

# The SBTi Net-Zero Corporate Manual

Version 1.1 for company road test

July 2021



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Partner organizations



WORLD  
RESOURCES  
INSTITUTE



Version	Release date	Purpose	Updates on earlier version
1.0	15.07.2021	Road test	-
1.1	23.07.2021	Road test	Clarification on 5-10 year timeframe for near-term SBTs, timeline updates, minor updates to spelling and grammar, minor updates to Appendix III.

SUPERSEDED

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## Part 1: Background

### 1.1 About this guidance

This guidance document provides information to companies participating in the Net-Zero Standard road test on how to set emission reduction targets as part of a net-zero commitment aligned with science. This manual will be updated and published when the Standard is launched based on feedback received throughout the road test.

The document serves as an accompaniment to the Science Based Targets initiative (SBTi) Net-Zero Criteria, Net-Zero Tool and Net-Zero How-to Guide. It is split into six parts and laid out as follows:

- [Part 1: Background](#)
- [Part 2: Terminology and updates to current SBTi criteria](#)
- [Part 3: Mitigation pathways in the Net-Zero Standard](#)
- [Part 4: Setting near-term and long-term science-based targets](#)
- [Part 5: Updating and communicating targets](#)
- [Part 6: Conclusion and next steps](#)

The intended audience for this document is companies with over 500 employees that wish to commit to net-zero through the SBTi. These documents cover corporate net-zero targets and do not cover financial institution net-zero targets. The SBTi's [financial sector project](#) is developing specific net-zero resources for financial institutions.

SBTi has published several other documents on target setting and net-zero<sup>1</sup>. This guidance complements these existing documents. This document also addresses topics that are described in further detail in other SBTi publications, like the [Foundations for Science-Based Net-Zero Target Setting in the Corporate Sector](#) paper and the [SBTi Corporate Manual](#). This guidance and the SBTi's other publications provide a comprehensive suite of information for companies interested in setting science-based targets.

### 1.2 What are science-based targets?

Greenhouse gas (GHG) emissions reduction targets are considered “science-based” if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement - to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

The SBTi currently validates scope 1 and 2 SBTs that are in alignment with limiting global warming to well-below 2°C as a minimum level of ambition. However, in response to the

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<sup>1</sup> More information on the SBTi's Net-Zero project can be found on our website at <https://sciencebasedtargets.org/net-zero>.

urgency and scale of the climate emergency, the SBTi is ratcheting up its expectations for businesses by ensuring all targets align with a 1.5°C future.

From 15 July 2022 onwards, the SBTi will only validate targets aligned with 1.5°C for scope 1 and 2 and a minimum level of ambition of well-below-2°C for scope 3. Updates to the target setting criteria (Version 5.0) in line with the new SBTi net-zero standard will be launched in November 2021. This is described in further detail in this document in the section on “[Changes to near-term SBT criteria](#)”.

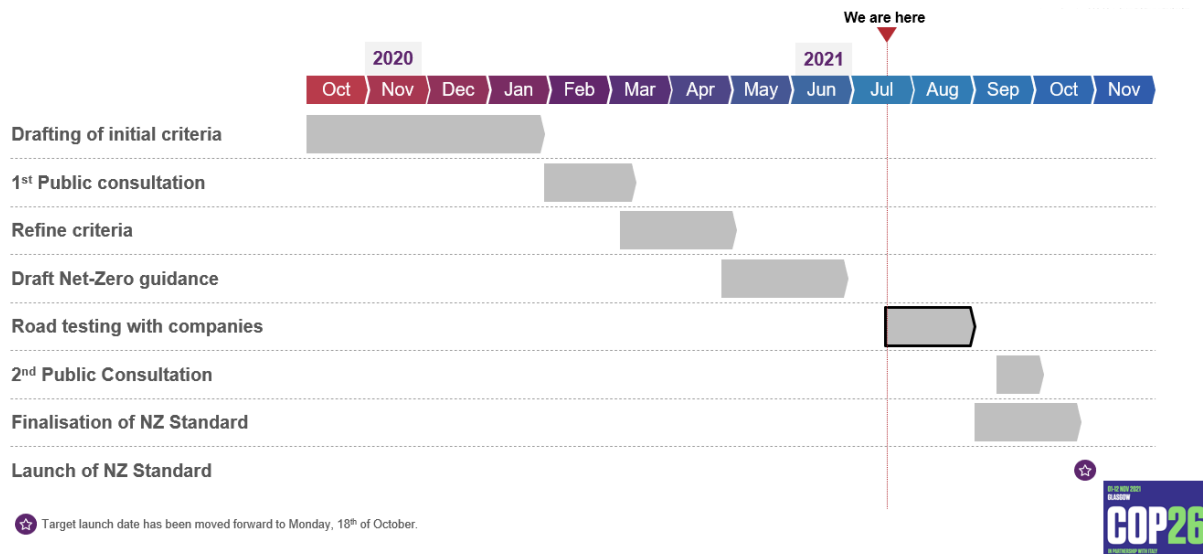
### 1.3 The Net-Zero Standard development process

Recognising that the definition of net-zero and the path to get there is often inconsistent, the SBTi began developing the Net-Zero Standard to provide business leaders with a common, robust, and science-based understanding of net-zero. The SBTi is undertaking this process to provide clarity and to ensure companies can be confident their actions are in line with climate science. There are many frameworks available for companies to make net-zero commitments, including the [SBTi's Business Ambition for 1.5°C campaign](#), however the SBTi's Net-Zero Standard is the first global science-based standard to guide companies in setting net-zero targets.

The SBTi is undertaking a robust, inclusive, and transparent consultation with stakeholders from science, business and civil society to ensure that the SBTi's Net-Zero Standard is the gold standard for science-based net-zero target setting. The framework is being developed through consultations with the SBTi's Scientific and Technical Advisory Groups, a dedicated Net Zero Expert Advisory Group and a Stakeholder Consultative Group. Our Expert Advisory Group (EAG) includes representatives from academia, civil society, science and business. The EAG's main role is to review and provide in-depth feedback to the SBTi during development of our Standard.

Following on from the publication of the '[Foundations for net-zero target setting in the corporate sector](#)' paper in September 2020, the SBTi has been developing detailed criteria and guidance. A public consultation on the [first version of draft criteria](#) was open for comments for two months and closed on 12th of March, 2021. We received almost 400 responses to our consultation. You can find out more about the public consultation in our Public Consultation report, which will be published on our website soon.

Figure 1. Net-Zero Standard project timeline



This road test will help us refine the tools, guidance and criteria for the Net-Zero Standard, which will be released in advance of COP26 in November 2021.

## 1.4 What does the Net-Zero Road Test entail?

The road test will run from Thursday the 15<sup>th</sup> of July to Tuesday the 31<sup>st</sup> of August 2021. The primary objectives for the road test are to:

- Gather feedback on the clarity, robustness and practicality of the target setting tool, criteria and guidance
- Identify key challenges for adoption and implementation of the standard across industries
- Build a strong network of companies on the journey to setting net-zero targets in line with climate science

Companies are expected to trial the target setting tool and review the criteria and guidance documents, and then provide input via the [feedback survey](#). The first version of the Net-Zero Standard will be finalised in late 2021.

### 1.4.1 Why focus on emission reduction target criteria in this road testing?

The SBTi is prioritising development and refinement of emission reduction target methods in the process to develop the Net-Zero Standard. As a result, **this road test will focus on criteria and methods for setting near-term and long-term SBTs** that are an essential part of any corporate net-zero commitment. This means that the criteria and recommendations on neutralisation and compensation<sup>2</sup> that were included in the [first draft of Net-Zero Criteria](#) will

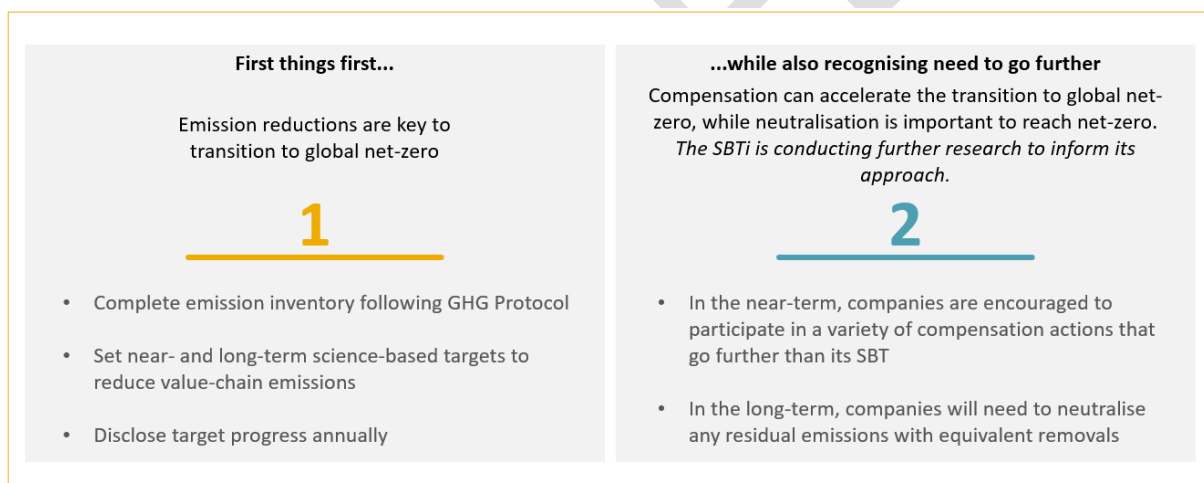
<sup>2</sup> In this document, the term compensation refers to companies' actions or investments that mitigate GHG emissions beyond those covered by their near-term and long-term science-based targets. It may include actions such as purchasing high-quality carbon credits and providing direct financial support to projects that generate positive climate impacts outside a company's value chain. Although the term compensation is often associated with subtracting carbon credits from the emissions in a company's inventory to claim "neutrality," the use of the term

not be part of this road test. Science-based emissions reductions across all three scopes are key to achieving global net-zero goals, and the SBTi has received clear feedback from consultations to-date that this is where its immediate focus should lie.

The SBTi aims to develop the Net-Zero Standard to encourage companies to follow the principles of the mitigation hierarchy. Effectively that means that companies should set science-based targets to reduce their value chain emissions and implement strategies to achieve these targets before engaging in neutralisation and compensation activities (See Figure 2). The SBTi defines compensation as actions that companies take to help society avoid or reduce emissions outside of their value chain, and neutralisation as measures that companies take to remove carbon from the atmosphere<sup>3</sup>.

The SBTi recognises that there is an urgent need to scale up near-term climate finance and we are exploring what our role in incentivising these investments should be. While achieving net-zero means neutralising residual emissions with carbon removals, a company's pathway to achieving net-zero can, and often should, include investments that help avoid or reduce emissions outside the company's value chain. The SBTi is currently conducting further research to inform its approach to neutralisation and compensation.

Figure 2. SBTi perspective on prioritisation of mitigation actions.



#### 1.4.1.1 How does this differ in the Forests, Land and Agriculture sector?

Companies with forest, land, or agriculture (FLAG) emissions in their supply chains should set separate SBTs that cover land-based emissions and carbon removals. Companies who choose this approach can then engage in a variety of mitigation activities to meet their science-based targets that include removals (e.g., stopping deforestation and conversion). It is important to note that because FLAG SBTs are separate from non-FLAG SBTs, FLAG

here is not meant as endorsement of such practices or claims. The SBTi is using the term compensation as a placeholder and is currently reviewing other options for terminology.

