15 year emissions reduction targets.

Once they have met the criteria to set net-zero targets, companies are encouraged to compensate for unabated value chain emissions during their transition to net-zero. The SBTi follows a broad mitigation hierarchy approach whereby companies are required to reduce their

[1] Residual emissions are emissions sources that remain unabated by the time net-zero is reached in 1.5C mitigation pathways with low or no overshoot (*Foundations for Science-based Net-zero Target Setting*, pp. 7, 32-34). The SBTi is exploring a range of approaches for determining residual emissions globally, by sector, and by activity, which will be included in the public consultation of Net-Zero Guidance

own emissions before engaging in neutralisation activities and subsequent compensation (Ekstrom et al., 2015). A set of optional and additional recommendations are included for companies seeking to compensate for unabated emissions by committing to provide financial support to projects, programs, and solutions with quantifiable benefits to climate, people, and nature. In this document, the term compensation refers to a companies' actions or investments that mitigate GHG emissions beyond those covered by their SBTs and net-zero targets. It may include actions such as purchasing high-quality carbon credits and providing direct financial support to projects that generate positive impact outside a company's value chain.

Figure 0.1. Graphical representation of a net-zero target, interim SBT, and optional compensation



Criteria organization

The criteria are organized in four chapters. The first chapter, *General Criteria,* lays out the overarching timeframe requirements (I. Net-Zero Target Timeframe and Milestones) and criteria that ensure companies account for all relevant emissions and removals following the Greenhouse Gas Protocol (II. Greenhouse Gas Inventory). The second chapter, *Net-zero Target Criteria*, addresses "how much" value chain emissions need to be reduced (III. Emissions Abatement: Ambition), how companies may define the boundary of emissions abatement in a net-zero target (IV. Emissions Abatement: Target Boundary), and criteria for neutralising

unabated emissions with carbon removals (V. Neutralisation). The third chapter, *Interim Target Criteria,* lays out the requirement for companies with a net-zero target more than 10 or 15 years from the date of submission to also have interim SBTs covering a shorter timeframe (VI. Interim Science-based Targets). The final chapter, *Communication, Claims, and Validity,* specifies official target wording that must be publicly available and reporting requirements (VII. Target Formulation and Reporting) and conditions that trigger a mandatory target recalculation (VIII. Target Validity and Recalculation).

The appendix *Optional Compensation* includes recommendations for companies to conduct supplementary compensation by providing financial support to projects, programs, and solutions with quantifiable benefits to climate, people, and nature (IX. Compensation Actions).

Documents in the Net-Zero Standard and key supporting work

The Net-Zero Criteria are part of the SBTi's Net-Zero Standard. The Net-Zero Standard, which entails both the Criteria and forthcoming Net-Zero Guidance, will be finalized by November 2021 in advance of the 2021 United Nations Climate Change Conference (COP26). Public consultation of the Net-Zero Guidance is scheduled to begin in July 2021. These documents cover corporate net-zero targets and do not cover financial institution net-zero targets. The SBTi's financial sector project is expected to develop separate net-zero resources for financial institutions.

Table 0.1 describes how content is divided between the Net-Zero Criteria and the forthcoming Net-Zero Guidance. Table 0.2 highlights key documents and projects that are separate from the Net-Zero Standard but contain important linkages.

Table 0.1. Description of the Net-Zero Criteria and Net-Zero Guidance

Document	Description
Net-Zero Criteria	This document contains the criteria that need to be met for Net-Zero targets to be validated by the Science Based Targets initiative. Some criteria are assessed relative to climate change mitigation scenarios, which are regularly updated by the scientific community (e.g., emissions must be abated by an amount consistent with global net-zero in scenarios that limit warming to 1.5°C). Although target-setting criteria remain fixed, specific quantitative benchmarks and target-setting methods evolve with science and are outside the scope of the criteria. In Section V (Neutralisation) and Section IX (Compensation Actions), there are criteria that require companies to demonstrate that a principle is met without specifying precisely what mechanisms are considered eligible (e.g., "carbon removal activities must have mechanisms in place to address the impact of potential non-permanence") . The wording of these criteria is meant to accommodate standards, services, and instruments that are still under

	development or to demonstrate that the principle can be met in a variety of ways that have not yet been compiled in a list. This information is planned for inclusion in the Net-Zero Guidance.
Net-Zero Guidance (forthcoming)	As a compliment to the Net-Zero Criteria, the Guidance will support companies with the formulation and implementation of net-zero targets. The Guidance will include a user-friendly description of target-setting methods and quantitative benchmarks reflecting the most recent science, as well as an explanation of how to develop targets using the Target Setting Tool It will also establish a list of options that are eligible to meet criteria where intermediate standards, services, or instruments are used by companies (e.g., carbon credits).

Table 0.2. Description of key work that is separate from the Net-Zero Standard

Item	Developer	Description
Target Setting Tool	SBTi	Companies use the Science-based Target Setting Tool to model SBTs that are aligned with SBTi Criteria and approved methods. A separate or updated tool will be published to enable companies to set eligible net-zero targets.
SBTi Criteria	SBTi	Many companies will need to set interim SBTs that meet the current SBTi Criteria to be eligible to have a net-zero target validated by the SBTi.
GHG Protocol Corporate Standard	GHG Protocol	Companies must have emissions inventories that are aligned with the GHG Protocol Corporate Standard, which contains internationally accepted guidance on corporate GHG accounting.
GHG Protocol Land Sector and Removals Initiative	GHG Protocol	This project is developing internationally accepted guidance on carbon removal accounting, bioenergy accounting, and topics related to land-use emissions. The SBTi's Net-Zero Standard will require companies to report carbon removals consistent with this forthcoming guidance. Because the draft GHG

		Protocol guidance is not scheduled for publication until Q3 2021, refinements to the SBTi's Net-Zero Standard may be needed at a future date to ensure as much synchronisation as possible.

How to read this document and submit feedback

This document includes supporting text and examples to help readers understand the practical implications and rationale of draft criteria. Each section begins with an overview. Next, the draft criteria are presented in table form with a column used to provide additional context for the public consultation. Criteria highlighted yellow are linked to consultation questions, which are included at the end of each section to check for agreement with the draft text of specific criteria or to collect feedback on 2-3 versions of draft text under consideration. An example is shown by Table 0.3. Several text boxes are also included to provide a detailed explanation of key topics.

Feedback to consultation questions should be submitted through the feedback survey.

Table 0.3. Example table of draft criteria and description

Criteria *This column used for draft criteria text*	Description *This column provides additional context for public consultation (not intended for final criteria)*
NZ-C. Example of criterion where **feedback is not requested** *Draft criteria text*	Description of NZ-C with practical examples and supporting information if needed
NZ-C. Example of criterion where **feedback is requested** on proposed text *Draft criteria text*	Description of NZ-C with practical examples and supporting information if needed
NZ-C. Example of criterion where 2-3 **options are provided for feedback** **Version A.** *Draft criteria text A* **Version B.** *Draft criteria text B*	Description of NZ-C with practical examples, a comparison of proposed versions, and supporting information if needed

GENERAL CRITERIA

I. Net-Zero Target Timeframe and Milestones

The scientific community has stated the need to halve CO2 emissions by 2030 and reach net-zero global CO2 emissions by mid-century in order to limit global warming to 1.5°C (IPCC, 2018, p. 14). Paired with the need for deep reductions in non-CO2 emissions, companies demonstrating climate leadership should aim to achieve net-zero GHG emissions at a similar timeframe or sooner.

This section specifies a range of eligible base years and target years for net-zero targets and interim SBTs. Feedback is requested on whether interim SBTs should have a maximum target year 10 or 15 years from the date of submission. Criteria in this section also require companies with a net-zero target year later than the maximum target year for interim SBTs to set SBTs covering an interim timeframe.

Table 1.1. Net-Zero Target Timeframe and Milestones draft criteria and description

Criteria	Description
NZ-C1. Net-zero target year *Net-zero targets shall have a target year no later than 2050.*	This criterion requires net-zero targets to be set for a target year no later than 2050.
NZ-C2. Interim target year **Version A.** *If the net-zero target year is more than 15 years from the date of submission, companies shall have an SBT with a target year 5-15 years from the date of submission.* **Version B.** *If the net-zero target year is more than 10 years from the date of submission, companies shall have an SBT with a target year 5-10 years from the date of submission.*	This criterion requires companies to set interim SBTs if the net-zero target year is later than the maximum eligible target year for interim SBTs. Currently, SBTs can have a target year 5-15 years from the date of submission; however, the SBTi is considering changing the maximum target year for SBTs to 10 years from the date of submission. This change would also be reflected by the target wording of NZ-C2, as shown by Versions A and B, respectively. From an accountability perspective, Version A is more stringent than Version B because it requires companies to set SBTs that achieve emissions reductions by an earlier year; however, Version B may enable SBTs to capture significant capital investments

	in assets whose lifecycle is not well represented by a 5-10 year timeframe.
NZ-C3. Base year(s) *Net-zero targets and SBTs shall use the same base year, which must be no earlier than 2015 or the same as a company's SBT base year.*	This criterion requires the same choice of base year for net-zero targets and interim SBTs, which is beneficial for consistency and transparency. Base years are used to calculate the ambition of most types of targets and to track progress against all targets. To meet this criterion, companies may choose between two options: 1. Select a base year that is no earlier than 2015; 2. Use the same base year as the company's SBT. The second option does not explicitly limit a company's choice of base year because the current SBTi Criteria recommend, but does not require, companies to choose "the most recent year for which data are available as the target base year" (R3). However, the SBTi Criteria require both the "timeframe ambition" (i.e. base year to target year) and "forward-looking ambition" (i.e. most recent year to target year) of SBTs to be at least well-below 2°C-aligned, which makes it hard for companies to use base years that are not recent. More than 90% of approved SBTs submitted in 2019 or 2020 use a base year that is no less recent than 2015.

Consultation questions

1. Based on NZ-C2, companies will be required to set interim SBTs if the net-zero target year is later than the maximum eligible target year for SBTs. Currently, SBTs can have a target year 5-15 years from the date of submission; however, the SBTi is considering changing the maximum target year for SBTs to 10 years from the date of submission. If the SBTi makes this change, *Version B* of NZ-C2 will be used; and if the SBTi continues to allow 5-15 year SBTs, *Version A* will be used.

   Do you have a preference for Version A or Version B? Please explain.[2]

[2] If relevant, changes to the SBTi Criteria will be incorporated in 2022.