<sup>3</sup> There are important uncertainties and limits to sustainable carbon removal. Under the Net-Zero Standard, many companies are required to set targets to reduce emissions by at least 90%, in-line with the magnitude of decarbonisation required to reach net-zero at the global or sector level, to be eligible to reach net-zero with additional neutralisation.



mitigation cannot be used to meet non-FLAG targets (e.g., a company cannot bring forests into its value chain to meet another target).

Currently the [GHG Protocol is developing new guidance for corporate land use and removals accounting](#) and, in parallel, the [SBTi is developing specific science-based target setting methods for companies with land sector emissions](#).<sup>4</sup> The new guidance on accounting and target setting for land-based emissions means that companies have a new opportunity, and requirement, to bring land sector emissions and reduction opportunities into their net-zero strategies.

For more information on the FLAG sector, see [Appendix 3: Further guidance for companies with significant FLAG emissions](#).

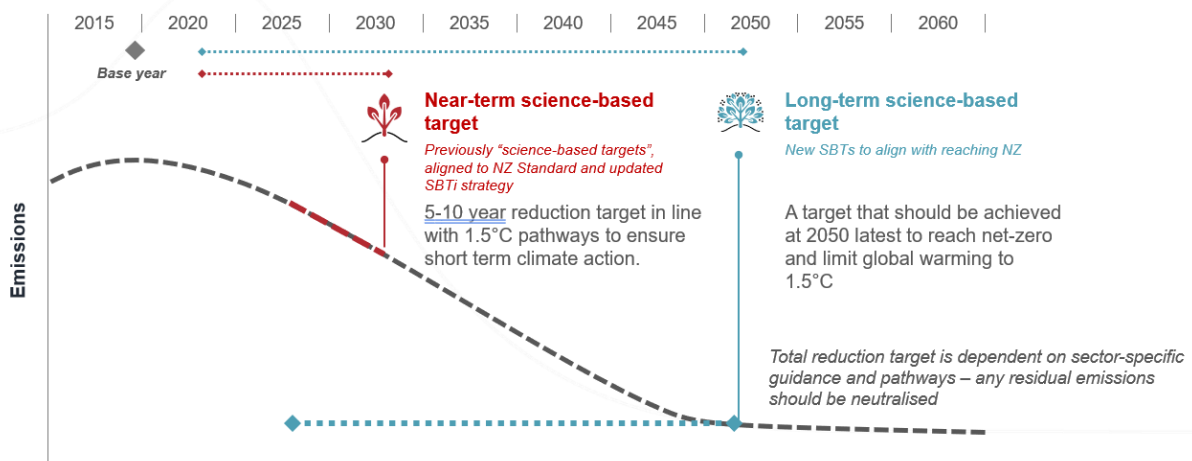
<sup>4</sup> While GHG Protocol guidance for land sector emissions is under development, we recommend the following guidance documents in the interim: GHG Protocol Corporate Standard, Scope 3 Standard, Product Standard, Agriculture Guidance, LULUCF project guidelines, Brazil forestry tool. IPCC. Guidelines for National GHG Inventories. 2006 Guidelines, Good Practice Guidance for LULUCF, 2019 Refinement, ISO. ISO 14064 1:2018. Quantis. Accounting for Natural Climate Solutions Guidance. Gold Standard, Value Change Initiative.

## Part 2: Terminology and updates to current SBTi criteria

### 2.1 Science-based targets terminology

Since publication of the [first draft of Net-Zero Criteria](#), the SBTi has been going through a process of refining and clarifying the terminology used within the standard. As part of this refinement process, we have renamed “interim science-based targets” to “near-term science-based targets” and included a more specific term - “long-term science-based targets” - for emission reduction targets in line with net-zero.

Figure 3. Near-term SBTs vs. long-term SBTs



#### 2.1.1 Near-term science-based targets

- **What:** Previously known as “science-based targets” (or “interim science-based targets” in the first draft of Net-Zero Criteria), these are 5-10 year emissions reduction targets in line with 1.5°C pathways.
- **Why:** Galvanise the near-term action required for deep emissions reductions to be achieved by 2030. Deep near-term emissions reductions are critical to not exceeding the global emissions budget and are not interchangeable with long-term targets<sup>5</sup>.

#### 2.1.2 Long-term science-based targets

- **What:** Previously known as deep decarbonisation targets, these targets show companies how much they must reduce emission to align with reaching net-zero at the global or sector level in 1.5°C pathways.
- **Why:** Drive economy-wide alignment and long-term business planning to reach the level of global emissions reductions needed for climate goals to be met based on science.

<sup>5</sup> Despite this, if a company sets a long-term science-based target to reach the level of decarbonisation required to reach net-zero at the global or sector level in 1.5°C pathways within a 10 year timeframe, the near-term science-based target is not required.




## 2.2 Changes to near-term SBT criteria

In response to the urgency and scale of the climate emergency, the SBTi is ratcheting up its expectations for businesses by ensuring all targets align with a 1.5°C future.

From 15 July 2022 onwards, the SBTi will only validate targets aligned with a minimum level of ambition of 1.5°C for scope 1 and 2 and well-below-2°C for scope 3. In addition to this, the SBTi is reducing the timeframe for near-term targets from a maximum of 15 years to a maximum of 10 years. Updates to the target setting criteria for near-term targets (Version 5.0) in line with the new SBTi Net-Zero Standard will be launched at the end of 2021.

To validate your net-zero commitment through the SBTi, your company's near-term SBTs must meet these revised criteria. This means that if your company has a legacy SBT that does not fulfil these criteria, it must be updated (see [here](#) for more information on this process). You can find out more about the SBTi's work to develop 1.5°C pathways [here](#).

Table 1. Summary of changes to near-term SBT criteria

Criterion	Planned changes
<b>Timeframe</b> 	Under the current criteria, near-term SBTs may have a target year 5-15 years from the date of submissions. In the new criteria, this will be changed to 5-10 years from the date of submission.
<b>Scope 1 &amp; 2 ambition</b> 	The minimum scope 1 and 2 ambition of near-term SBTs will be increased from well-below 2°C to 1.5°C
<b>Scope 3 ambition</b> 	The minimum scope 3 ambition of near-term SBTs will be increased from 2°C to well-below 2°C. Supplier engagement targets will remain eligible; however, the SBTi is considering removing the non-SDA physical intensity contraction method and the GEVA economic intensity method. The SBTi will also be exploring additional category-specific scope 3 target setting methods.

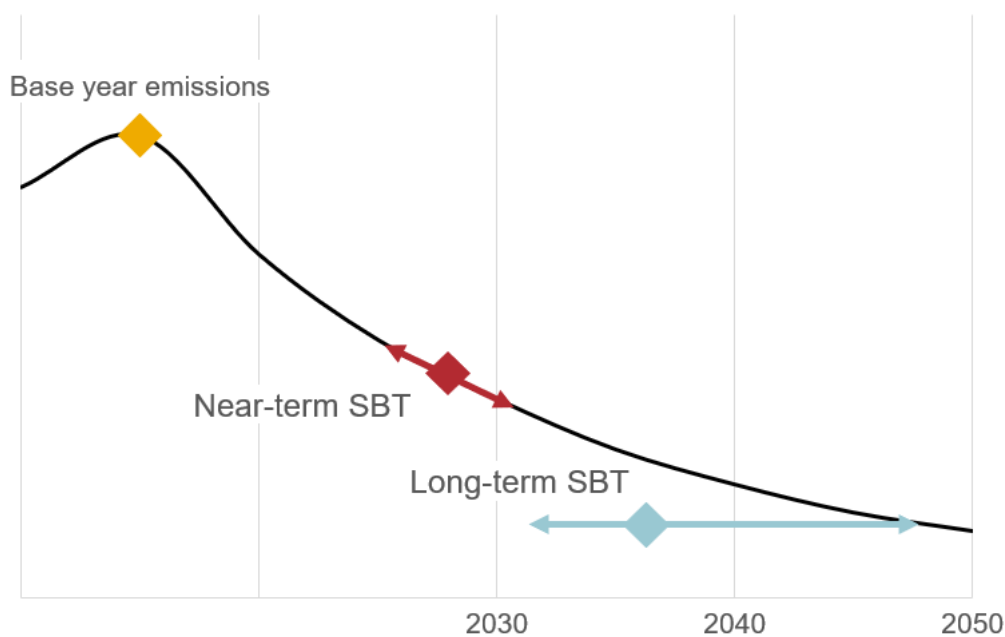
## Part 3: Mitigation pathways in the Net-Zero Standard

### 3.1 How mitigation pathways are used to inform SBTs

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

Because of this, near-term SBTs are target year-dependent, while long-term science-based targets are company target year-independent. This means that your reduction target will differ depending on the target year selected for your near-term SBTs, but the reduction target will not differ for the chosen target year for your long-term SBTs. This is illustrated in Figure 4 below.

*Figure 4. Schematic showing target year-dependency of near-term SBTs and target year-independency of long-term SBTs. Companies must select a target year earlier than 2050 for long-term SBTs, which depends on how quickly it can reduce its emissions.*



Mitigation pathways are derived from emissions scenarios. Some scenarios are global in scope and cover all GHGs, while others are more limited in scope but are more granular.

Global scenarios illustrate that if one sector reduces emissions less, other sectors would need to reduce emissions more for the same temperature goal to be achieved. SBT pathways are internally consistent, so if all companies set SBTs using different SBTi pathways the global emissions budget would still be preserved and global climate goals would be met.

### 3.1.1 Available pathways and which companies should use them

There are two main SBT pathways (see Figure 5)<sup>6</sup>:

1. A universal pathway, which covers global GHG emissions except forestry, land-use, and agriculture (FLAG)
2. An agriculture pathway, which covers FLAG emissions.

For most companies, the recommendation is to set separate absolute contraction targets using these two pathways.

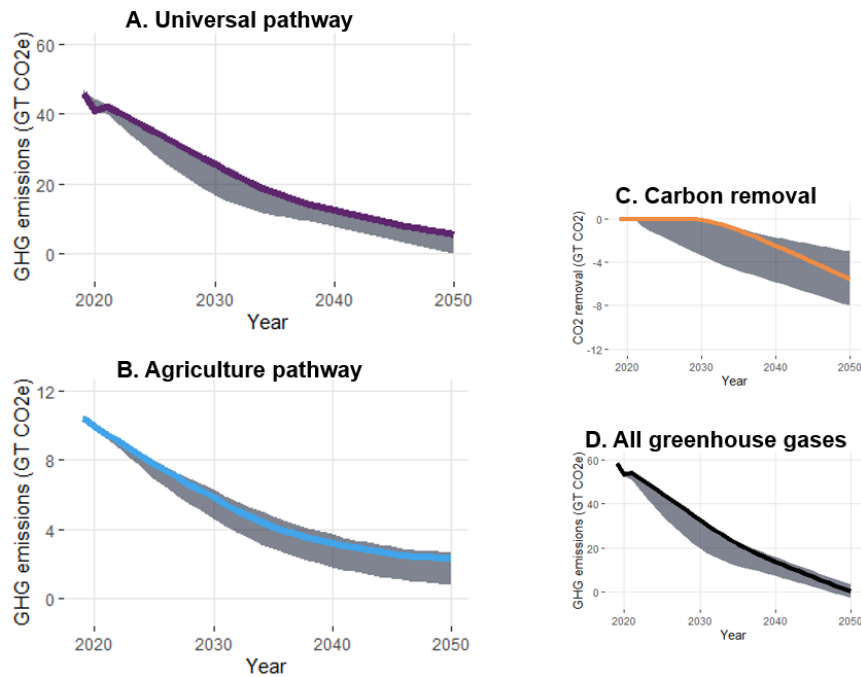
There are also activity pathways for setting intensity targets that cover power generation, buildings, transportation, industrial products, and agricultural commodities. These are recommended for companies in heavy-emitting sectors.