II. Greenhouse Gas Inventory

This section requires all companies to complete a comprehensive emissions inventory in conformance with the Greenhouse Gas (GHG) Protocol accounting standards. To meet the criteria in this section, companies must disclose emissions from owned and controlled operations and purchased electricity (scopes 1 and 2), as well as upstream and downstream emissions (scope 3). Carbon removals accounting, if relevant, must also comply with the GHG Protocol's forthcoming standard and guidance on carbon removals. Except for minor clarifications and NZ-C10 (Scope 1 and 3 carbon removals accounting), criteria in this section have been copied from the current SBTi Criteria and no feedback is requested.

Table 2.1. Greenhouse Gas Inventory draft criteria

Criteria
NZ-C4. Greenhouse gases *The emissions inventory must cover all relevant GHGs as required per the GHG Protocol Corporate Standard.*
NZ-C5. Scope 1 and 2 significance thresholds *Companies may exclude up to 5% of scope 1 and scope 2 emissions combined in the boundary of the emissions inventory or target.*
NZ-C6. Location or market-based scope 2 accounting *Companies shall disclose whether they are using a location- or market-based approach to calculate base year emissions inventories and to track progress against a target. It is recommended that companies report scope 2 emissions in both approaches. However, a single and consistent approach shall be used for setting and tracking progress toward a target.*
NZ-C7. Requirement to have a complete scope 3 emissions screening or inventory *Companies must complete a scope 3 screening or inventory for all relevant scope 3 categories considering the minimum boundary of each category per the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.*[3]

[3] For information on the minimum boundary of each Scope 3 category, see Table 5.4 (page 34) of the Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

NZ-C8. Bioenergy accounting *Direct CO2 emissions from the combustion of biofuels and/or biomass feedstocks, as well as sequestered carbon associated with such types of bioenergy feedstock2, must be included [...] If biogenic carbon emissions from biofuels and/or biomass feedstocks are accounted for as neutral, the company must provide justification of the underlying assumptions. Companies are expected to adhere to any additional GHG Protocol Guidance on this topic when released in order to maintain compliance with this criterion.*
NZ-C9. Subsidiaries *It is recommended that companies 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 boundary criteria above.*
NZ-C10. Scope 1 and 3 carbon removals accounting *If relevant, carbon removals in scopes 1 and 3 shall be reported in compliance with the GHG Protocol's standard and guidance on carbon removal accounting.*

NET-ZERO TARGET CRITERIA

III. Emissions Abatement: Ambition

Emissions abatement is at the heart of achieving net-zero. While CO2 removal from the atmosphere will play a supporting role in reaching global net-zero and limiting warming to 1.5°C, the global potential of CO2 removal to safely "replace" emissions abatement is very limited.[4] Thus, net-zero targets must include clearly defined emissions abatement and neutralisation goals, which also enhance the transparency and credibility of companies' overarching net-zero targets. Due to this need, this document always differentiates between the "emissions abatement boundary" of net-zero targets (Section IV) and the "neutralisation boundary" covered by net-zero targets (Section V); more detail on this topic is included in Text box 4.1.

This section indicates the minimum amount that companies must reduce emissions to reach a state of net-zero consistent with the ambition of the Paris Agreement. The criteria require emissions in the emissions abatement boundary of net-zero targets (scopes 1, 2, and 3) to be reduced by an amount consistent with reaching global net-zero in 1.5°C-aligned scenarios.

Specific quantitative benchmarks (e.g., minimum emissions reduction) and a list of eligible science-based methodologies for target-setting will be included in the SBTi's Net-Zero Guidance.

It is important for this section of the criteria to be considered in combination with *IV. Emissions Abatement: Target Boundary*, which specifies the required emissions abatement boundary coverage of net-zero targets. For example, this section does not specify how much or which categories of scope 3 emissions must be covered by targets, but rather it specifies ambition requirements for those emissions that must be included within the emissions abatement boundary of net-zero targets.

Table 3.1. Emissions Abatement: Ambition draft criteria and description

Criteria	Description

[4] See Foundations for Science-based Net-Zero Target-setting in the Corporate Sector – especially Section 3.4, Supplementary Discussion 1, and Supplementary Discussion 4 – for an analysis of this topic.

NZ-C11. Deep decarbonisation *When the company's net-zero target is reached, emissions in scopes 1, 2, and 3 shall have been abated by an amount consistent with global net-zero in scenarios that limit warming to 1.5°C.*	Emissions in scopes 1, 2, and 3 that are covered by the emissions abatement boundary of the net-zero target must have been reduced by an amount consistent with global net-zero in scenarios that limit warming to 1.5°C. Currently, two target-setting methods are under review to comply with this criterion: • Absolute contraction (i.e., reducing emissions by a % amount consistent with global net-zero in scenarios) and; • Intensity convergence (i.e., reaching 1.5°C-aligned residual physical emissions intensity levels for relevant activities). *Example of absolute contraction:* If gross global emissions need to be reduced by 90% to limit warming to 1.5°C, a company using absolute contraction would also need to reduce its emissions by 90% (and neutralise remaining emissions) to reach net-zero. *Example of intensity convergence:* If the global average emissions intensity of steel production must stabilize at 0.13 tCO2/ton to limit warming to 1.5°C, a company using intensity convergence would also need to reduce the emissions intensity of its steel production to 0.13 tCO2/ton to reach net-zero. The SBTi is conducting work to produce target-setting methods and benchmarks that meet this criterion. Key research questions include:

	• Should companies use sector-specific absolute contraction benchmarks or is a global benchmark preferred? • How should companies with a diverse range of activities calculate targets? • How will global and sector-specific benchmarks be calculated? Methods and benchmarks needed to operationalise this criterion will be included in the Net-Zero Guidance.
NZ-C12. Absolute and intensity emissions abatement targets *Companies shall set absolute or intensity targets to abate emissions in scopes 1, 2, and 3. Intensity targets are eligible when they are equivalent to having reduced absolute emissions by an amount consistent with 1.5°C scenarios or when then they are modeled using eligible sector intensity pathways. Absolute emissions reductions must be at least as ambitious as the minimum level of abatement achieved in eligible 1.5°C scenarios or sector pathways.*	This criterion, which specifies the type of targets that are eligible, is complimentary to NZ-C11, which specifies the minimum ambition of targets that are eligible. Based on this criterion, any of the following target types are eligible: 1. Absolute emissions reduction from a base year; 2. Intensity target (modeled using absolute contraction and converted to an intensity reduction based on the company's projected activity growth); 3. Intensity target (modeled using an approved intensity target-setting approach such as intensity convergence). *Example of an eligible absolute target* If gross global emissions need to be reduced by 90% to limit warming to 1.5°C, the company sets a target to reduce emissions by 90% between its base year and net-zero target year. *Example of an eligible intensity target (consistent with absolute contraction*)

	The company projects 20% activity growth and sets a target to reduce emissions intensity by 92%, which is equivalent to a 90% reduction in absolute emissions. *Example of an eligible intensity target (using a sector intensity pathway)* If the global average emissions intensity of steel production must stabilize at 0.13 tCO2/ton to limit warming to 1.5°C, the company sets a target to reduce the emissions intensity of its steel production to 0.13 tCO2/ton in its net-zero target year. Additional background on science-based absolute and intensity targets is included in Text box 3.1.
NZ-C13. Method validity *Targets must be modeled using the latest version of methods and tools approved by the initiative. Targets modelled using previous versions of the tools or methods can only be submitted to the SBTi for an official validation within 6 months of the publication of the revised method or the publication of relevant sector-specific tools.*	Targets need to be modeled using science-based methods that have been approved by the SBTi. Major updates to tools and methods are generally announced at least several months in advance of publication. Minor updates are occasionally introduced to enhance user experience or resolve bugs. There is a six-month grace period for companies to submit targets using the most recent legacy version of tools and methods once a newer version has been published.
NZ-C14. Combined scope targets *Targets that combine scopes (e.g. 1+2 or 1+2+3) are permitted. When submitting combined targets, the scope 1+2 portion must be in line with at least a 1.5°C scenario.*	Combined scope targets are eligible, but only if the SBTi can review the ambition of the scope 1+2 portion and confirm that it meets the ambition criteria in NZ-C11-13. This is consistent with the current SBTi Criteria but could be viewed as overly prescriptive for net-zero targets, which go further than

	interim SBTs and may cover a wider range of emissions sources in scope 3.
NZ-C15. Ambition of targets on fossil fuel sale, transmission and distribution *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.*	This criterion requires companies to set targets on sold or distributed fossil fuels, regardless of the size of these emissions, that are consistent with limiting warming to 1.5°C. This criterion is specifically focused on the emissions abatement ambition of net-zero targets. For Oil & Gas companies, it will be superseded by sector-specific criteria and guidance that are under development in the SBTi's oil & gas project. The minimum scope 3 ambition of interim SBTs is addressed by NZ-C32. In this criteria draft, two versions of NZ-C32 are included for feedback: 1.5°C or well-below 2°C. Additionally, the minimum ambition of targets on fossil fuel sale, transmission and distribution for interim SBTs must be at least well-below 2°C, as specified by C20.2 of the current SBTi Criteria. While C20.2 and NZ-C32 overlap, they are not redundant because C20.2 requires companies to draw a sub-target boundary that specifically addresses fossil fuel sales, transmission and distribution.

Text box 3.1. Background on science-based absolute and intensity targets

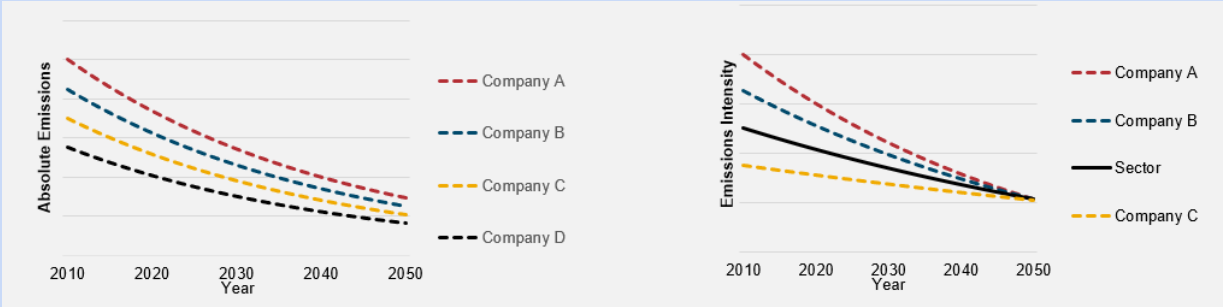
Certain emissions reduction targets are "science-based" because if their adoption were to become standard practice, the global emissions budget would be preserved and global climate goals would be met. SBTs are developed using science-based target-setting methods, which are designed to preserve a global or sectoral emissions budget by reasonably allocating an emissions pathway across all relevant companies. Two methods are currently eligible for companies setting SBTs: absolute contraction and the sectoral decarbonization approach (SDA), which is based on intensity convergence.