Other companies with scope 3 emissions allocated to these activities (i.e., they are on the demand-side of these activities) may set near-term intensity targets but are required to set absolute targets in the long-term. When setting long-term SBTs, these companies may use activity pathways to calculate activity-specific absolute contraction targets, as an alternative to the standard option of using the universal and agriculture pathways. Companies that are not in heavy-emitting sectors but are on the demand-side of these sectors, are required to set absolute targets because, unlike intensity targets, they account for demand-side mitigation options like transport mode switching and reduced material usage.

See Table 2 for further details on this topic.

<sup>6</sup> Because companies will be required to set separate targets for FLAG and non-FLAG emissions, the universal pathway will supersede the SBTi's current use of a global pathway to benchmark absolute contraction targets for non-FLAG emissions sources. Replacing the use of the global pathway with the universal pathway will have benefits to internal consistency because it does not overlap with emissions in the agriculture pathway and it shows gross emissions (i.e., not counting carbon removal).

Figure 5. Panels A-D show mitigation pathways (coloured lines) and emissions corridors (shaded area, see Box 1) consistent with reaching net-zero by mid-century and limiting global warming to 1.5°C with low or no overshoot. **A:** Gross global GHG emissions except forestry, land-use, and agriculture (FLAG). This pathway is appropriate for most companies. **B:** Net GHG emissions from agriculture including land-use change and agricultural carbon removal. This pathway is appropriate for companies in land-intensive sectors except forestry. **C:** Biological and technological carbon removal. This pathway is not used for target-setting. **D:** Net global GHG emissions including land-use change. This pathway is currently used for near-term SBTs but will be superseded by the universal pathway (A).



### 3.2 Preliminary pathway data for long-term SBTs

Tables 2 and 3 show preliminary data for long-term absolute and intensity SBTs for each activity planned to be covered by the Net-Zero Standard, as well as the universal and agriculture pathways.

It may be surprising that emissions for some heavy-emitting activities such as cement production, passenger cars, and buildings are reduced more than the universal pathway. This is to be expected because the IEA Net-Zero scenario, which was used to derive non-FLAG pathways, covers a subset of GHG emissions in the universal pathway. The SBTi emissions corridor project will compare the IEA Net-Zero scenario to other 1.5°C scenarios and milestones in more detail (see Box 1).

**Pathways included in the road testing draft of this document are preliminary and some are planned to undergo changes. Data is included for the purpose of method testing; companies should review the final guidance for changes before submitting targets to the SBTi.**

Table 2. Summary of 1.5°C-aligned pathways for non-land-intensive companies. Both absolute and intensity pathways are included, where relevant. For each pathway, eligible companies are described and the long-term SBT is shaded green. Note that % intensity reductions for 2019-2030 and 2019-2050, as well as 2030 intensities, are the sector average. Using the SDA (intensity) method, companies may be required to set near-term intensity targets that are above or below the sector average. The % reduction for near-term and long-term SBTs depends on companies' base year intensity.

Activity	Pathway type	Units	Value			% reduction		Eligible companies
			2019	2030	2050	2019-2030	2019-2050	
Universal	Absolute	GT CO <sub>2</sub> e	44.5	25.8	5.1	42%	90%	Most companies with emissions from non-FLAG activities except power generation companies
Aviation	Absolute	Mt CO <sub>2</sub>	1019	783	210	23%	79%	Airline users
	Intensity	tCO <sub>2</sub> /thousand pkm	0.125	0.076	0.013	39%	89%	Airlines, airplane manufacturers
Cement	Absolute	Mt CO <sub>2</sub>	2461	1899	133	23%	95%	Building companies, other cement purchasers
	Intensity	tCO <sub>2</sub> /t cement	0.584	0.446	0.033	24%	94%	Cement producers, capital goods
Iron and Steel	Absolute	Mt CO <sub>2</sub>	2507	1779	220	29%	91%	Building companies, auto manufacturers, other steel purchasers
	Intensity	tCO <sub>2</sub> /t steel	1.341	0.918	0.111	32%	92%	Steel producers, capital goods
Marine transport	Absolute	Mt CO <sub>2</sub>	883	705	122	20%	86%	Retail companies, other shipping purchasers
	Intensity	tCO <sub>2</sub> /thousand tkm	0.008	0.005	0.0004	45%	95%	Shipping service companies
Passenger cars	Absolute	Mt CO <sub>2</sub>	3121	1626	85	48%	97%	Car users
	Intensity	tCO <sub>2</sub> /thousand pkm	0.204	0.103	0.003	49%	98%	Auto manufacturers, car services
Power generation	Absolute	Mt CO <sub>2</sub>	13821	5904	203	57%	99%	Electricity users
	Intensity	tCO <sub>2</sub> /kWh	0.513	0.158	0.003	69%	99%	Electric utilities

Activity	Pathway type	Units	Value			% reduction		Eligible companies
			2019	2030	2050	2019-2030	2019-2050	
Residential buildings	Intensity	tCO <sub>2</sub> /household	0.969	0.566	0.035	42%	96%	Real estate companies
Service buildings	Absolute	Mt CO <sub>2</sub>	977	432	14	56%	99%	Building users
	Intensity	tCO <sub>2</sub> /m <sup>2</sup>	0.020	0.007	0.0002	63%	99%	Real estate companies
Trucks	Absolute	Mt CO <sub>2</sub>	1835	1614	198	12%	89%	Retail companies, other shipping purchasers
	Intensity	tCO <sub>2</sub> /thousand tkm	0.069	0.042	0.003	38%	95%	Shipping service companies
Aluminium	Preliminary data not yet available							
Other industry	Preliminary data not yet available							

Table 3. Summary of 1.5°C-aligned pathways for land-intensive companies. Both absolute and intensity pathways are included, where relevant. For each pathway, eligible companies are described and the long-term SBT is shaded green. Note that % intensity reductions for 2019-2030 and 2019-2050, as well as 2030 intensities, are the sector average. Using the SDA method, companies may be required to set near-term intensity targets that are above or below the sector average. The % reduction for near-term and long-term SBTs depends on companies' base year intensity. Agricultural commodity pathways in this table do not currently reflect emissions and mitigation due to land-use change, which will be added in the final FLAG sector guidance and target-setting tool.

Activity	Target type	Units	Value			% reduction		Eligible companies
			2019	2030	2050	2019-2030	2019-2050	
Agriculture	Absolute	GT CO <sub>2</sub> e	11.0	6.41	2.24	42%	80%	Most with emissions from agriculture except agroforestry
Beef	Absolute	MtCO <sub>2</sub>	1297	1299	1200	0%	7%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	32.41	27.94	21.57	14%	33%	Commodity producers (e.g., farms) and processors
Chicken	Absolute	MtCO <sub>2</sub>	168	150	129	11%	23%	Restaurants, groceries, other purchasers





Activity	Target type	Units	Value			% reduction		Eligible companies
			2019	2030	2050	2019-2030	2019-2050	
	Intensity	tCO <sub>2</sub> /t fresh weight	1.82	1.41	1.06	23%	42%	Commodity producers (e.g., farms) and processors
Dairy	Absolute	MtCO <sub>2</sub>	130	129	122	1%	6%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	1.35	1.21	1.02	10%	24%	Commodity producers (e.g., farms) and processors
Maize	Absolute	MtCO <sub>2</sub>	349	264	199	24%	43%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	0.46	0.31	0.21	33%	55%	Commodity producers (e.g., farms) and processors
Palm oil	Absolute	MtCO <sub>2</sub>	325	251	192	23%	41%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	0.46	0.31	0.21	33%	55%	Commodity producers (e.g., farms) and processors
Pork	Absolute	MtCO <sub>2</sub>	236	209	168	11%	29%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	3.64	2.84	2.09	22%	43%	Commodity producers (e.g., farms) and processors
Rice	Absolute	MtCO <sub>2</sub>	1088	906	689	17%	37%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	1.47	1.06	0.72	28%	51%	Commodity producers (e.g., farms) and processors
Soya	Absolute	MtCO <sub>2</sub>	168	150	culture 129	23%	38%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	1.82	1.41	1.06	32%	53%	Commodity producers (e.g., farms) and

Activity	Target type	Units	Value			% reduction		Eligible companies
			2019	2030	2050	2019-2030	2019-2050	
								processors
Wheat	Absolute	MtCO <sub>2</sub>	130	129	122	15%	23%	Restaurants, groceries, other purchasers
	Intensity	tCO <sub>2</sub> /t fresh weight	1.35	1.21	1.02	26%	42%	Commodity producers (e.g., farms) and processors
Roundwood	Preliminary data not yet available							

### Box 1. In-progress work on 1.5°C pathways

#### Authoritative business-sector emissions corridors

The SBTi is developing publicly available “emissions corridors” at the business sector level. Emissions corridors will be used to evaluate pathway eligibility for target-setting, as well as enhancing SBTi collaboration with the research community and developers of sectoral projects by describing business sector-relevant emissions milestones that are science-based, attainable, and aligned with Sustainable Development Goals. Emissions corridors will enable stakeholders across the business climate action community to assess target-setting pathways with different levels of resolution from a wide range of sources and work together to fill action gaps.

Emissions corridors will be determined based on a comparison of top-down scenarios (e.g., IAMs), hybrid scenarios (e.g., reflecting expert judgement), and bottom-up estimates of mitigation potential. Starting from the global level, emissions corridors will be disaggregated in several steps down to the business sector level. Draft emissions corridors for all GHGs, the SBTi universal pathway, agriculture pathway, and carbon removal are included in Figure 4. This project is being conducted with the SBTi Scientific Advisory Group.

#### Adding land-use change to current agricultural pathways

The SBTi is planning to add the emissions associated with land-use change into preliminary agricultural pathway data included in this road-testing draft of the report.

## Part 4: Setting near-term and long-term science-based targets

Companies take a variety of approaches to developing near-term and long-term SBTs; however, the following high-level steps are often taken:

1. Select a base year
2. Calculate your company's emissions
3. Set SBT boundaries
4. Choose a target year
5. Calculate targets

These steps are described in the sections below.

### 4.1 Select a base year

Companies need to establish a base year to track emissions performance consistently and meaningfully over the target period.

Three considerations are important for selecting a base year.

- Scope 1, 2, and 3 emissions data is verifiable and recent
- The base year should be representative of a company's typical GHG profile<sup>7</sup>
- The base year should be chosen such that the target has sufficient forward-looking ambition
- The base year must be no earlier than 2015

<sup>7</sup> For companies that have been significantly impacted by COVID-19, the SBTi recommends selecting a base year such as 2019 instead of 2020 or 2021 when setting targets. Alternatively, companies are welcome to use a multi-year average base year approach, as described in Chapter 5 of the Greenhouse Gas Protocol Corporate Standard. As some companies have been less impacted by COVID-19 than others, the SBTi will still allow 2020 base years for target setting purposes and will allow companies to make their own determination about the appropriateness of a 2020 base year.

Companies that have already set near-term SBTs must use the same base year for their long-term SBT. For more information on setting the base year, please see [the corporate manual](#) (v1.1; p.11) and the Net-Zero Standard Criteria.