Net-zero target-setting methods that meet the criteria in this section are currently in development by the SBTi with support from the SBTi's Scientific Advisory Group. Net-zero target-setting methods based on absolute contraction and intensity convergence, similar to what companies already use for SBTs, are under review; however, other methods that meet the criteria in this section may also be explored.

A summary and visual comparison of absolute contraction and the sectoral decarbonization approach, as they currently apply to SBTs, is provided here for background (Figure 3.1). A more detailed explanation of these target-setting methods can be found in Foundations of Science-based Target Setting.

- Absolute contraction: companies set targets to reduce emissions at a rate consistent with what is needed globally for a certain timeframe. E.g., "reduce emissions 50% by 2030 from a 2018 base year;"
- Sectoral decarbonization approach (SDA): companies set targets to reduce the emissions intensity of a physical activity or product such that it approaches the sector or activity average intensity in 2050, preserving the sector emissions budget if certain conditions are met.

Figure 3.1 Absolute contraction and SDA pathways



Each option has its own benefits and drawbacks. Absolute contraction is simpler for companies to use and communicate; however, it does not explicitly take into account a company's starting performance (i.e., base year emissions intensity). If achieved, absolute contraction targets will always result in emissions reductions compared to a base year. Unlike intensity targets, absolute contraction targets can be met by changes that are not explicitly linked to improving the efficiency of a product or process.

The SDA enables companies to set targets based on emissions intensity pathways that match a company's sector or business activity. In general, the SDA method requires a steeper emissions intensity reduction from companies with higher-than-average base year intensities and a less steep reduction from companies with lower-than-average base year intensities;

however, this effect is often counterbalanced by a method parameter that increases target ambition for companies with higher-than-average projected growth. The effect is also less pronounced for targets based on sector pathways that converge to a near-zero value. By comparison to absolute targets, intensity targets do not always result in emissions reductions compared to a base year, but they have the benefit of linking emissions performance to a useful metric like tons of steel produced or MWh of power generated.

Consultation questions

2. The Net-Zero Standard requires net-zero targets to include clearly defined emissions abatement and neutralisation goals. To assess whether a company's net-zero target meets the emissions abatement criteria in this section, both absolute and intensity targets are considered eligible (NZ-C12).

    a. Do you agree that both absolute and intensity targets should be eligible to fulfill the emissions abatement criteria in this section? If not, please explain.
    b. If you agree that intensity targets should be eligible, do you also agree that companies should have the option of expressing targets developed using absolute contraction as intensity targets, or should intensity targets only be valid if they have been calculated using an intensity target-setting method like SDA?

3. Based on NZ-C14, combined scope targets are eligible, but only if the SBTi can review the ambition of the scope 1+2 portion and confirm that it meets the ambition criteria in this section. Do you agree with this criterion? If not, please explain.

4. In *Foundations for Net-Zero Target Setting in the Corporate Sector*, the SBTi defined residual emissions as emissions sources that remain unabated by the time net-zero is reached in 1.5°C mitigation pathways with low or no overshoot. Residual emissions are a key research topic for the SBTi in coming months because the residual emissions level of a sector or activity will be reflected by SBTi target-setting methods that may be used to meet the criteria in this section.

    Do you agree with this definition of residual emissions? Are you aware of approaches to determining residual emissions at the sector or activity level?

IV. Emissions Abatement: Target Boundary

One of the most important aspects of corporate targets is the range of emission sources covered within the boundary of the target. The target boundary determines whether a company is committed to addressing the most material sources of emissions in its value chain. This section specifically addresses the emissions abatement boundary of net-zero targets, as described in Text box 4.1. The emissions sources in this boundary must be abated by the amount specified in Section III (Emissions Abatement: Ambition).

This section indicates that the emissions abatement boundary of net-zero targets must cover company-wide scope 1 and 2 emissions. Scope 3 emissions must also be included (three different versions of this criterion are shared for feedback). Ultimately, this section should ensure that the emissions abatement boundary of net-zero targets is both comprehensive and actionable for companies participating in a societal shift to global net-zero.

Text box 4.1. Net-Zero Target Boundary

The term "target boundary" refers to the range of emissions sources covered by a target. To understand the importance of target boundaries, consider the difference between a target to reduce emissions by 25% that covers the emissions of just one manufacturing center compared to a target covering all manufacturing. Another useful example is to consider the difference between an emissions reduction target covering scope 1 and 2 emissions compared to a target that also covers emissions in scope 3. The current SBTi Criteria require all companies to cover at least 95% of emissions in scopes 1 and 2 and most companies to cover at least 66% of emissions in scope 3, as well as meeting sector-specific boundary coverage requirements.

For reasons that are explained in Table 4.1., the boundary of emissions that need to meet the emissions abatement criteria in Section III (Emissions Abatement: Ambition) may be less than 100% of emission in scopes 1, 2, and 3. However, NZ-C20 (Neutralisation boundary) may require companies to neutralise 100% of emissions in scopes 1, 2, and 3. Because these boundaries might not be identical, this document always differentiates between the "emissions abatement boundary" of net-zero targets and the "neutralisation boundary" covered by net-zero targets. A consultation question in Section V (Neutralisation) specifically asks whether these boundaries should be made identical by the Net-Zero Criteria.

Regardless, in public reporting emissions abatement and neutralisation targets should be reported separately with clear information about the boundary of each, in addition to a

company's overarching net-zero target; however, for most communications purposes it is fine to refer simply to a company's net-zero target.

Figure 3.1. Simplified example of a net-zero target emissions abatement boundary and neutralisation

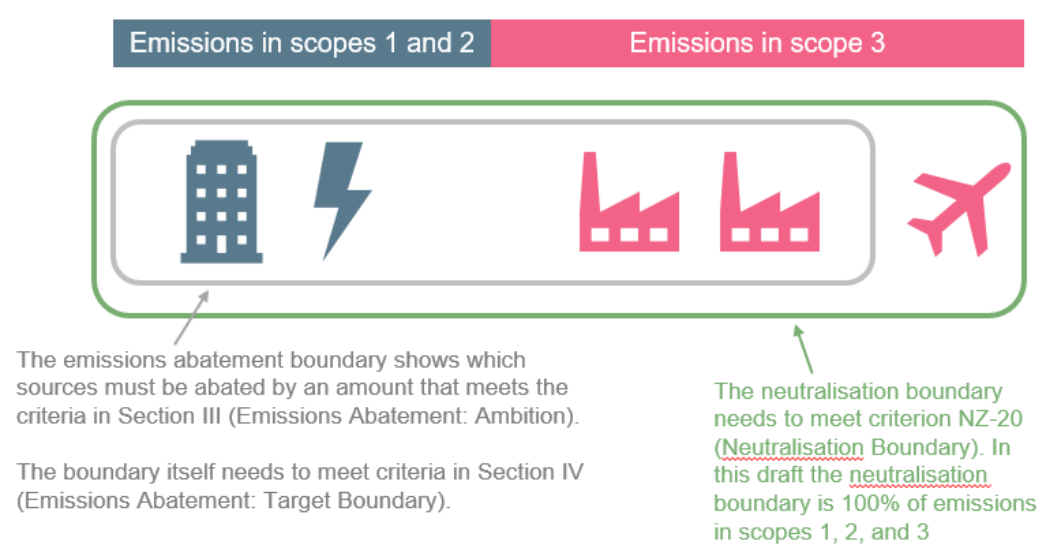


Table 4.1. Emissions Abatement: Target Boundary draft criteria and description

Criteria	Description
NZ-C16. Emissions abatement target boundary (scopes 1 and 2) *The emissions abatement boundary of net-zero targets shall cover company-wide scope 1 and scope 2 emissions, as defined by the GHG Protocol Corporate Standard. Exclusions in the GHG Inventory and target boundary must not exceed 5% of total scope 1 and 2 emissions.*	In combination with NZ-C5 (Scope 1 and 2 significance thresholds), this criterion requires companies to cover at least 95% of scope 1 and 2 emissions in the emissions abatement boundary of a net-zero target.
NZ-C17. Emissions abatement target: requirement to have a scope 3 target	This criterion requires all companies to include scope 3 emissions in the emissions abatement boundary of net-zero targets. The importance of including value chain emissions

All companies shall include scope 3 emissions in the emissions abatement boundary of net-zero targets.	is described in *Foundations for Net-zero Target Setting in the Corporate Sector* and this criteria is consistent with the mitigation hierarchy (Ekstrom et al., 2015), whereby companies are required to reduce their own emissions before engaging in neutralisation activities.
NZ-C18. Emissions abatement target boundary (scope 3) *The emissions abatement boundary of net-zero targets shall:* **Version A.** *cover at least 95% of total scope 3 emissions.* **Version B.** *cover at least 67% of total scope 3 emissions, with additional sector-specific requirements for activities that must be included in the target boundary*. **Version C.** *cover at least 95% of total emissions in scopes 1, 2, and 3*	Three versions of this criterion are shared for feedback. A comparison of how the different versions of this criteria may affect corporate target-setting is included in Text box 4.2. **Version A:** **95% of total scope 3 emissions.** This version is more comprehensive of a company's value chain emissions, but its lack of flexibility may be incompatible with known challenges to scope 3 accounting. For example, the calculation of some scope 3 categories may be error-prone and the ability of a company to collect data and influence scope 3 emissions is in some cases limited. By contrast Version B may focus emissions reduction efforts more effectively. On the other hand, a benefit of Version A is that sequential targets would not require significant boundary changes over time due to changing scope 3 proportions (see VI. Interim Science-based Targets). **Version B:** **67% boundary with sector or activity-specific scope 3 boundary requirements.** Under this version, companies must cover at least 67% of total scope 3 emissions and meet sector/activity specific requirements. For example, food and agriculture companies could be required to include upstream deforestation-related emissions in the

	emissions abatement boundary of targets. In this example, if the 67% threshold were not met after the inclusion of deforestation-related emissions, the company would need to add additional scope 3 sources to surpass the 67% threshold. The SBTi already has several sector-specific scope 3 criteria. For example, vehicle manufacturers must include all well-to-wheel emissions (e.g., emissions from upstream production of fuels and emissions from combustion of fuels during vehicle use) in a combined scope target boundary. Compared to Versions A and C, this version is more consistent with the SBTi's current treatment of scope 3. **Version C:** **At least 95% coverage of total emissions in scopes 1, 2, and 3.** This version aims to ensure comprehensive coverage of emissions in scopes 1, 2 and 3, while providing greater flexibility than Version A for companies with a relatively low share of total emissions in scope 3 (see Text Box 4.2). This version does not allow companies to bypass NZ-C5, so at least 95% of emissions in scopes 1 and 2 still need to be included in the emissions abatement boundary. Unlike Versions A and B, this version groups together emissions in scopes 1, 2, and 3 to determine minimum scope 3 boundary coverage. Grouping emissions in scopes 1, 2, and 3 is sometimes considered inappropriate because the accounting methods differ widely in terms of uncertainty and margin of error, as well as level of control or influence.