## 4.2 Calculate your company's emissions

### 4.2.1 Develop a full GHG emissions inventory

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

#### **Ensure the target boundary is aligned with the GHG Inventory boundary**

A company must select a single GHG Protocol defined method (operational control, financial control or equity share) to determine its organisational boundary. The same method should be used to calculate its GHG emissions inventory and to define its SBT target boundaries. Both the emissions inventory and target boundary should cover all seven GHGs or classes of GHGs covered by the UNFCCC/Kyoto Protocol.

For more information on organisational boundary-setting, please see [the SBTi Corporate Manual](#) (v1.1; p.12) and [The GHG Protocol Corporate Standard](#) (WRI & WBCSD 2004).

#### **Determine how to treat subsidiaries**

Parent companies should set SBTs for subsidiaries in accordance with the selected organisational boundary approach. When required by the organisational boundary approach, parent companies must include emissions from subsidiary operations in their GHG inventory.

The SBTi does allow subsidiaries to submit targets. However, regardless of whether the subsidiary has approved SBTs, parent companies must include subsidiaries in their target boundary as required by the selected organizational boundary approach.

For more information on subsidiaries, please see [the SBTi Corporate Manual](#) (v1.1; p.13) and page 19 of the [GHG Protocol Corporate Standard](#) (p. 19)

#### **Exclude the use of offsets**

Offsets (including neutralisation and compensation) do not count as reductions toward meeting your science-based targets. Companies should account for reductions resulting from direct action within their operations or value chains.

### Exclude avoided emissions

A company's product avoids emissions if it has lower life cycle GHG emissions relative to some other company's product that provides an equivalent function. Avoided emissions occur outside of the product's life cycle and therefore do not count as a reduction of a company's scope 1, 2 and 3 inventory.

For more information on avoided emission, please see [the SBTi Corporate Manual](#) (v1.1; p.13) and the World Resources Institute [paper on avoided emissions](#)

### Determine how to treat indirect use-phase emissions

Indirect use-phase emissions are generated by products that only consume energy indirectly during use over their expected lifetime. Examples of such emissions include the washing and drying of apparel and the cooking and refrigeration of food products.

Indirect use phase emissions are not within the "minimum boundary" for category 11 (use of sold products) and are listed as "optional."

If companies have significant indirect use-phase emissions and have levers to address them, they are encouraged to estimate these emissions and set an optional target on these emissions. Despite this, optional scope 3 emissions will not be counted towards the two thirds boundary in near-term SBTs and 95% boundary in long-term SBTs.

### Include all mandatory scope 3 emissions

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

A useful approach to calculating scope 3 emissions is to first calculate a high-level screening inventory. Such an inventory can be used to directly set a target or to identify high-impact categories for which more accurate data are needed. Over time, companies should strive to develop complete inventories and improve data quality for high-impact categories (e.g., collect primary data) to better track progress against targets.

For more information on calculating a scope 3 emissions inventory, please see the corporate manual (v1.1.; p. 22) and the GHG Protocol's [Corporate Value Chain \(Scope 3\) Accounting and Reporting standard](#).

#### 4.2.2 Calculate relevant emissions that are reported separately from the GHG inventory

To meet SBTi criteria, companies that use bioenergy must also report direct CO<sub>2</sub> emissions from biomass combustion, as well as removals associated with biomass feedstock. These emissions are reported separately from the company's GHG inventory, in line with Greenhouse Gas Protocol guidance.

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

Companies are also encouraged to calculate GHG emissions from land-use change in their target boundary, although these are not currently required to be included in emissions inventories by the Greenhouse Gas Protocol.<sup>8</sup>

### 4.3 Set SBT boundaries

#### 4.3.1 Near-term SBT boundary (scopes 1, 2, and 3)

Near-term SBTs must cover at least 95% of company-wide scope 1 and 2 emissions. For companies with scope 3 emissions that are at least 40% of total emissions (scope 1, 2, and 3 emissions), at least 67% of scope 3 emissions must also be covered. Companies in certain heavy-emitting sectors are required to include specific emissions sources or scope 3 categories in their SBT boundary (Appendix 1).

<sup>8</sup> Note on forthcoming land sector GHG Protocol guidance. See [Appendix 3: Further guidance for companies with significant FLAG emissions](#) for more information.

### 4.3.2 Long-term SBT boundary (scopes 1, 2, and 3)

Long-term SBTs must cover at least 95% of company-wide scope 1 and 2 emissions and 95% of scope 3 emissions.

### 4.3.3 Additional required SBT coverage

Companies that use bioenergy must include direct CO<sub>2</sub> emissions from biomass combustion and carbon removals associated with bioenergy combustion in their target boundary, even though these emissions are reported outside a company's GHG inventory. Similarly, companies that distribute or transport, but do not sell, fossil fuels must include these in their target boundary even though they may not be reported in the company's GHG inventory.

Companies are also encouraged to include GHG emissions from land-use change in their target boundary, although these are not currently required to be included in emissions inventories by the Greenhouse Gas Protocol.<sup>9</sup> A summary of the required coverage of near-term and long-term SBTs is shown in Table 4, and a list of available and planned sector guidance is shown in Table 5.

Table 4. Minimum boundary coverage for near-term SBTs and long-term SBTs

Emissions category	Near-term SBTs	Long-term SBTs
Scopes 1+2	95% minimum coverage	
Scope 3	67% minimum coverage (if scope 3 emissions are at least 40% of total scope 1, 2, and 3 emissions)	95% minimum coverage (all companies)
Use-phase emissions from sold or distributed fossil fuel	Must be covered by an absolute contraction target	
Direct CO <sub>2</sub> emissions from biomass combustion and carbon removals from bioenergy feedstock	Must be included in target boundary	

<sup>9</sup> Note on forthcoming land sector GHG Protocol guidance

Sector-specific target boundary requirements	<ul style="list-style-type: none"> <li>• Transportation companies must set targets on a “well-to-wheel” basis</li> <li>• Power generation companies must set an SDA target on scope 1 power generation and all sold electricity (if scope 3 coverage is required)</li> <li>• See Table 5 for an overview of available sector-specific guidance</li> </ul>
GHG from land-use change	Optional to include

Table 5. Planned and available sector-specific guidance. Currently available guidance documents apply to all aspects of near-term SBT setting and the accounting and target boundary aspects of long-term SBT setting.

Sector	Status
Apparel and footwear	Currently available
Information and Communication Technology (ICT)	Currently available
Power	Currently available
Road transport	Currently available
Aviation	Available by COP26
Maritime transport	Available by COP26
Forests, Land and Agriculture (FLAG)	Available by end of 2021
Cement	In scoping phase
Steel	In scoping phase
Built environment	In scoping phase
Oil & Gas	Publication timeline under review

#### 4.3.4 Meeting SBTi boundary criteria with several targets

Companies often set several targets that collectively meet the boundary requirements described above. This is a valid approach to meeting the SBTi Criteria and Net-Zero Standard. Companies may consider setting targets that cover different activities (scope 1, 2, and/or 3) or that cover different scope 3 categories.



## 4.4 Choose a target year

Near-term SBTs must have a target year 5-10 years from the date of submission to the SBTi, while long-term SBTs must have a target year of before 2050.

Because the ambition of long-term SBTs is target year-independent, companies should begin by choosing any long-term SBT target year before 2050. Based on the results of their target modelling, the company may wish to adjust their chosen target year to be sooner or later depending on its strategy to achieve its long-term target.

## 4.5 Calculate targets

SBT methods are used to calculate near-term and long-term SBTs based on a mitigation pathway and company inputs. Companies may choose from the following SBT methods to calculate their targets:

### Eligible for near-term SBTs and long-term SBTs

- **Absolute contraction:** Using this method, companies reduce absolute emissions by an amount consistent with a mitigation pathway. For near-term SBTs, the minimum reduction is calculated as a linear reduction rate, whereas for long-term SBTs the minimum reduction is calculated as an overall amount.
- **Physical intensity convergence:** Using this method, all companies in a sector converge to the physical emissions intensity of an activity or process. For near-term SBTs, the SDA formula is used, which adjusts a company's target based on their starting point and projected growth. For long-term SBTs, the target is just calculated based on activity's physical intensity in a convergence year.
- **Renewable electricity (scope 2 only):** Using this method, companies set targets for a certain percentage of electricity procurement to be renewable, in accordance with RE100 recommendation, by the target year.

Please refer back to this section on "[Available pathways and which companies should use them](#)" for more information.

### Eligible for near-term SBTs only

- **Supplier engagement (scope 3 near-term SBTs only):** Using this method, companies set a target for suppliers representing a certain percentage of upstream emissions to set SBTs to cover those emissions.

Currently eligible for scope 3 near-term SBTs but may be removed<sup>10</sup>

- **Physical intensity contraction:** Using this method, companies define their own emissions intensity metric and set a reduction target that is at least as ambitious as a minimum threshold.
- **Economic intensity:** Using this method, companies reduce the economic emissions intensity (e.g., tCO<sub>2</sub> per unit of revenue) of emissions in a chosen boundary by an amount that is at least as ambitious as a minimum threshold.

Using the methods listed above, companies must set near-term SBTs with a minimum ambition of 1.5°C for scopes 1+2 and well-below 2°C for scope 3. Long-term SBTs must have a minimum ambition of 1.5°C across scopes. A summary of minimum target boundary, target timeframe, and method eligibility and minimum ambition is shown in Figure 6 below.

<sup>10</sup> The main weaknesses of physical intensity contraction and economic intensity methods are that (1) the rate of emissions reduction is a less confident translation of mitigation pathways, and in some cases seems to contradict the sectoral allocation of commonly used pathways; and (2) without intensity metric requirements, chosen metrics can be subject to volatility that does not reflect mitigation activity.

Figure 6. Summary of target boundary, target timeframe, and method eligibility and minimum ambition requirements for near-term and long-term SBTs

		Near-term science-based target			Long-term science-based target		
Scopes 1 + 2	Target boundary	95% coverage			95% coverage		
	Aligned to	1.5°C ambition			1.5°C ambition		
	Target year	5-10 years from date of submission			2050 or sooner		
	Eligible methods to calculate target	<b>Absolute contraction</b> <ul style="list-style-type: none"> <li>4.2% p.a.</li> <li>3.6% p.a. for agriculture</li> </ul>	<b>Physical intensity convergence</b> <ul style="list-style-type: none"> <li>Depends on activity and company input</li> </ul>	<b>Renewable electricity (Scope 2)</b> <ul style="list-style-type: none"> <li>80% by 2025</li> <li>100% by 2030</li> </ul>	<b>Absolute contraction<sup>1</sup></b> <ul style="list-style-type: none"> <li>90% total</li> <li>80% for agriculture</li> </ul>	<b>Physical intensity convergence</b> <ul style="list-style-type: none"> <li>Depends on activity</li> </ul>	<b>Renewable electricity (S2)</b> <ul style="list-style-type: none"> <li>100%</li> </ul>
Scope 3	Target boundary	If >40% of total emissions, 67% coverage required			95% coverage		
	Aligned to	At least well-below 2°C ambition			1.5°C ambition		
	Target year	5-10 years from date of submission			2050 or sooner		
	Eligible methods to calculate target	<b>Absolute contraction</b> <ul style="list-style-type: none"> <li>2.5% p.a.</li> <li>3.6% p.a. for agriculture</li> </ul>	<b>Physical intensity convergence</b> <ul style="list-style-type: none"> <li>Depends on activity and company input</li> </ul>	<b>Supplier engagement</b> <ul style="list-style-type: none"> <li>80% by 2025</li> <li>100% by 2030</li> </ul>	<b>Economic intensity</b> <i>SBTi is considering removing this method</i>	<b>Absolute contraction<sup>1</sup></b> <ul style="list-style-type: none"> <li>90%</li> <li>80% for agriculture</li> </ul>	<b>Physical intensity convergence</b> <ul style="list-style-type: none"> <li>Depends on activity</li> </ul>

1. Absolute activity pathways are eligible for all companies  
 N.B. Methods are subject to change as SBTi is still in the development process

### 4.5.1 Calculating near-term SBTs

All companies (except those in the power generation sector and companies awaiting FLAG sector guidance) should set 1.5°C near-term SBTs using the absolute contraction method for emissions in scopes 1 and 2. Sector-specific methods aligned with well-below 2°C remain eligible for covering emissions in scope 3.