Text box 4.2. Comparison of Versions A, B, and C of NZ-C18 to determine the minimum scope 3 emissions abatement boundary coverage of net-zero targets

Versions A, B, and C of NZ-C18 are compared by assessing four example companies with different emissions profiles under two target-setting scenarios. Companies I-IV vary from having a high relative proportion of emissions in scope 3 (80%) to a low relative proportion (10%). In Scenario 1, companies exclude 5% of scope 1 and 2 emissions from the target boundary, while in Scenario 2, companies exclude 0% of scope 1 and 2 emissions (i.e., 100% scope 1+2 coverage). The results are shown by Table 4.2 and summarized below.

Table 4.2. Percentage of scope 3 emissions covered and total scope 1,2, and 3 emissions covered under 3 different versions of NZ-C18 for 4 example companies with varying emissions profiles.

			Target coverage under Option A			
			Scenario 1		Scenario 2	
	% emissions in S1+2	% emissions in S3	% of S3 covered	Total % coverage of S1+2+3	% of S3 covered	Total % coverage of S1+2+3
I	20%	80%	95.0%	95.0%	95.0%	96.0%
II	50%	50%	95.0%	95.0%	95.0%	97.5%
III	80%	20%	95.0%	95.0%	95.0%	99.0%
IV	90%	10%	95.0%	95.0%	95.0%	99.5%
			Target coverage under Option B			
I			67.0%	72.6%	67.0%	73.6%
II			67.0%	81.0%	67.0%	83.5%
III			67.0%	89.4%	67.0%	93.4%
IV			67.0%	92.2%	67.0%	96.7%
			Target coverage under Option C			
I			95.0%	95.0%	93.8%	95.0%
II			95.0%	95.0%	90.0%	95.0%
III			95.0%	95.0%	75.0%	95.0%
IV			95.0%	95.0%	50.0%	95.0%

In Scenario 1, Version C is identical to Version A. Assuming 67% of scope 3 emissions are included under Version B, it results in the lowest scope 3 emissions coverage and total

emissions coverage; however, it's important to note that sector-specific scope 3 criteria can require some companies to cover more than 67% of emissions in scope 3.

In Scenario 2, Version C offers more flexibility to companies with a lower proportion of emissions in scope 3 (Companies III and IV in terms of percentage of scope 3 emissions they need to cover), as marked in green cells below. These companies would have the version of covering fewer emissions in scope 3 by covering a greater proportion (>95%) of emissions in scopes 1 and 3. The total coverage of scope 1, 2, and 3 emissions is highest under Version A, followed closely by Version C. Version B also yields high coverage of total emissions for Companies III and IV.

Under Version C, the percentage of scope 3 emissions that end up being included is sensitive to the percentage of scope 1 and 2 emissions included. In other words, it offers some flexibility around the relative coverage of 1+2 vs. scope 3 emissions that companies include in the target boundary, while ensuring a 95% coverage of total scope 1,2, and 3 emissions.

Consultation questions

5. Companies will need to include scope 3 emissions in the emissions abatement boundary of net-zero targets. Three approaches to determining minimum scope 3 boundary coverage are being considered (NZ-C18). Do you have a preference for Version A, B or C? Please explain.

V. Neutralisation

To reach a state in which human activity no longer contributes to global warming means achieving a state in which anthropogenic GHG emissions no longer accumulate in the atmosphere. For companies, this means neutralising the impact of any source of residual emissions that is unfeasible to eliminate by permanently removing an equivalent volume of atmospheric CO2.[5]

Carbon removal, which refers to human activities that remove and durably store atmospheric CO2, is dynamic and complex (IPCC, 2018, p. 544). There are two main categories of carbon removal: biological approaches, which sequester carbon in the biosphere by causing or accelerating natural processes (e.g., reforestation), and technological approaches that remove carbon from the atmosphere using non-biological processes like direct air capture (Pilorgé et al., 2021). Biological approaches to carbon removal can be implemented in ways that result in sizable co-benefits to nature and people but are often associated with a high risk of reversal or physical leakage and may take years or decades to durably remove carbon. Technological approaches, which are nascent by comparison, are often compatible with greater storage permanence (e.g., sequestering carbon deep underground or in chemical compounds) but face different sustainability challenges and are costly. There is no simple answer to whether biological or technological approaches should be preferred and, in fact, the activities in each category vary enormously in potential storage risks, societal risks, and co-benefits. However, one clear takeaway of emerging research is that biological approaches require ongoing stewardship or protection to improve the likelihood of long-term carbon storage, whereas technological approaches may require post-removal storage monitoring and liability regimes, but relatively little active maintenance after storage (Anderegg et al., 2021).

The criteria in this section reflect the primary objective of the Net-Zero Standard: ensuring that net-zero targets, if achieved, result in no impact on the climate from GHG emissions in-line with the ambition of the Paris Agreement. The criteria indicate that companies must neutralise all unabated value chain emissions by the net-zero target year (or sooner) by demonstrating permanent carbon removal. Quality conditions, as well as social and environmental safeguards, need to be met by carbon removal activities. Companies must also set milestones to phase-in

[5] Residual emissions are emissions sources that remain unabated by the time net-zero is reached in 1.5C mitigation pathways with low or no overshoot (*Foundations for Net-Zero Target-Setting*, pg. 7, 32-34). The SBTi is exploring a range of approaches for determining residual emissions globally, by sector, and by activity, which will be included in the public consultation of Net-Zero Guidance

carbon removal if the target year is later than the maximum eligible target year for interim SBTs. An exploratory look at how several carbon removal approaches are affected by the criteria is included in Text box 5.1.

One of the challenges associated with neutralisation targets is how to treat the relationship between emissions and removals across different scopes and activities. Emissions in scopes 1 and 2, as well as removals in scope 3, may be counted by more than one business actor, which complicates the goal of ensuring that all GHG emissions are uniquely neutralised. Consultation questions are included for readers to suggest feedback on the SBTi's preliminary criteria to address this challenge.

While these criteria lay out the high-level conditions that need to be met by neutralisation targets, they do not resolve specific accounting details. Accounting for carbon removals will largely be addressed by the GHG Protocol Land Sector and Removals Initiative. Due to the challenge of developing criteria while that project is still ongoing, further refinement of the criteria in this section might be needed in the future.

Specific quantitative benchmarks (e.g., carbon removal phase-in benchmarks) and a list of options that are eligible to adhere to criteria where intermediate standards, services, or instruments are used will be included in the Net-Zero Guidance. This work will be developed in further consultation with expert advisory groups, stakeholders and the general public over the course of the year.

In the SBTi's Forestry, Land and Agriculture (FLAG) project, target-setting methods and guidance that address both emissions and nature-based carbon removal are being developed for land-intensive sectors. Companies in land-intensive sectors such as food, agriculture, and forestry should expect to set SBTs that meet specific criteria addressing biological carbon removals in their value chain, which may be additional to or overlap with removals to meet a company's net-zero target.

Lastly, there are some draft criteria in this section that cannot yet be fully assessed at the project or program level due to knowledge gaps regarding the implementation of carbon removal (highlighted pink). For example, even if a company were to share the details of its planned approach to carbon removal, it might not be possible to assess whether the company's neutralisation strategy would result in sufficiently durable storage. Consultation questions have

been included for feedback on how the SBTi should include these draft criteria in the final Net-Zero Standard. There are also some draft criteria that can only be assessed if specific implementation details are provided, which might not be known at the target-setting stage (highlighted blue). Likewise, consultation questions have been included for feedback on how the SBTi should include these.

Table 5.1. Neutralisation draft criteria and description

Criteria	Description
NZ-C19. Neutralisation targets *Companies shall set neutralisation targets, which are commitments to permanently remove a specified volume of carbon from the atmosphere, to counterbalance the impact of unabated emissions that remain given the achievement of deep decarbonisation of value chain emissions.*	Companies must set a target to neutralise all unabated emissions with permanently removed carbon. Neutralisation is not intended to lessen the need for companies to abate value chain emissions at a minimum determined science-based rate (III. Emissions Abatement: Ambition).
NZ-C20. Neutralisation boundary *Companies shall neutralise the impact of all scope 1, 2, and 3 GHG emissions sources.*	100% of unabated emissions in scopes 1, 2, and 3 must be neutralised. This criterion reflects the guiding principle that companies should achieve a state in which their value chain results in no net impact from GHGs on the atmosphere. However, this criterion could also result in a neutralisation boundary that is broader than the emissions abatement boundary of a net-zero target (see Text box 4.1).
NZ-C21. Neutralisation timeframe *Companies shall set neutralisation targets with a target year no later than the company's net-zero target year. In the neutralisation target year and thereafter, the company shall continue to neutralise any GHG emissions that remain unabated.*	The neutralisation target year must be no later than the company's net-zero target year. Net-zero companies are expected to continue neutralising unabated emissions from the target year onward.

NZ-C22. Magnitude of carbon removal *The minimum volume of carbon removed in the target year, and in all subsequent years, shall be determined on the basis of the following factors:* 1. *Volume of unabated emissions in the corresponding year;* 2. *Global warming potential (GWP) of unabated emissions;* 3. *Risk of non-permanence associated with planned removal activities;* 4. *When relevant, additional volume to address potential physical leakage or non-permanence from previous reporting periods.*	The amount of carbon removal needed to achieve a neutralisation target depends on several factors. Foremost, companies must ensure that the amount of carbon removal is at least equivalent to the volume of unabated value chain emissions (NZ-C22.1) calculated in tons of CO2 equivalent (NZ-C22.2). In some cases, the amount of carbon removal will also need to be increased due to risk of non-permanence (NZ-C22.3). For example, a precautionary "non-permanence risk factor" could be applied to carbon removals that have an expected storage duration long enough to meet NZ-C27.1 but which still have a risk of physical leakage. Lastly, there may be cases where a company wishes to neutralise its unabated emissions with carbon removals that have an expected storage duration not long enough to meet NZ-C27.1. For example, a company may wish to use soil carbon removals to neutralise CO2 emissions from fossil fuel combustion. If the expected storage duration is less than the amount required by NZ-C27.1, such neutralisation would be eligible if the company transitions to using a higher-permanence carbon removal approach in later years, increasing the volume of future carbon removal sufficiently to address potential non-permanence of the earlier removals. Methods to calculate targets that reflect NZ-C22.3 and NZ-C22.4 have not yet been developed; however, some carbon removal approaches can result in storage permanence that is durable enough for NZ-C22.3 and NZ-C22.4 not to apply. Similarly, some non-CO2

	GHGs with a short lifetime can be neutralised without NZ-C22.3 and NZ-C22.4 needing to be applied. Despite the unresolved challenges of including NZ-C22.3 and NZ-C22.4, these subcriteria may provide an important avenue for companies to neutralise CO2 emissions with biological removals once rigorous methods become available. Please see Text box 5.1 for additional background on this topic.
NZ-C23. Estimated and actual volume of carbon removal needed to achieve target *In the target-setting year, companies shall estimate the volume of carbon removal that is needed to achieve a neutralisation target. The actual volume of carbon removal required shall be adjusted* ex post *(i.e., at the end of the target year) to ensure that all unabated emissions are effectively counterbalanced as specified by NZ-C22.*	In the process of developing a neutralisation target, companies must estimate the volume of carbon removal that will be needed. However, the future cannot be predicted with certainty and the actual amount of carbon removal needed will depend on the actual emissions in the relevant year.
NZ-C24. Neutralisation of direct emissions *Companies shall neutralise unabated direct emissions (scope 1) with direct removals (scope 1) or removals that have been acquired using contractual instruments. In both cases, removals shall fulfill the eligibility, quality and sustainability criteria specified in this section.*	Companies must neutralise unabated scope 1 emissions with scope 1 removals or removals acquired using contractual instruments, ensuring that unabated direct emissions are uniquely neutralised by the target-setting company. The term “contractual instrument” is used to refer to, amongst others, tradable credits and certificates associated with carbon removal. Because instruments associated with carbon removal are relatively nascent, this topic is an important area for future development.

NZ-C25. Neutralisation of indirect emissions *Companies shall demonstrate that all unabated indirect emissions (scopes 2 and 3) are uniquely neutralised. In all cases, removals shall fulfill the eligibility, quality and sustainability criteria specified in this section.*	The relationship between indirect emissions and removals is complicated for two main reasons: - Emissions and removals in scope 3 are sometimes counted by more than one business. Requiring each company to neutralise scope 3 emissions with direct removals or removals acquired using contractual instruments could *over-allocate* removals compared to total emissions in the system; - Conversely, allowing companies to neutralise emissions with scope 3 removals could *under-allocate* removals compared to total emissions in the system (e.g., two companies using the same upstream removals to neutralise different downstream emissions). To overcome these complications, this criterion requires companies to demonstrate that all scope 2 and 3 emissions are uniquely neutralised. For example, this condition would be met for Company A's specified emissions in the following cases: 1. Company A purchases steel from a supplier and neutralises those scope 3 emissions with removals in scope 1 or a uniquely retired removal credit; 2. Company A purchases steel from a supplier and the supplier has neutralised its scope 1 emissions with removals in scope 1*;* 3. Company A purchases steel from a supplier and the supplier has neutralised its scope 1 emissions with a uniquely retired removal credit.

	In all cases, Company A would include scope 3 emissions from purchased steel in its GHG inventory. In the second case, Company A would also include scope 3 removals in its GHG inventory. In the third case, Company A would *not* claim ownership of the removal credit but this criterion would be met. Because the accounting that would be required to assess the second example is still in development by the GHG Protocol and mechanisms to assess the third example have not been identified, there are still open questions about how this criterion would be implemented by the SBTi.
NZ-C26. Carbon removal phase-in *Neutralisation targets with a target year exceeding [10 or 15] years from the date of submission shall be supported by one or more interim carbon removal targets with a target year [5-10 or 5-15] years from the date of submission. Interim carbon removal targets shall ensure a volume of carbon removals in the interim target year proportional to the volume of carbon removal needed by the company to achieve its net-zero target in the net-zero target year by applying a simple linear growth rate or a growth rate consistent with 1.5°C-aligned scenarios.* *[Note: the timeframe requirements of this criteria will be consistent with NZ-C2 (Interim target years)]*	Carbon removal near the scale required by many scenarios is unprecedented and less well-understood than deep decarbonization. Since economic decisions today will affect both the amount of carbon removal needed to reach net-zero and the amount of carbon removal available in future years, this criterion requires companies to begin phasing-in carbon removal no more than 10 or 15 years from the date of submission. In both options proposed by this criterion, the minimum ambition of interim carbon removal targets is linked to the amount of carbon removal that will be needed in the company's net-zero target year. Companies that fully reduce their own value chain emissions are not required to set interim carbon removal targets. Conversely, companies that plan to reach net-zero with higher reliance on carbon removal are required to conduct additional carbon removal that supports early development and provides greater accountability.

NZ-C27. Quality conditions for carbon removal *Carbon removals are eligible to neutralise a company's unabated emissions if they meet the following conditions:* ***ALL REMOVALS*** 1. *Carbon must be removed through activities that ensure storage permanence for a timeframe that is commensurate with the duration that atmospheric GHG concentrations would be affected by the unabated emission;* 2. *Eligible carbon removal activities must have mechanisms in place to address the impact of potential non-permanence and physical leakage;* 3. *The target-setting entity must demonstrate that contractual and other necessary arrangements are in place to ensure that a uniquely identified unit of carbon removal exclusively neutralises the impact of another uniquely identified source of emissions;* 4. *Social and environmental conformance conditions are met;* ***REMOVALS ACQUIRED USING CONTRACTUAL INSTRUMENTS*** 5. Removals must be measured, monitored, and verified ex-post according to a credible standard and verified by an independent third party; 6. The vintage must be no further than 3 years from the period in which the carbon removal will be used for neutralisation purposes.	Carbon removal activities must meet specific quality conditions to be eligible for neutralisation targets. An emissions "pulse" elevates atmospheric GHG concentrations for a certain duration of time. Some GHG emissions are short-lived (on the order of 10-100 years), but most emitted CO2 resides in the atmosphere for 300-1000 years (Buis, 2019).Some scientists contend that a pulse of CO2 continues to affect the atmosphere for several thousand years (Mackey et al., 2013). Carbon removal activities used to neutralise unabated emissions must ensure commensurate permanence to the GHG being neutralised (NZ-C27.1). The practical implications of the condition to ensure permanence for several hundred years or more is explored in Text box 5.1. Mechanisms must be in place to compensate for the impact of potential non-permanence and physical leakage. For example, a sufficient buffer reserve of removals may be required (NZ-C27.2) The target-setting entity must demonstrate that mechanisms are in place to ensure that a uniquely identified unit of carbon removal exclusively neutralises another unique source of emissions. For example, a carbon removal "credit" must only be retired once and corresponding adjustments are required for the credit seller's own inventory (NZ-C27.3). Social and environmental conformance conditions must be met – see NZ-C28 (NZ-C27.4)

	Removals acquired using contractual instruments must be measured, monitored and verified by an independent third party (NZ-C27.5). The vintage of removals acquired using contractual instruments must be no further than 3 years from the period it is used for neutralisation (NZ-C27.6). As described in the overview of this section, there are several challenges and open questions regarding how these subcriteria would be assessed. Feedback is requested on the conditions themselves, as well as options for how it should be included in the final Net-Zero Standard (e.g., as recommendations or criteria).
NZ-C28. Social and environmental conformance *Eligible carbon removal activities shall not infringe on global and local efforts to achieve the Sustainable Development Goals. In particular, the following conditions shall be met:* 1. *Carbon removal activities adhere to a standard with publicly documented social and environmental safeguards;* 2. *Project/program details are publicly available and auditable;* 3. *Projects/programs are developed with documented involvement and informed consent from local communities;* 4. *A policy to transparently address complaints and grievances is available to all stakeholders that may be affected by a carbon removal project activity or program.*	Carbon removal activities must meet social and environmental conformance conditions. Collectively, these conditions are meant to prevent negative impacts that have been identified as a risk of some carbon removal activities. Activities must adhere to a publicly documented standard with social and environmental safeguards (NZ-C28.1) with details that are publicly available (NZ-C28.2). They must also be developed with informed consent from local communities (NZ-C28.3) and a policy to address grievances (NZ-C28.4). There is significant ongoing work in the climate action space to improve how social and environmental safeguards are integrated into climate mitigation projects and programs. Feedback is requested on guidance documents and standards that address social and environmental conformance.

Text box 5.1. Carbon removal projects and programs: do they meet the criteria?

Carbon removal is not entirely without precedent in the corporate sustainability arena. The mitigation hierarchy provides a foundation for the generally accepted principle that to maximize positive impact, companies should prioritize eliminating emissions sources in the value chain before moving onto carbon removal (Ekstrom et al., 2015). There are also lessons to be learned from assessing the successes and shortfalls of programs like REDD+, which have included carbon removal as part of a broader forest-based climate change mitigation effort (Seymour et al., 2019). Regardless, carbon removal is an evolving frontier: most carbon removal approaches face a large number of unknowns, which include concerns about permanence. Aside from reforestation, carbon removal approaches are mainly in the early stages of development.

Table 5.2 is a "first look" at carbon removal projects and programs against the backdrop of the Net-Zero Standard. The column "Relationship to criteria" highlights how each approach is affected by the criteria, mainly NZ-C23 (Magnitude of carbon removal), NZ-C27 (Quality conditions for carbon removal), and NZ-C28 (Social and environmental conformance). The table is not comprehensive of all relevant carbon removal approaches, nor does it comprehensively address how each listed approach is affected by the criteria; rather, it should be understood as an exploratory comparison that has been included to help consultation participants navigate this evolving topic in the Net-Zero Standard. Much of the information in this table has been adapted from the CDR Primer (especially Chapter 2) and Fuss et al. (2018), which we encourage others to read if seeking additional detail on carbon removal.