Table 5 shows the currently available pathways and methods that can be used to calculate 1.5°C-aligned near-term SBTs, as well as pathways that are currently under development. For in-depth guidance on calculating near-term SBTs, please see the [SBTi Corporate Manual](#).

Table 5. Available and planned 1.5°C near-term pathways and methods

Pathway	Allocation method	Status
Global pathway, applicable to all companies <ul style="list-style-type: none"> <li>Approx. 4.2% linear annual reduction in absolute emissions (2020-2035)</li> </ul>	Absolute contraction	Currently available
Power generation <ul style="list-style-type: none"> <li>Approx. 5.7% linear annual reduction in emissions intensity (2020-2035)</li> </ul>	Intensity convergence	Currently available
Iron and steel	Intensity convergence	Planned for COP26
Buildings	Intensity convergence	Planned for COP26
Aviation	Intensity convergence	Planned for COP26
Cement	Intensity convergence	Planned for COP26
Agriculture pathway	Absolute contraction	In development (for release after COP26)
Agricultural commodities (beef, dairy, pork, chicken, roundwood, rice, soy, palm oil, maize and wheat)	Intensity convergence	In development (for release after COP26)
Maritime transport	Intensity convergence	In development (for release after COP26)
Chemicals	Intensity convergence	Scoping phase
Aluminium	Intensity convergence	Scoping phase

Pathway	Allocation method	Status
Other industry	Intensity convergence	Scoping phase

#### 4.5.2 Calculating long-term SBTs

Calculating long-term SBTs is relatively simple because target ambition does not depend on the chosen target year and targets are less dependent on company input data. Most companies should set a scope 1+2+3 target with the absolute contraction method (universal or agriculture pathway).

Company X will reduce scope 1+2+3 emissions 90% by 2035 from a 2018 base year.

Companies with significant emissions from activities listed in Tables 2 and 3 may also set absolute targets using activity-specific pathways. Companies in heavy-emitting sectors may, but are not required to, set intensity targets using activity-specific pathways, as shown in Tables 2 and 3.


Companies must use the Net-Zero Tool Excel workbook to set long-term SBTs. The first step of using the Tool is to input your company's base year emissions. Once you have input your company's base year emissions, two options are provided for you to calculate long-term SBTs: a "basic tool" and a "pro tool". Companies should first calculate targets with the basic tool, which is limited to standard absolute contraction targets, before moving onto the pro tool. The pro tool allows companies to set activity-specific targets and to see how multiple targets can be combined to meet the long-term SBT boundary criteria.

##### 4.5.2.1 Input your company's base year emissions

First, select your long-term SBT base year from the dropdown menu. The target base year must be no earlier than 2015 and the same as the base year used for your company's near-term SBT.

Next, input your company's base year emissions for scopes 1 and 2, as well as each relevant and mandatory scope 3 category. Unless your company has recalculated its base year emissions, the scope 3 categories included should match your company's near-term SBT submission. Detailed information on mandatory scope 3 emissions to include is located in the [SBTi Target Validation Protocol \(page 46\)](#).

If your company is only setting a long-term SBT on non-FLAG emissions, only the first row of the inventory table needs to be completed. If your company is setting a long-term SBT on FLAG emissions, the second row should also be completed.



**Net-Zero Tool**

Version: 0.1 (road-testing)  
Support: [andres.chang@cdp.net](mailto:andres.chang@cdp.net)

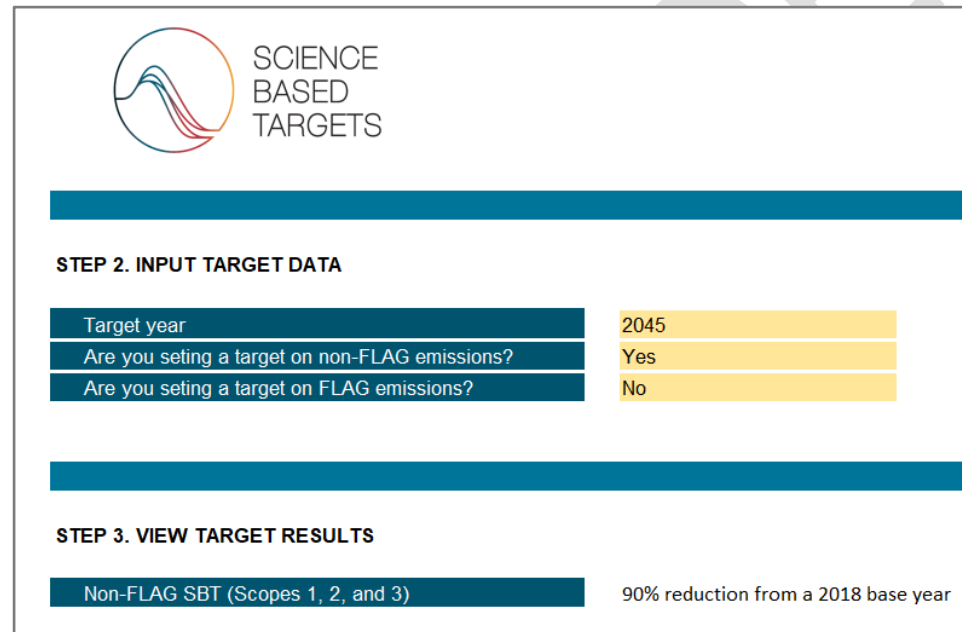
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**Step 1. Input base year emissions**

	Base year <span style="float: right;">2018</span>		Scope 3 (tCO <sub>2</sub> e)							
	Scope 1 (tCO <sub>2</sub> e)	Scope 2 (tCO <sub>2</sub> e)	Category 1: Purchased goods and services	Category 2: Capital goods	Category 3: Fuel- and Energy-Related	Category 4: Upstream transport	Category 5: Waste	Category 6: Business travel	Category 7: Employee commuting	Category 8: Upstream leased assets
Energy and industrial processes	40,000	50,000	20,000	5,000	5,000	1,000				
Forestry, land-use, and agriculture	40,000		80,000							

#### 4.5.2.2 Calculate targets using the basic tool

The basic tool is used to calculate absolute contraction targets using the universal or agriculture pathway. Companies should first enter their long-term SBT target year, then select whether they are setting an SBT that covers non-FLAG emissions, FLAG emissions, or targets for both. The resulting absolute targets will be shown below. Each target should cover at least 95% of emissions in scopes 1 and 2 and 95% of emissions in scope 3.



SCIENCE  
BASED  
TARGETS

---

**STEP 2. INPUT TARGET DATA**

Target year	2045
Are you setting a target on non-FLAG emissions?	Yes
Are you setting a target on FLAG emissions?	No

---

**STEP 3. VIEW TARGET RESULTS**

Non-FLAG SBT (Scopes 1, 2, and 3)	90% reduction from a 2018 base year
-----------------------------------	-------------------------------------

### 4.5.2.3 Calculate targets using the pro tool

The pro tool is used to calculate activity-specific intensity and absolute targets, as well as to show companies how several targets can be used together to meet the long-term SBT boundary coverage criteria. Companies using the pro tool should have a good understanding of how to allocate emissions to activities such as transport and building use and purchased or produced materials. Companies should refer to existing SBTi sector guidance (Table 5) and the Greenhouse Gas Protocol for guidance on allocating emissions.

The first step is to input your company's target year and the number of targets expected. Next, companies should input one row per target using the pro tool. For the tool to work properly, each target must have a mutually exclusive boundary (e.g., no overlapping targets).<sup>11</sup>

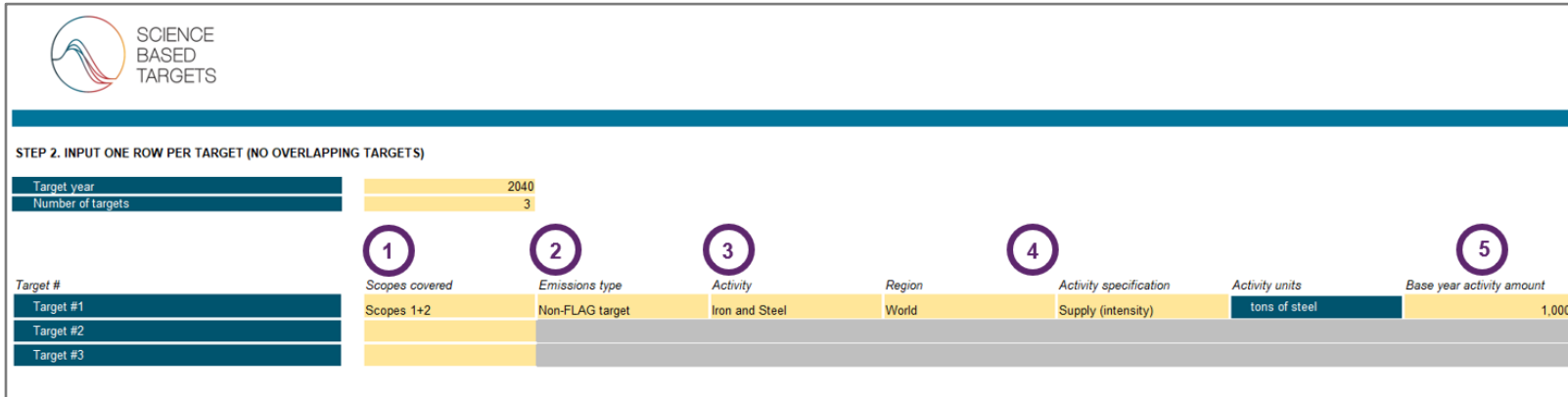
For each target row:

1. Select the scopes covered by the target. This dropdown menu includes renewable electricity targets and sector-specific options such as “well-to-wheel” targets for transport sector companies and “all sold electricity” targets for power generation companies.
2. Select whether the target covers non-FLAG or FLAG emissions
3. Select whether the target will be calculated using the universal pathway, the agriculture pathway, or an activity-specific pathway
4. If an activity-specific pathway is chosen, select the region and whether the company is supply-side or demand-side for the activity (Table 2), which will determine whether the activity-specific pathway should be used to calculate intensity or absolute targets.<sup>12</sup> Currently, regional pathways are only available for agricultural commodities, while all other activities use a global pathway
5. If calculating an intensity target, input the base year activity in the units specified in the tool
6. Input the relevant emissions per scope or scope 3 category.

<sup>11</sup> If the company wishes to set an absolute contraction target on scopes 1, 2, and 3 that overlaps with an intensity target, the company should calculate the absolute target using the basic tool and the intensity target using the pro tool.

<sup>12</sup> A “demand-side” company is a company that is purchasing or using, rather than producing, goods or services associated with a heavy-emitting sector. A “supply-side” company is one that produces goods or services in a heavy-emitting sector. Priority mitigation levers may differ between demand and supply-side companies. Emissions allocated to a supply-side activity are generally emissions in scope 1 and/or 2, as well as scope 3 category 11. Further guidance on categorizing supply-side and demand-side companies for different activities may be published at a later date.

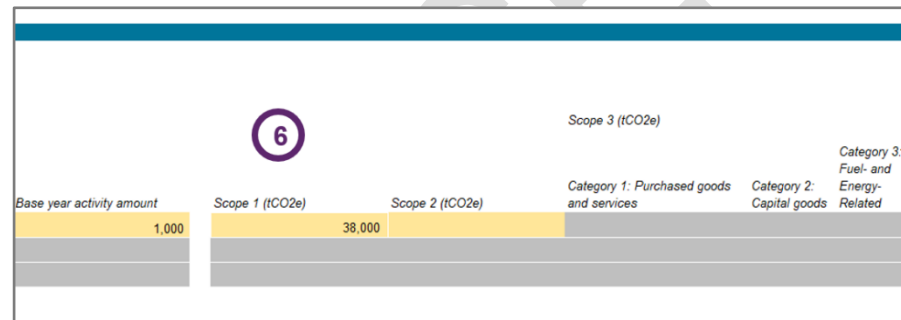




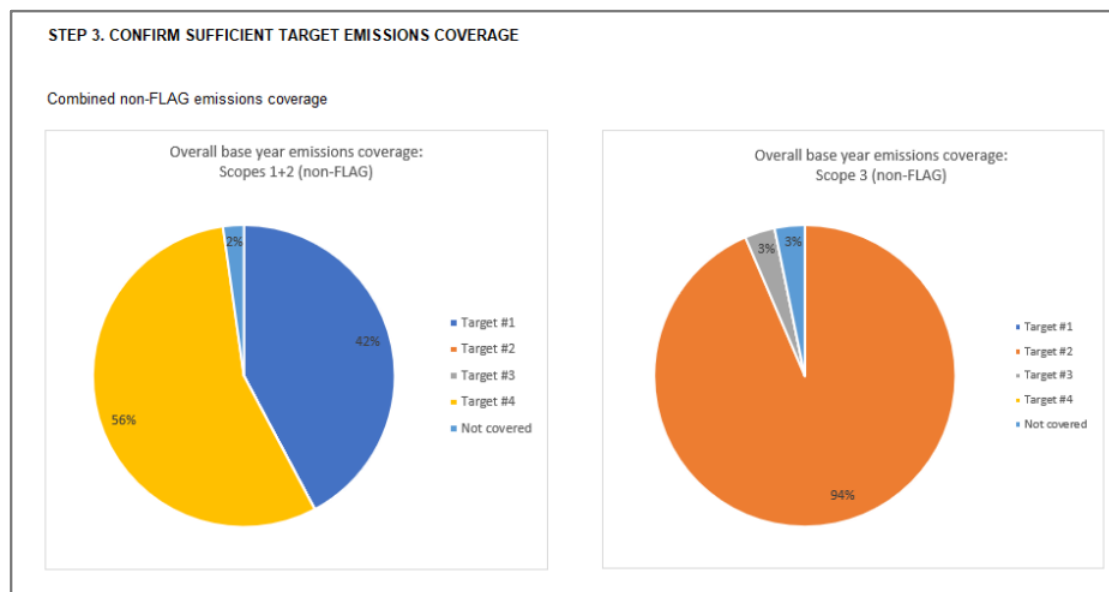
SCIENCE BASED TARGETS

STEP 2. INPUT ONE ROW PER TARGET (NO OVERLAPPING TARGETS)

Target year	2040						
Number of targets	3						
Target #	Scopes covered	Emissions type	Activity	Region	Activity specification	Activity units	Base year activity amount
Target #1	Scopes 1+2	Non-FLAG target	Iron and Steel	World	Supply (intensity)	tons of steel	1,000
Target #2							
Target #3							



As you enter emissions data for each target row, the charts at the bottom of the spreadsheet will update to show how much of your company's scope 1+2 and scope 3 emissions are covered. At least 95% of each should be covered, as shown by the charts.



Your company's targets can then be reviewed in the target output sheet of the Net-Zero Tool.

#### 4.5.2.4 The "other industry" method

In this road-testing period, we are testing a physical intensity target-setting method for companies in heavy and medium industry. The method should only be used by supply-side companies that produce materials or industrial products that can be expressed in a standard unit like tons. The method is derived from the IEA Net-Zero scenario and reflects two main mitigation levers for heavy and medium industry: energy efficiency improvements (about 18%) and increased renewable and low-carbon energy in total industrial energy consumption. This method would enable companies in industrial sectors without an activity-specific pathway to set physical intensity targets that are science-based; however, it is still an early "beta" version and is not guaranteed for inclusion in the final Net-Zero Standard.

If your company is interested in exploring the “other industry” method, please use the method following the instructions below. Please also calculate a long-term SBT that does *not* use the “other industry” method and send your feedback on each approach to the SBTi in our road-testing survey.

To use the “other industry” method, input both the base year output and associated energy consumption separated by a colon (:) in the “base year activity amount” cell of the target row, as shown by the screenshot below. Base year output should be expressed in a standard unit like tons and energy consumption should be expressed as terajoules (TJ). Then complete the row as normal.

Activity	Region	Activity specification	Activity units	Base year activity amount	Scope 1 (tCO <sub>2</sub> e)	Scope 2 (tCO <sub>2</sub> e)
Other industry	World	Supply (intensity)	SEE MANUAL - output (s	5000:1000	38,000	5,000

#### 4.5.2.5 Target wording

Once you have calculated your company’s long-term SBT, you should consider how the target can be expressed clearly and succinctly. Companies that have used the universal pathway to set an absolute contraction target on all non-FLAG emissions can simply express the target as:

- Company X commits to reduce scope 1+2+3 emissions 90% by 2035 from a 2018 base year.

Companies that have also set a long-term SBT on FLAG emissions can include a second target:

- Company X also commits to reduce emissions from agriculture, forestry, and land-use 80% by 2035 from a 2018 base year

Companies that have used the pro tool to calculate several targets may need to include more detail in their target wording. First, companies should express their intensity target(s). For example:

- Company Y commits to reduce the scope 1+2 emissions per ton of steel 91% by 2040 from a 2018 base year.

Next, companies should express their absolute target(s). Although the SBTi will need to review each activity-specific target to validate long-term SBTs, companies may have flexibility combining several absolute targets that cover the same emissions scope(s) or scope 3 category(s). For

example, a company that has calculated two absolute targets for scope 3 category 3 upstream transport from trucks and aviation may combine them into a single target:

- Company Y also commits to reduce scope 3 emissions from upstream transport by 88%.

Lastly, companies that set an intensity target covering a subset of scope 1+2 emissions and an absolute target covering the remaining emissions may express the targets as follows:

- Company Z commits to reduce scope 1+2 emissions per ton of aluminium 80% by 2040 from a 2018 base year. Company Z commits to reduce all other scope 1+2 emissions 90% by 2040 from a 2018 base year.

SUPERSEDED

## Box 2. A note on FLAG emissions

The forest, land and agriculture (FLAG) sector, also known in the scientific community as the agriculture, forest, and other land use (AFOLU) sector, is responsible for nearly a quarter of global GHG emissions and up to 30% of the needed mitigation by 2050 when land sector removals are included. Many companies with land-intensive operations have committed or set targets through SBTi, and many are also reporting their emissions publicly.

Despite this, few companies account for FLAG emissions or removals in their targets or disclosures. A key barrier is the lack of available standards, methods and the difficulty of data gathering for these activities. Land sector emissions (“biogenic carbon”) accounting and target setting are being standardised through two key projects led by SBTi partner organisations, and as a result many companies will be addressing these emissions for the first time.

Led by WWF, the [SBTi Forest, Land and Agriculture \(SBTi FLAG\) project](#) is currently developing guidance for companies in land-intensive sectors such as food, agriculture, and forestry to set science-based targets that fully incorporate deforestation and other land-related emissions. This guidance will include two approaches: 1. demand side, sector wide pathway and 2. 10 commodity-specific pathways for supply side companies. This project is due to complete by the end of 2021.

Alongside this, [The Greenhouse Gas Protocol is undertaking a process to develop new guidance on accounting for carbon emissions and removals](#). This project is due for completion in 2022. The GHG Protocol guidance will provide information to companies on how to account for and report the following activities in their greenhouse gas inventories:

- Land use/management and land use change
- Carbon removals and storage
- Bioenergy and other biogenic products
- Related topics

If your company has already calculated emissions from FLAG activities, you should include these within the target boundary of both your near and long-term science-based targets. Several of the companies participating in this road test are also contributing to the development of the GHG Protocol and SBTi FLAG projects, and we are keen to ensure alignment with these projects throughout the road test process.

Land-use intensive companies that have not calculated FLAG emissions may continue to exclude these emissions, or optionally perform these calculations as part of the road testing process. Before the GHG Protocol guidance for land sector emissions is published, we recommend you follow the guidance of the documents stated in Table 6.

Please note that limited support will be provided to companies that choose to perform these calculations during the road test due to resource constraints. However, we do encourage companies that expect to have significant FLAG emissions to seek to further understand these emissions and keep up to date with these projects

*Table 6. Additional guidance documents for calculation FLAG emissions*

Publisher	Document
GHG Protocol	<ul style="list-style-type: none"> <li>• Corporate Standard</li> <li>• GHG Protocol Scope 3 Standard</li> <li>• Product Standard</li> <li>• Agriculture Guidance</li> <li>• LULUCF project guidelines</li> <li>• Brazil forestry tool</li> </ul>
IPCC	<ul style="list-style-type: none"> <li>• Guidelines for National GHG Inventories.</li> <li>• 2006 Guidelines, Good Practice Guidance for LULUCF</li> <li>• 2019 Refinement</li> </ul>
ISO	<ul style="list-style-type: none"> <li>• ISO 14064 1:2018</li> </ul>
Quantis	<ul style="list-style-type: none"> <li>• Accounting for Natural Climate Solutions Guidance</li> </ul>
Gold Standard	<ul style="list-style-type: none"> <li>• Value Change Initiative</li> </ul>

For further details on this topic, please see [Appendix 4: Further guidance for companies with significant FLAG emissions.](#)

### Box 3. Can insetting count towards my scope 3 reduction?

There are multiple definitions for the term “insetting” (also referred to as supply chain interventions) and no standardization of the term, which makes it difficult to give a clear determination of what can and can’t be included within scope 3 reductions. Insetting is used to describe projects that are wholly contained within a scope 3 supply chain boundary of a company, a project partially within their scope 3 supply chain boundary (spanning their supply chain and other companies’ supply chains), and a project adjacent to a supply chain boundary. Accounting approaches for insetting also vary with the use of both project accounting and corporate accounting.

As this issue has not been settled to date in the GHG Protocol process, the SBTi recommends a conservative approach at this time. Companies should only include emission reductions or removals from “insetting” projects that use a corporate accounting approach and are wholly contained within their supply chains or the portion of a “partially-included” project that is within their supply chain and linked directly to sourcing.

Further work is ongoing to standardise the definition of insetting and a clear accounting methodology. For these reasons, the SBTi will assess insetting projects on a case-by-case basis during the validation process and may not approve their use.

Please see [Appendix 3: Can companies include nature-based solutions \(NBS\) in science-based targets](#) below for further details.

SUPER

## Part 5: Updating and communicating targets

### 5.1 What steps can you take if your current net-zero targets don't align with the requirements of the Net-Zero Standard?

The number of businesses committing to reach net-zero emissions has rapidly grown over the last two years, and the SBTi expects that many companies participating in this road test have already made commitments to net-zero in advance of the launch of the Net-Zero Standard<sup>13</sup>. The below guidance is designed to help you align your existing near and long-term net-zero targets with the Net-Zero Standard.