Table 5.2. Exploratory comparison of several carbon removal approaches

Type of carbon removal approach	Category	Description and project examples	Relationship to criteria
Direct air capture (DAC) and geologic storage	Technological	Industrial methods are used to absorb CO2 from ambient air. Captured CO2 is either stored underground in sedimentary basins or mineralized into subsurface carbonate rock. Geologic storage is often noted for its durability, intended to	-Expected storage duration in well-planned sites is long enough not to increase the magnitude of carbon removal needed to neutralise CO2 emissions (NZ-C23.3, NZ-C27.1); -Monitoring to detect physical leakage and liability regimes to remediate physical leakage may still be required (NZ-C27.2);

		ensure permanence for thousands of years. However, it is also energy and infrastructure intensive. Perhaps the most notable example of an existing DAC project is the partnership between Climeworks and Carbfix to capture and store CO2 at a site in Iceland.	-Public engagement, especially near potential carbon sequestration sites, can help avoid costlier setbacks at a later stage and may be required for social conformance (NZ-C28) (Whitmarsh et al., 2019); -Emissions associated with energy use and infrastructure need to be included in the emissions inventory of the company conducting DAC and may need to be reflected by the amount of credits generated by a company, if relevant.
Enhanced weathering	Technological	Certain rocks and minerals, chosen for their reactivity with atmospheric CO2, are crushed. Atmospheric CO2 reacts with the crushed rock to form carbonate rock, removing CO2 from the atmosphere. Enhanced weathering is at a relatively early stage of research and development. Project Vesta is a notable example of efforts to explore the approach.	-Expected storage duration depends on the project, but may be long enough not to affect the magnitude of carbon removal needed to neutralise CO2 emissions (NZ-C23.3, NZ-C27.1); -Some projects may not require monitoring if supported by robust experimental evidence of chemical stability that prevents reversal or physical leakage (NZ-C27.2); -Too early to assess conditions that may be required to meet social and environmental conformance conditions (NZ-C28).
Reforestation and improved forest management (IFM)	Biological	Reforestation refers to restoring forest coverage in degraded forest area or deforested land. IFM uses active forestry practices to enhance forest biomass and carbon storage. Biogenic carbon storage generally has a much lower storage duration than geologic storage. According to the CDR Primer, in the “best case scenario with rigorous monitoring and strong contractual agreements around land use,” the maximum duration of durable forest	-Relatively short expected storage duration and/or high risk of reversal may increase the magnitude of carbon removal needed to neutralise CO2 emissions in a given year (NZ-C23.3, NZ-C27.1); -Risk of non-permanence may lead to the requirement of “buffer pools” or other mechanisms to insure against reversal (NZ-C27.2); -Alternatively or additionally, companies may use reforestation and IFM to neutralise CO2 emissions in an earlier year and remove a greater amount of carbon through higher-permanence

		carbon storage is likely to be around 100 years. (Importantly, this does not mean that forest carbon storage only lasts 100 years, but rather that existing programs cannot durably anticipate, prevent and remediate reversal risks for longer timeframes.) Forest projects have immense potential for co-benefits to biodiversity, ecosystem services, and local and indigenous communities' livelihoods. However, realizing these benefits is highly dependent on program design. There are many examples of reforestation and IFM that have been developed under REDD+ and other frameworks.	approaches in later years (NZ-C23.4, NZ-C27.1). For example, a company with 20 MT CO2e of unabated emissions in 2030 may use reforestation to neutralise emissions that year, while planning to increase the amount of carbon removal with DAC conducted in later years to address potential non-permanence; -Experience from jurisdictional REDD+ programs "shows potential for increasing [...] benefits to indigenous peoples and local communities by prioritizing engagement with traditional forest guardians," which is consistent NZ-C28.3; however, the SBTi has not yet assessed the specific conditions that may be required for companies to fully meet social and environmental conformance (C28).
Coastal blue carbon	Biological	Mangroves, tidal marshes, seagrass meadows, and other coastal habitat are actively managed to expand their carbon sinks. Some estimates anticipate a major potential role for coastal blue carbon in carbon removal, although there are still unknowns regarding its vulnerability to reversal. Coastal management is associated with sizable benefits to coastal ecosystems, water quality, and climate change resilience.	-Expected storage duration and risk of reversal not yet well-enough understood to assess compliance with NZ-C23.3 and NZ-C27.1; -Risk of non-permanence may lead to the requirement of "buffer pools" or other mechanisms to insure against reversal (NZ-C27.2); -If expected storage duration and risk of reversal are similar to reforestation and IFM, the same application of NZ-C23.4 may apply; -If well-planned, coastal habitat management is unlikely to pose major issues to social and environmental conformance conditions; however, the SBTi has not yet assessed the specific conditions that may be required for companies to fully meet social and environmental conformance (C28).
Bioenergy carbon	Hybrid	Sustainable bioenergy is	-The same considerations listed for

capture and storage (BECCS) and geologic sequestration	(technological and biological)	combusted to generate electricity or processed to create alternative fuel. CO2 is captured pre- or post-combustion and sequestered geologically. BECCS is often noted for its potential to remove carbon while also producing useful energy products; however, it faces challenges associated with bioenergy, carbon capture, and infrastructure demands. Due to its land requirements, there has been concern about the potential of bioenergy to put pressure on food security, forest coverage, and other land use. The effectiveness of BECCS to remove carbon also relies partly on the effectiveness of bioenergy itself as a low or no-carbon energy product. Some BECCS arrangements may also require long-distance transport of bioenergy feedstock and/or captured CO2 streams, which can be energy and infrastructure intensive.	"DAC and geologic storage" apply to "BECCS and geologic storage"; -Bioenergy accounting criteria need to be met by the entity conducting BECCS (NZ-C8); -Social and environmental conformance criteria may require improved public engagement relative to many existing bioenergy projects; however, the SBTi has not yet assessed the specific conditions that may be required for companies to fully meet social and environmental conformance (C28).

Consultation questions

6. Based on NZ-C20, the neutralisation boundary of net-zero targets should cover 100% of scope 1, 2, and 3 emissions. This may be broader than the emissions abatement boundary of net-zero targets, as explained in Text box 4.1.
    a. Do you agree that the neutralisation boundary of net-zero targets should cover 100% of scope 1, 2, and 3 emissions?
    b. Do you think that it is important for the neutralisation boundary of net-zero targets to be identical to the emissions abatement boundary of net-zero targets?

7. Based on NZ-C22, the volume of carbon removal that is required to neutralise emissions depends on four factors. Do you agree with the proposed factors?

8. Based on NZ-C27.1, companies should ensure that the storage duration of carbon removal is commensurate with the duration that atmospheric GHG concentrations would be affected by the unabated emissions being neutralised. This subcriteria suggests that CO2 emissions should be neutralised by carbon removal activities that are permanent on the timescale of several hundred years or more. Do you agree with this subcriteria? Please explain.

9. Based on the combination of NZ-C22.4 and NZ-27.1, a company may be eligible to neutralise CO2 emissions with relatively low-permanence carbon removals if the company transitions to using higher-permanence carbon removals in later years, increasing the volume of future carbon removal sufficiently to address potential non-permanence of the earlier removals. Do you agree that this is an effective and credible option for companies to neutralise emissions? Please explain.

10. NZ-C24 requires companies to neutralise all direct emissions (scope 1) with scope 1 removals or removals acquired using contractual instruments. Do you agree with this criterion? If not, please explain.

11. NZ-C25 requires companies to demonstrate that all unabated indirect emissions (scopes 2 and 3) are uniquely neutralised.
    a. Do you agree that companies should be required to demonstrate that all unabated indirect emissions are uniquely neutralised? If not, please explain.
    b. Do you agree that companies should *not* be limited to scope 1 removals and removals acquired using contractual instruments to neutralise indirect emissions? If not, please explain.

12. Based on NZ-C26, companies with a neutralisation target year that exceeds the maximum target year of interim SBTs (i.e., more than 10 or 15 years from the date of submission) are required to set interim carbon removal targets.
    a. Do you agree with the requirement to set interim carbon removal targets?
    b. Do you agree with the proposed target-setting methods to calculate the minimum amount of carbon removal for interim targets suggested by NZ-C26?

13. Based on NZ-C27.6, contractual instruments need to have a vintage no further than 3 years from the period in which the carbon removal will be used for neutralisation purposes. Do you agree with this subcriteria?

14. Do you think any quality conditions should be added or removed from NZ-C27?

15. Do you agree with the social and environmental conformance conditions specified for carbon removals in NZ-C28? Please explain
    a. Are you aware of useful guidance documents or standards that address social and environmental conformance of climate projects and programs that would be applicable to carbon removal?

16. Some criteria in this section cannot yet be fully assessed at the project or program level due to knowledge gaps regarding the implementation of carbon removal (highlighted pink). For example, a company might have plans to neutralise its future emissions using enhanced weathering, which is an approach that still faces several unknowns. How do you think the SBTi should include these in the Net-Zero Criteria? As (A) recommendations, (B) criteria or commitments that are not assessed, (C) criteria that are assessed at a later date, (D) criteria that are assessed on the best possible basis of information supplied to the SBTi in a company's target submission.

17. Some criteria in this section can only be assessed if specific implementation details are provided, which might not be known at the target-setting stage (highlighted blue). How do you think the SBTi should include these in the Net-Zero Criteria? As (A) recommendations, (B) criteria or commitments that are not assessed, (C) criteria that are assessed at a later date, (D) criteria that are assessed on the best possible basis of information supplied to the SBTi in a company's target submission.

    Note: NZ-C39 (Reporting Completeness) requires companies to publicly report some project implementation details on an annual basis.

INTERIM TARGET CRITERIA

VI. Interim Science-based Targets

At a global level, emissions need to be reduced by about half in the next ten years to limit warming to 1.5°C and meet the goals of the Paris Agreement. The next steps that businesses take to abate emissions during the transition to net-zero will be crucial, and thus interim SBTs are an important prerequisite for companies wishing to set net-zero targets.

The current SBTi Criteria resolve most of what is required from companies to abate emissions during the transition to net-zero; however, several questions have emerged that need to be addressed here. These questions relate to the minimum ambition and scope 3 boundary of SBTs.

While the SBTi currently validates targets that are both 1.5°C-aligned and well-below 2°C-aligned in scopes 1+2, the global goal of reaching net-zero by 2050 is commonly associated with limiting warming to 1.5°C. Research now indicates that some of the climate impacts that were formerly associated with 2°C are actually more likely to arise with 1.5°C of warming, and the difference between these temperature outcomes is highly consequential. Since the IPCC's publication of the Special Report on Global Warming of 1.5°C, in particular, scientists and civil society have united around the goal of limiting warming to 1.5°C. However, it is not clear whether the SBTi should require a minimum ambition of 1.5°C or well-below 2°C for SBTs. In addition to considering the trade-off between high ambition and high barriers to entry for a voluntary initiative, the SBTi recognizes that the translation of global and sector-specific pathways to corporate target-setting is an approximate task; temperature classifications are meaningful but should be handled with nuance. Accordingly, this section considers whether to include criteria that raise the minimum ambition of scope 1+2 and scope 3 targets compared to the full range that is currently validated by the SBTi.

In addition, this section considers whether to introduce more stringent scope 3 target boundary coverage for SBTs than the current minimum. Currently, the SBTi requires companies to set scope 3 targets if scope 3 emissions are at least 40% of total scope 1+2+3 emissions and requires companies to cover at least 67% of scope 3 emissions in their SBTs. These criteria are meant to focus companies on the emissions categories that are most relevant and material to their climate impact, as well as to recognize the challenges that are inherent to scope 3 emissions accounting and intervention. However, there are potential benefits to requiring all companies to set scope 3 targets and increasing the minimum scope 3 boundary coverage of

SBTs: these changes could lead to a more comprehensive and consistent approach with net-zero target-setting and a more consistent and ambitious approach across companies.