#### 5.1.1 How can you ensure your near-term targets align with the Net-Zero Standard?

As described in the section above on [changes to near-term SBT criteria](#), the SBTi is updating its guidance and ambition based on the latest climate science to ratchet ambition up to 1.5°C for all companies. 1.5°C-aligned targets are now the most common choice for businesses, representing 51% of all approved targets and 66% of all submissions to the SBTi in 2021<sup>14</sup>. The new strategy is being rolled out in response to increasing urgency for climate action and the success of science-based targets to date. Because of this, near-term targets that do not align with 1.5°C will no longer be accepted as of July 15, 2022.

**For companies with targets that do not already align with the changes to near-term SBT criteria**, we invite you to [upgrade your target](#). When updating your near-term science-based targets, please review the [requirements in addition to the increase in scope 1 & 2 ambition to 1.5°C for near-term science-based targets](#). This includes a reduced target timeframe and increased ambition for scope 3 emission reductions (see Table 1). It is important to note that companies must meet these new requirements for near-term science-based targets to gain approval for long-term science-based targets and overarching net-zero commitments.

#### 5.1.2 How can you ensure your long-term targets align with the Net-Zero Standard?

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

**For companies that have not set long-term emission reduction targets**, we encourage you to adopt the long-term SBTs modelled through this process and express commitment to setting long-term targets in alignment with science as part of your net-zero ambition.

**For companies that have set long-term emission reduction targets to reach net-zero that are not as ambitious as their modelled long-term SBTs**, we recommend that you revisit

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

<sup>14</sup> Figures correct at the time of writing in July 2021.



your implementation strategy and consider increasing the ambition of your long-term targets. We would also encourage you to provide feedback through the road test survey. The SBTi is keen to understand where companies' current long-term emission reduction targets diverge from long-term SBTs modelled during this road test.

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

The SBTi will begin to validate long-term SBTs and net-zero commitments in January 2022. The SBTi is also keen to understand where companies had already set targets that are in alignment with requirements and how these targets were derived.

Please note that methods for long-term science-based target setting are still subject to change.

## 5.2 How to upgrade your near-term SBTs to align with the Net-Zero Standard

Companies that have existing near-term SBTs that do not meet the [updated SBTi criteria](#) are invited to upgrade their targets. It is important to note that companies must meet these new requirements for near-term science-based targets to gain approval for long-term science-based targets and overarching net-zero commitments.

In order to update targets, companies can resubmit using the SBTi resubmission service by emailing a completed [target submission form](#) to [targets@sciencebasedtargets.org](mailto:targets@sciencebasedtargets.org) and paying a \$2,490 fee.

Companies wishing to validate their upgraded target(s) can instead follow a simplified process to achieve SBTi approval if they meet the following conditions:

1. Base year and target year of the updated target remains unchanged
2. The assumptions used to model the original target continue to be valid (e.g., significance thresholds, boundary, growth projections, etc.)

The process companies follow during the revalidation of their upgraded targets is outlined below:

1. Company submits the [one-page recalculation form](#)
2. Initial screening to check compliance with all conditions above
3. Desk review to check ambition alignment
4. Final decision on compliance is sent to companies

More information can be found in the [Target Validation Protocol](#) document.

### 5.3 How to communicate with stakeholders when net-zero targets do not meet the Net-Zero Standard requirements

We understand that when companies have already set net-zero commitments, navigating communication with stakeholders can be challenging if the targets do not comply with the Net-Zero Standard. In this section, we provide advice and guidance on how to communicate with stakeholders in this situation.

There are several key areas where we expect that companies' current net-zero strategies may not align with the Net-Zero Standard:

- Near-term science-based targets do not meet updated SBTi criteria (please see [here](#) and the section on changes to near-term SBT criteria for more information) for:
  - Scope 1 & 2 ambition
  - Scope 3 ambition
  - Timeframe
- Long-term science-based targets do not meet the Net-Zero Standard criteria (see [here](#) for more information) for:
  - Long-term science-based targets have not been included in a company's net-zero strategy
  - Long-term emission reductions targets are not as stringent as those required by the Net-Zero Standard
  - Companies do not expect to reach long-term science-based targets by its current net-zero target date

We have developed some key messages to support companies with this process below. Please note that these are only suggestions and companies may adapt these points to suit their needs.

- The SBTi's Net-Zero Standard is the first global science-based standard to guide companies in setting net-zero targets and our company is among the first 80 companies to trial the Standard first-hand.
- To be confident that our actions are in line with climate science and mitigate the risk of following a pathway that may not be consistent with addressing the climate crisis, we have taken part in the SBTi's Net-Zero company road test.
- As part of the road test process, we have identified clear next steps to adjust our current commitment and/or target(s) to align with this first global science-based Net-Zero Standard. We believe this will help us ensure the robustness and impact of our targets.
- Responding to the urgency and scale of the climate emergency, the SBTi is ratcheting up its expectations for businesses. In order to support this, we must listen to the science and enhance the ambition of our net-zero commitment.
- We are committed to following a science-based net-zero pathway, and as part of this, we are reviewing our climate mitigation strategy to understand opportunities to enhance our ambition.

## Part 6: Conclusion and next steps

The SBTi would like to thank you for participating in road testing the new Net-zero Standard. Your company's input is highly valued. Only with your feedback can the SBTi provide clear and practical guidance to companies on how to align with what climate science tells us is necessary to reach global net-zero before 2050.

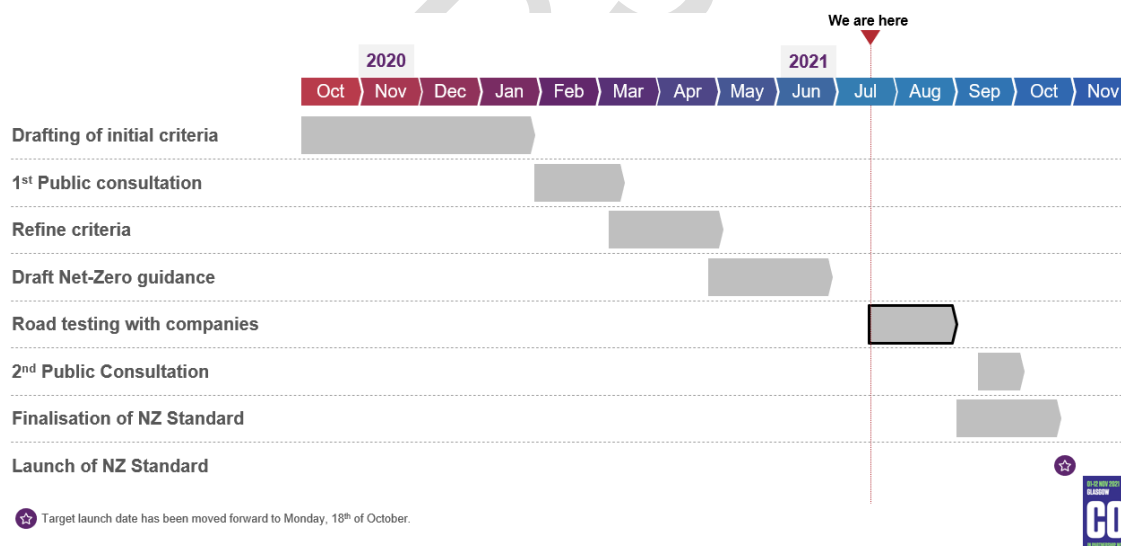
After you have tried out the tool and used the supporting materials, we would like to understand your views on certain key topics via [this survey](#). The survey asks questions on the standard in general, the feasibility, key challenges, and the ease of use of the tool and the supporting materials. The survey will be open until Tuesday 31<sup>st</sup> August.

We want to make sure that you feel supported as much as possible during this road test. If you need any additional support, please reach out to [paulina.tarrant@cdp.net](mailto:paulina.tarrant@cdp.net) or [emma.watson@cdp.net](mailto:emma.watson@cdp.net). We are also offering the following:

- Three workshops
- Office hours
- One-on-ones and deep dive interview (if requested)

The SBTi's Net-Zero Standard will be launched before COP26 in October 2021. You can find a summary of our timeline until then below (Figure 7).

Figure 7. Net-Zero Standard project timeline



The SBTi will begin validating net-zero targets in January 2022.

**Thank you again; your feedback helps to make the Net-zero Standard as clear and practical as possible which drives the advancement of a global zero-carbon economy.**

## Appendix 1: Sector-specific guidance for long-term SBTs

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

Table 7. Sector-specific guidance for long-term SBTs

Sector	Eligible methods	Guidance/Notes
<a href="#">Power Generation</a>	The intensity convergence method must be used by power generation companies, as specified in the Guidance for Electric Utilities.	Companies in the power sector with scope 3 emissions that represent 40% or more of overall emissions must set an intensity target covering all sold electricity (including purchased and resold electricity in scope 3 category 3), in addition to a target covering power generation in scope 1.
<a href="#">Forest, Land-use &amp; Agriculture (FLAG)</a>	<p>Some companies will be required to set FLAG targets that are separate from their SBTs covering all other emissions. FLAG targets must use the FLAG-sector absolute contraction method or the intensity convergence method.</p> <p>Intensity pathways will be available for beef, dairy, pork, chicken, roundwood, rice, soy, palm oil, maize, and wheat. Agroforestry companies will be required to use the intensity convergence method for roundwood.</p>	The FLAG sector guidance is planned for completion by the end of Q4 2021.

<p><u><b>Oil &amp; Gas</b></u></p>	<p>The SBTi is developing target-setting methods for oil &amp; gas companies and cannot validate targets for this sector before the guidance is completed.</p>	<p>For target validation by the SBTi, “Oil &amp; Gas” includes, but is not limited to, integrated Oil &amp; Gas companies, Integrated Gas companies, Exploration &amp; Production companies, Refining and Marketing companies, Oil Products Distributors, Gas Distribution and Gas Retailers.</p> <p>The SBTi will assess companies on a case-by-case basis to determine whether companies will be classified as Oil &amp; Gas companies for SBTi validation, and if so, reserve the right to not move forward with their validation until after the SBTi Oil &amp; Gas sector development has been completed</p>
<p><b>Fossil Fuel Sale/ Transmission/ Distribution*</b></p> <p><i>*This information is only applicable to companies that receive less than 50% of their revenue from fossil fuel sale, transmission, or distribution. For companies that receive 50% or more of their revenue from these activities, please refer to the Oil &amp; Gas section above.</i></p>	<p>In addition to guidance for the primary sector, scope 3 targets must be set on scope 3 category 11 “use of sold products” emissions using absolute contraction.</p>	<p>Targets must be set for scope 3 category 11, irrespective of the share of these emissions compared to the total S1+S2+S3 emissions of the company. Separate scope 3 targets may need to be set in this case.</p>



<p><b><u>Financial Institutions</u></b></p>	<p>The SBTi is developing a net-zero standard for financial institutions and cannot validate targets for this sector before the guidance is completed.</p>	<p>The initiative defines a financial institution as one that engages in investment activities as part of its core functions. These include, but are not limited to, the following:</p> <ol style="list-style-type: none"> <li>1. Asset management/asset owners</li> <li>2. Retail and commercial banking activities</li> <li>3. Insurance companies (when functioning asset managers)</li> <li>4. Mortgage real estate investment trusts (REITs)</li> </ol> <p>In addition, if at least 5% of a company's revenue comes from activities such as those described above, they would be considered a financial institution.</p>
<p><b><u>Transport (Original Equipment Manufacturers/ Automakers)</u></b></p>	<p>The absolute contraction and intensity convergence methods are both recommended for companies in this sector. Target boundary must cover well-to-wheel emissions (WTW), as specified in the SBT transport resources.</p>	<p>Tested vs Real emissions for OEMs original equipment manufacturers:</p> <p>Original equipment manufacturers must convert their base year emissions figures for the use-phase of their products into real emissions with the use of global standards (e.g., Worldwide Harmonized Light Vehicle Test Procedure -WLTP) when available. In the absence of a normalized test procedure for certain vehicle types, companies are invited to present and justify their own estimates/simulations based on fuel consumption-specific duty cycles to the SBTi.</p>