Decisions that affect this section of the Net-Zero Criteria are planned to be integrated into the SBTi Criteria in 2022, which will apply to all companies setting SBTs regardless of whether they set a net-zero target.

Table 6.1. Interim science-based targets draft criteria and description

Criteria	Description
NZ-C29. Requirement to have a science-based target *If required by NZ-C2, companies must have valid science-based targets that meet SBTi Criteria to be eligible for a net-zero target.*	Companies must have valid SBTs that meet SBTi Criteria to be eligible for a net-zero target unless the net-zero target year is sooner than the maximum target year of interim SBTs.
NZ-C30. Science-based targets: level of ambition (scopes 1 and 2) **Version A.** *During the transition to net-zero, emissions in scopes 1 and 2 must be abated by an amount consistent with the level of decarbonization required to keep global temperature increase to 1.5°C* **Version B.** *During the transition to net-zero, emissions in scopes 1 and 2 must be abated by an amount consistent with the level of decarbonization required to keep global temperature increase to well-below 2°C*	Two versions of this criterion are shared for feedback. **Version A:** The scope 1+2 ambition of SBTs must be 1.5°C-aligned. Compared to Version B, this version would incentivize greater near-term ambition but potentially inhibit adoption of the standard among companies. If this option is chosen, the SBTi may consider making an exception for companies in hard-to-abate sectors where 1.5°C-aligned intensity target-setting methods are not yet available. **Version B:** The scope 1+2 ambition of SBTs must be well-below 2°C-aligned. Compared to Version A, this version would pose less of a barrier to entry for companies; however, the minimum ambition of interim SBTs would be less well-aligned with the global goal of limiting warming to 1.5°C.

	For absolute contraction, the minimum reduction rate for 1.5°C-aligned SBTs is 4.2% compared to 2.5% for well-below 2°C-aligned SBTs. These rates are applied as a linear annual reduction (e.g., 42% reduction over 10 years), not a compound reduction. Physical emissions intensity pathways are also available for some sectors.
NZ-C31. Science-based targets: requirement to have a scope 3 target *All companies shall include scope 3 emissions in the boundary of SBTs.*	This criterion requires all companies to include scope 3 emissions in the boundary of interim SBTs. It is more stringent than the current SBTi Criteria, which require companies to include scope 3 in the boundary of SBTs if scope 3 emissions are more than 40% of total emissions in scopes 1, 2, and 3 (C17). Because all companies are required to cover scope 3 in net-zero targets (NZ-C17), this criterion limits the amount that a company's net-zero target boundary may differ from its interim SBT, which is beneficial for consistency and planning,
NZ-C32. Science-based targets: scope 3 boundary *SBTs must include one or more targets that collectively:* **Version A.** *cover at least 95% of total scope 3 emissions.* **Version B.** *cover at least 67% of total scope 3 emissions, with additional sector-specific requirements for activities that must be included in the target boundary*. **Version C.**	Three versions of this criterion are shared for feedback. They are described in detail in NZ-C18, and a comparison of how the different versions of this criteria may affect corporate target-setting is included in Text box 4.2.

cover at least 95% of total emissions in scopes 1, 2, and 3	
NZ-C33. Science-based emissions reduction targets: level of ambition (scope 3) **Version A.** *Where scope 3 coverage is required by SBTs, emissions must be covered by targets consistent with delivering a 1.5°C-aligned emissions outcome.* **Version B.** *Where scope 3 coverage is required by SBTs, emissions must be covered by targets consistent with delivering a well-below 2°C-aligned emissions outcome.*	Two versions of this criterion are shared for feedback. **Version A:** Targets covering scope 3 must be consistent with delivering a 1.5°C-aligned emissions outcome. Compared to Version B, this version would incentivize greater near-term ambition but potentially inhibit adoption of the standard among companies given the challenging nature of scope 3 emissions management. The minimum scope 3 ambition of this version far exceeds that of the current SBTi Criteria, which ranges from no absolute increase in scope 3 emissions to alignment with 2C (e.g., 1.23% linear annual reduction in absolute emissions) (C20). **Version B:** Targets covering scope 3 must be consistent with delivering a well-below 2°C-aligned emissions outcome. Compared to Version A, this version would pose less of a barrier to entry for companies; however, the minimum ambition of interim SBTs would be less well-aligned with the goal of limiting warming to 1.5°C. Because it is often harder for companies to control, influence, or assess changes to scope 3 emissions, some experts in the corporate sustainability community contend that scope 3 emissions should not be held to the same minimum ambition as scopes 1 and 2. *Note: The wording of this criterion, which differs from C30, is meant to suggest that some targets can be deemed "consistent with delivering a 1.5°C or well-below 2°C-aligned outcome" without strictly relying on an*

	emissions accounting-based methodology. For example, research suggests that supplier and customer engagement targets are an effective scope 3 approach if meeting stringent criteria. Other target-setting approaches could be considered for scope 3 that meet this criterion. *To meet this criterion, emissions accounting-based methods, like absolute contraction or SDA, must be aligned with 1.5°C or well-below 2°C, as specified, which is an increase from the SBTi's current minimum ambition for scope 3.*
NZ-C34. Science-based targets: supplier or customer engagement targets *Scope 3 targets to drive the adoption of science-based emission reduction targets by suppliers and/or customers are considered acceptable when they meet the conditions specified C20.1 in the current SBTi Criteria (page 11).*	Companies are eligible to use supplier and customer engagement targets to meet part or all the required scope 3 coverage of SBTs. Companies must specify the percentage of upstream and/or downstream emissions or percentage of spend that is covered by engagement targets. To meet an engagement target, a company's suppliers and/or customers are required to set science-based targets within five years of the target's submissions to the SBTi (although these supplier and customer targets are not required to be validated by the SBTi).

Consultation questions

18. The SBTi is considering two options for the minimum ambition (scope 1+2) of interim SBTs for companies to be eligible for a validated net-zero target (NZ-C30).
    a. Do you think the minimum ambition (scope 1+2) of interim SBTs in the Net-Zero Criteria should be 1.5°C (Version A) or well-below 2°C (Version B)? Please explain.
    b. If you think the minimum ambition (scope 1+2) of interim SBTs in the Net-Zero Criteria should be 1.5°C, do you agree that the SBTi should make a temporary exception for companies in hard-to-abate sectors?
    c. Are you aware of any credible and transparent approaches to classifying sectors as "hard-to-abate" relative to the global economy?

d. Do you think that if the minimum ambition (scope 1+2) of interim SBTs in the Net-Zero Criteria is 1.5°C, the minimum ambition of all SBTs should be increased to 1.5°C in 2022? Please explain.

19. Based on NZ-C31, interim SBTs are required to cover scope 3 emissions. Do you agree with this criterion?

20. Three approaches to determining minimum scope 3 boundary coverage are being considered (NZ-C33).
    a. Do you have a preference for Version A, B or C? Please explain.
    b. Do you think that the minimum scope 3 boundary of interim SBTs (NZ-C31) should be identical to the minimum emissions abatement boundary of net-zero targets (NZ-C32)?

       Note: If the minimum scope 3 boundary of interim SBTs is not identical to the emissions abatement boundary of net-zero targets, companies may be required to revise their scope 3 target boundary in a future year through the target recalculation process to cover parts of the company's value chain that were not covered by an interim SBT.

21. Based on NZ-C34, the minimum ambition (scope 3) of interim SBTs will be either well-below 2°C or 1.5°C, which is a significant increase from the current range of options available to companies for scope 3 target-setting.

    Do you think the minimum ambition (scope 3) of SBTs should be (A) 1.5°C or (B) well-below 2°C?

COMMUNICATION, CLAIMS, AND VALIDITY CRITERIA

VII. Target Formulation and Reporting

Net-zero targets involve several interlocking components that demonstrate leadership separately and in combination. While companies are free to decide the best way to express their targets in promotional work, both stakeholders and companies benefit from public access to standardized information on targets and environmental performance.

This section specifies how targets need to be formulated and how companies are required to report on progress against targets. The criteria in this section specify SBTi-approved target wording, which reflects important target information that must be made publicly available. The criteria also indicate that companies are required to annually publish progress against targets and specific details related to monitoring, reporting, and verification. Forthcoming resources by the SBTi may provide companies with practical recommendations and avenues to publish net-zero target details.

Table 7.1 Target Formulation and Reporting draft criteria and description

Criteria	Description
NZ-C35. Target formulation: complete net-zero target *Companies shall publicly set a net-zero target, as well as separate supporting targets that clearly indicate the magnitude of emissions abatement and neutralisation (if any) that will be achieved by the net-zero target year. Net-zero targets shall include a base year that is used to assess progress against the target.* *If an interim SBT is required by NZ-C2, companies shall publicly set an SBT meeting all SBTi Criteria and criteria in VI. Interim Science-based Targets.*	**Example of overarching net-zero target:** Company A commits to reach net-zero greenhouse emissions across scopes 1, 2, and 3 by 2040 from a 2020 base year.
NZ-C36. Target Formulation: supporting targets (emissions abatement)	**Example 1 of emissions abatement target:** Company A commits to reduce absolute Scope 1, 2, and 3 GHG emissions 90% by 2040 from a 2020 base year.

Emissions abatement targets shall indicate the percentage reduction, in absolute or intensity terms, of scope 1, 2, and 3 emissions against the base year by the net-zero target year with the exception of supplier or customer engagement targets that are eligible for interim SBTs.	**Example 2 of emissions abatement target:** Company A commits to reduce Scope 1 and 2 emissions 85% per <<unit of output>> by 2040 from a 2020 base year. Company A also commits to reduce absolute Scope 3 GHG emissions 70% by 2040 from a 2020 base year.
NZ-C37. Target Formulation: Supporting Targets (Neutralisation) *Where companies' net-zero targets include neutralisation, companies shall publicly set targets to neutralise unabated emissions on an annual basis by the net-zero target year.* *Companies shall publicly set targets for the volume of neutralisation they are committing to realize (at minimum) on an annualized basis by the interim carbon removal target year, if required by NZ-C26.* *Companies should specify the approaches used to achieve carbon removal.* *Companies should also specify the amount of carbon removal occurring in scope 1, scope 3, and acquired using contractual instruments.*	**Example of neutralisation target:** Company A also commits to neutralise unabated Scope 1, 2, and 3 GHG emissions from 2040 onwards. **Example of interim carbon removal target:** Company A also commits to neutralise at least 1000 tCO2 of Scope 1, 2, and 3 GHG emissions from 2030 onwards. **Recommended for both targets:** This target includes Y tCO2 of carbon removal in scope 1, Z tCO2 in scope 3, and Q tCO2 from purchased carbon removal certificates. This target includes Y tCO2 of carbon removal from bioenergy carbon capture and storage and Z tCO2 of carbon removal from reforestation.
NZ-C38. Reporting frequency *Companies shall publicly report on company-wide GHG emissions inventory and progress against published targets on an annual basis.*	This criterion requires companies to report its company-wide GHG emissions inventory and progress against published targets annually.
NZ-C39. Reporting completeness	This criterion requires companies to annually report key information related to progress against targets.

Companies shall publicly report the following information pertaining to progress against published targets: 1. *Fully disaggregated emissions and removals in the GHG Inventory, as specified by Sections II and III;* 2. *Identifying documentation for all contractual instruments used toward progress against and neutralisation targets;* 3. *Project information regarding all purchased and issued certificates and;* 4. *The approaches used to conduct carbon removal;* 5. *Details regarding the liability and impermanence risk of carbon storage.*	

Consultation questions

22. NZ-C36 specifies the information that must be included, as well as details that are recommended for inclusion, in the approved wording a company's neutralisation target.
    a. The criterion indicates that companies *should* specify the carbon removal approaches used to meet a neutralisation target in the approved target wording. Do you agree that companies should specify this information, but that is should not be required? If not, please explain.
    b. This criterion indicates that companies *should* specify the amount of carbon removal they plan to achieve in scope 1, scope 3, and using contractual agreements. Do you agree that companies should specify this information, but that is should not be required? If not, please explain.

23. According to NZ-C39, there are several pieces of information that companies are required to publicly report on an annual basis. Do you agree that companies should publicly report the information specified by this criterion?

VIII. Recalculation and Target Validity

This section specifies the timeframes and business changes that require companies to review and, if necessary, adjust or recalculate targets.

Table 8.1. Recalculation and Target Validity draft criteria

Criteria
NZ-C40. 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. The latest year in which companies with already approved targets must revalidate is 2025. Companies with an approved target that requires recalculation must follow the most recent applicable criteria at the time of resubmission.*
NZ-C41. 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 with the SBTi

APPENDIX: OPTIONAL COMPENSATION

IX. COMPENSATION ACTIONS

Companies that reduce value chain emissions at science-based rates will continue to emit GHGs during their journey to net-zero. Compensating for these emissions can enhance the breadth and impact of a company's climate action strategy.

In this document, the term compensation refers to a company's actions or investments that mitigate, or are made with the intention to mitigate, GHG emissions beyond those mitigated by its SBT and net-zero target. While committing to net-zero demonstrates that companies are ready to take action on their own emissions impact, compensation measures can help deliver positive outcomes beyond a company's value chain. By directly financing innovative projects and programs, as well as purchasing high-quality carbon credits, companies have the opportunity to support not only climate but also a wide range of co-benefits such as community health, indigenous land tenureship, biodiversity, and food and water security. Direct investment in research and development can also support the rapid learning that is needed in the next decade to unlock nascent climate solutions and scale-up carbon removal.

To further accelerate society's low-carbon transformation, the SBTi has included this section to help guide companies' additional actions and investments beyond delivering on SBTs and net-zero targets. However, this section also engages in topics that are further from the SBTi's traditional scope of work than the preceding criteria. Feedback is requested on potential roles for the SBTi related to ensuring that compensation measures are robust, as well as on the recommendations themselves. As part of its work to enhance monitoring, reporting, and validation and build opportunities for companies to share knowledge regarding best practices in climate action, the SBTi also aims to support companies sharing information about their compensation actions with the business community and broader public.

Although some companies already compensate for unabated emissions on an annual basis, the recommendations in this section differ from the common practice of carbon neutrality for reasons described in Text box 9.1.

Text box 9.1. How are stakeholder views of carbon neutrality shifting?

Over the past few years, views of how companies should make climate-related investments

outside their value chains have been shifting. For context, we summarize four critiques of carbon neutrality below.

1. Company claims of reaching carbon neutrality can gloss over whether a company has been successful at reducing its own emissions and whether it has followed the mitigation hierarchy. Companies that set aggressive emissions reduction targets (e.g. SBTs) should be distinguishable from companies that don't reduce their own scope 1, 2, and 3 emissions (Day et al., 2020);
2. Many onlookers believe that compensating for unabated emissions using carbon credits from projects or programs in the land sector, which are by far the most popular type of carbon credit, is risky. This concern stems from the notion that carbon removal efforts in the land sector (e.g. reforestation) are not as permanent as CO2 emissions resulting from the energy sector, and therefore are not interchangeable with efforts to reduce energy-related emissions (Allen et al., 2020);
3. With the advent of the Paris Agreement, some onlookers argue that carbon credits from projects purchased for voluntary climate mitigation purposes should only be eligible if the country they are produced in authorizes their use by companies and adjusts its national emissions inventory so that the emissions reductions are not used to meet its nationally determined contribution (NDC). This accounting adjustment – often referred to as a corresponding adjustment—prevents double counting, but has posed an issue to voluntary offset markets (Carbon Market Watch, 2020);
4. Fourth, as companies can only achieve carbon neutrality by compensating for remaining annual emissions with already-demonstrated emissions reductions (e.g. ex-post carbon credits), offsets disincentivize companies from investing in opportunities that are "riskier" from a carbon market perspective but that may still be quite impactful (New Climate Institute, 2020).

The recommendations in this section reflect efforts to address and overcome these potential limitations of carbon neutrality. By clearly separating a company's compensation from the requirement to reduce value chain emissions at science-based rates, the recommendations here aim to abide by the mitigation hierarchy and prioritize efforts to tackle emissions in a company's value chain (Schallert et al., 2020). Moreover, the recommendations specify that companies should calculate and express the amount of compensation using a finance metric, which may eliminate negative incentives to purchase lower quality carbon credits and allow companies to pursue a wider range of climate finance, in addition to ex-post carbon credits. The use of a financial metric (e.g., assigning a carbon price to value chain emissions) may also provide greater transparency to the relative efforts of a company to mitigate emissions inside and outside its value chain.

Table 9.1 Compensation recommendations and descriptions

Recommendation	Description
C-R1. Compensation to support climate, people, and nature *Companies are encouraged to undertake compensation actions that address unabated value chain emissions, for example by providing annual support to projects, programs, and solutions that provide quantifiable benefits to climate, people, and nature.*	Companies that reduce emissions across their value chain at science-based rates will continue to emit GHGs. The SBTi encourages companies to address remaining value chain emissions by undertaking compensation actions that support climate, people, and nature.
C-R2. Commitments to compensate unabated emissions *Companies may publicly set a commitment to compensate unabated emissions on an annual basis over a specified timeframe.*	Compensation can be integrated into a company's climate action strategy by publicly committing to undertake compensation annually for a specific timeframe.
C-R3. Company financial commitment proportional to the cost of unabated emissions *Compensation actions should be, at minimum, proportional to the cost of unabated value chain emissions (scopes 1, 2, and 3) using an indicative carbon price that increases over time.* *Companies may consider setting compensation targets that are proportional to the company's financial capability or cumulative historical emissions.*	Companies should use a financial metric to determine the minimum recommended compensation undertaken in a given year. The amount of compensation should be, at minimum, proportional to the cost of unabated value chain emissions using an indicative carbon price that reflects what is needed to achieve the ambition of the Paris Agreement. There are several methods of calculating an indicative carbon price. For example, mitigation cost curves and social cost of carbon approaches are both

	commonly referenced (but may result in very different outcomes). Companies may consider setting targets that go beyond compensating for annual emissions by also addressing cumulative historical emissions or that reflect a company's financial capability. These recommendations cover companies exclusively and do not refer to financial institution investments.
C-R4. Quality conditions for all compensation actions *Eligible compensation actions include purchasing high quality carbon credits; providing direct financial support to projects and programs that support climate, people, and nature; and direct investment in unlocking future climate solutions.* *The following quality conditions should be met.* ***ALL COMPENSATION ACTIONS:*** 1. *Measurable – measurability (using tCO2e or other metrics) can provide stakeholders with evidence of positive impact and opportunities to enhance learning;* 2. *Additional – compensation actions should enable climate mitigation outcomes that otherwise would not be realized;* 3. *Durability – mechanisms should be in place to address the risk of non-permanence;*	Ensuring that compensation actions meet a set of best practice quality conditions can maximize impact and credibility. The SBTi recommends that compensation actions should be measurable, additional, durable, uniquely retired, and result in verified impact. Carbon credits are also recommended to be vulnerable, which means that for already implemented projects, carbon credits should only be eligible if the mitigation would cease to occur without ongoing revenue from carbon credits. These conditions should not exclude companies from financing some activities with a higher risk of failure but the potential to deliver major impact.

4. *Unique retirement – uniquely retired carbon credits may not be claimed by more than one actor;* 5. *Verified impact – third-party verification increases credibility and confidence of reported outcomes;.* ***CARBON CREDITS*** 6. *Vulnerability – carbon credits from already implemented and additional projects are eligible if the project needs ongoing revenues from carbon credits to continue GHG abatement.*	
C-R5. Social and environmental conformance for compensation activities *Compensation activities should not infringe on global and local efforts to achieve the Sustainable Development Goals. In particular, the following conditions should be met, where relevant:* 1. *Activities adhere to a standard with publicly documented social and environmental safeguards;* 2. *Project/program details are publicly available and auditable;* 3. *Projects/programs are developed with documented involvement and informed consent from local communities;* 4. *A policy to transparently address complaints and grievances is available to all stakeholder that may be affected by a carbon removal project activity or program.*	Activities must adhere to a publicly documented standard with social and environmental safeguards (NZ-C28.1) with details that are publicly available (NZ-C28.2). They must also be developed with informed consent from local communities (NZ-C28.3) and a policy to address grievances (NZ-C28.4). There is significant ongoing work in the climate action space to improve how social and environmental safeguards are integrated into climate mitigation projects and programs

Consultation questions

24. Under the model proposed in this section, would your company be interested in setting a compensation target?

25. In your opinion, what is the best role for the SBTi to play to scale up adoption of corporate finance commitments in the context of the Net-Zero Standard?

26. According to C-R3, companies should determine the minimum amount of compensation undertaken by applying an indicative carbon price that increases over time to the volume of unabated value chain emissions.
    a. Do you agree with this recommendation? If not, please explain.
    b. There are many ways of calculating a reference carbon price. Would you like to suggest a specific approach that is applicable to the Net-Zero Standard?
    c. Do you think that the SBTi should recommend a minimum carbon price for compensation targets?

27. Do you agree with the quality conditions specified by C-R4? Do you think any should be added?

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