<p><u><a href="#">Transport services (Aviation/ shipping/ trucks/ cars)</a></u></p>	<p>The absolute contraction and intensity convergence methods are both recommended for companies in this sector. Target boundary must cover well-to-wheel emissions (WTW), as specified in the SBT transport resources.</p>	<p>Refer to the SBTi Transport guidance for a description of all transport sub-sectors covered by the SDA Transport tool and to learn about best practices in target-setting for transport activities.</p> <p>For companies in the aviation and maritime transport sectors, please consult the SBTi transport resources for further information on sector-specific transport methodologies.</p> <p>Well-to-wheel boundary:</p> <p>Companies setting targets for transport-related emissions should cover well-to-wheel emissions (WTW) in their target boundary to accurately capture emissions shifts between the tank-to-wheel (TTW) and the well-to-tank (WTT), for example, due to changes in power train technologies.</p>
<p><b>Buildings</b></p>	<p>The absolute contraction and intensity convergence methods are both recommended for companies in this sector.</p>	<p>Real Estate Investment Trusts (REITs) wishing to set targets must specify if they are a mortgage-based REIT or equity-based REIT.</p> <p>Equity REITs must pursue the regular target validation route for companies. Mortgage REITs must instead utilize the Financial Institutions guidance for setting SBT.</p> <p>The SBTi is in the scoping phase of developing guidance for companies and sectors of the built environment.</p>
<p>Industrial Sectors:</p> <ul style="list-style-type: none"> <li>• <b>Iron and Steel</b></li> <li>• <b>Cement</b></li> <li>• <u><a href="#">Aluminium</a></u></li> </ul>	<p>The absolute contraction and intensity convergence methods are both recommended for companies in this sector.</p>	<p>The SBTi is in the scoping phase of developing guidance for companies in the cement, steel, and aluminium sectors.</p>

<p><b><u>Chemicals</u></b></p>	<p>The absolute contraction and intensity convergence methods (other industry) are both recommended for companies in this sector.</p>	<p>The SBTi is in the scoping phase of developing guidance for companies in the chemicals sector.</p>
<p><b>All other sectors</b></p>	<p>The absolute contraction method is recommended for companies in all other sectors. If the company has emissions allocated to a supply-side activity in Table 2 or 3, the intensity convergence method may be used to cover those emissions instead.</p>	<p>Companies should allocate emissions to relevant activities as per the Greenhouse Gas Protocol, where guidance is available. Emissions allocated to a supply-side activity are generally emissions in scope 1 and/or 2, as well as scope 3 category 11 (use of sold products) for a relevant activity in Tables 2 or 3.</p>
<p>All other sectors:</p> <ul style="list-style-type: none"> <li>• <a href="#">Information and Communication Technology Providers</a></li> <li>• <a href="#">Apparel and Footwear</a></li> </ul>	<p>See “All other sectors”</p>	<p>Optional guidance is available for companies in the ICT sector.</p> <p>Optional guidance is available for companies in the Apparel and Footwear sector.</p>



## Appendix 2: Further guidance for companies with significant FLAG emissions

The forest, land, and agriculture (FLAG) sector, also known in the scientific community as the agriculture, forest, and other land use (AFOLU) sector, has been historically difficult to evaluate through GHG accounting and target setting approaches. However, AFOLU represents about 25% of anthropogenic greenhouse gas (GHG) emissions (10–12 GtCO<sub>2e</sub> per year) with about half from agriculture and half from land use, land-use change, and forestry (LULUCF)<sup>15</sup>. GHG emissions of the FLAG sector need to be halved by 2050, and at the same time agricultural production is expected to increase 50%<sup>16</sup>.

Additionally, the AFOLU sector has the potential to deliver up to 30% of needed mitigation actions from now to 2050, including removals. Aligning the AFOLU sector with 1.5°C pathways through both reductions and removals is feasible through reduced land-use change, enhanced carbon sinks, reduced agricultural emissions, and reduced overall production through demand shifts.

Many companies with land-intensive operations have committed or set targets through SBTi, and many are also reporting their emissions publicly. Despite this, few companies account for AFOLU emissions or removals in their targets or disclosures. A key barrier is the lack of available standards, methods and data availability. Land sector emissions (“biogenic carbon”) accounting and target setting are being standardised through two key projects led by SBTi partner organisations, and as a result many companies will be addressing these emissions for the first time.

### Land sector guidance is evolving

WWF, a founding member of SBTi, is developing specific emission reduction pathways for companies with land sector emissions in their supply chains through the [SBTi Forest, Land and Agriculture \(SBTi FLAG\) project](#). The outputs of this project will allow companies to set science-based targets that fully incorporate deforestation and land-related emissions. This guidance is aimed at companies in land-intensive sectors, which includes sectors such as food, agriculture and forestry.

These new pathways will include not only emissions reduction, but also removals *within* the land sector. It includes an overall AFOLU sector mitigation pathway as well as 10 specific mitigation pathways for major commodities: beef, chicken, dairy, maize, palm oil, pork, rice, soy, wheat, and roundwood.

In parallel and in coordination, [The Greenhouse Gas Protocol is undertaking a process to develop new guidance on carbon removals and land use](#). New comprehensive guidance on accounting and target setting for land-based emissions means that companies have a new opportunity, and requirement, to bring both emission reductions and removals in the land sector into their mitigation targets.

<sup>15</sup> Roe, S., Streck, C., Obersteiner, M. et al. Contribution of the land sector to a 1.5 °C world. Nat. Clim. Chang. 9, 817–828 (2019). <https://doi.org/10.1038/s41558-019-0591-9>

<sup>16</sup> [https://research.wri.org/sites/default/files/2019-07/WRR\\_Food\\_Full\\_Report\\_0.pdf](https://research.wri.org/sites/default/files/2019-07/WRR_Food_Full_Report_0.pdf)

Land-use intensive companies that have not calculated FLAG emissions may continue to exclude these emissions, or optionally perform these calculations as part of the road testing process. While GHG Protocol guidance for land sector emissions is under development, we recommend the following guidance documents in the interim in Table 8 below.

Please note that limited support will be provided to companies that choose to perform these calculations during the road test due to resource constraints. However, we do encourage companies that expect to have significant FLAG emissions to seek to further understand these emissions and keep up to date with these projects.

*Table 8. Additional guidance documents for calculating FLAG emissions.*

Publisher	Document
GHG Protocol	<ul style="list-style-type: none"> <li>• Corporate Standard</li> <li>• GHG Protocol Scope 3 Standard</li> <li>• Product Standard</li> <li>• Agriculture Guidance</li> <li>• LULUCF project guidelines</li> <li>• Brazil forestry tool</li> </ul>
IPCC	<ul style="list-style-type: none"> <li>• Guidelines for National GHG Inventories.</li> <li>• 2006 Guidelines, Good Practice Guidance for LULUCF</li> <li>• 2019 Refinement</li> </ul>
ISO	<ul style="list-style-type: none"> <li>• ISO 14064 1:2018</li> </ul>
Quantis	<ul style="list-style-type: none"> <li>• Accounting for Natural Climate Solutions Guidance</li> </ul>
Gold Standard	<ul style="list-style-type: none"> <li>• Value Change Initiative</li> </ul>

## What counts towards FLAG emissions?

The GHG Protocol guidance will provide information to companies on how to account for and report the following activities in their greenhouse gas inventories:

- Land use and land-use change
- Carbon removals and storage
- Bioenergy and other biogenic products
- Related topics

## How can you determine if your company's FLAG emissions are significant?

Land-use intensive companies in the food and beverage, agriculture or forest sectors, and companies downstream of these sectors (i.e., when companies purchase products from these sectors), typically have significant FLAG emissions. Companies in the infrastructure, construction, and real estate sectors may also have significant impacts and opportunities related to FLAG.

FLAG target-setting will eventually become a requirement for companies with significant land sector emissions that wish to set science-based targets. The SBTi will determine a materiality threshold of what is considered to be significant in advance of this requirement coming into play.

## What options are available for your company to set FLAG emission reduction targets?

### For near-term science-based targets

The SBTi FLAG project, which will provide tools and guidance for companies to set near-term SBTs, is expected to be completed by Q4 2021. In the meantime, companies that wish to set near-term science-based targets on FLAG emissions may opt to use the absolute contraction approach for all emissions (including FLAG emissions). This option will continue to be available for companies after the launch of the FLAG rather than using the FLAG tools separately.

After launch, for companies that do exclude emissions from the FLAG sector, there will be an initial period of *at least* six months after the FLAG tool is launched where the use of the FLAG tools to set goals for forest, land, and agriculture emissions is voluntary but recommended.

As mentioned previously, FLAG target-setting will eventually become a requirement for companies with significant land sector emissions that wish to set science-based targets.

### For long-term science-based targets

If your company has already calculated emissions from FLAG activities, please see [4.5.2 Calculating long-term SBTs](#). Several of the companies participating in this road test are also contributing to the development of the GHG Protocol and SBTi FLAG projects, and we are keen to ensure alignment with these projects throughout the road test process.

## Appendix 3: Can companies include nature-based solutions in science-based targets?

Many companies seek to include actions in Nature-Based Solutions (NBS) in their strategies to achieve their science-based targets. When done right, Nature-Based Solutions for climate mitigation are a genuine win-win. Companies deliver on their climate goals and simultaneously support nature and address societal challenges.

### Using NBS to achieve both near and long-term science-based targets

#### *Companies with land sector emissions*

Right now – companies with Forest, Land, or Agriculture ([FLAG](#)) emissions in their supply chains can include those emissions in their inventory and emission reduction target setting<sup>17</sup>. This applies to both near-term science-based targets, as well as long-term science-based targets that form part of a company's commitment to achieving net-zero emissions.

Alongside reducing consumption of fossil fuels, companies that choose this approach can engage in NBS-related reduction activities to meet their science-based targets within their supply chains. Some examples of these activities are stopping deforestation and conversion and peatland and mangrove restoration. Companies should deploy NBS in accordance with the nature/conservation mitigation hierarchy of “Protect, Manage, Restore”.

#### *Companies without land sector emissions.*

All companies should follow the climate mitigation hierarchy, ensuring efforts to eliminate and reduce emission are prioritised over investments outside of supply chains to compensate. This means companies without land-sector emissions must prioritize eliminating and reducing fossil fuel emissions within their operations and supply chains. Because of this, companies without exposure to land-based emissions are required to meet their near-term or long-term SBTs through reductions in fossil fuel emissions without using NBS.

Corporate funding for NBS should not be used to avoid or delay action to reduce emissions from fossil fuels, but companies outside of the land sector may seek to enhance ambition beyond their SBTs and are welcome and encouraged to explore investments in NBS as part of their compensation and neutralisation strategies, and as outlined in [WWF & BCG's Blueprint for Corporate Action on Climate and Nature](#).

<sup>17</sup> While GHG Protocol guidance for land sector emissions is under development, we recommend the following guidance documents in the interim: GHG Protocol Corporate Standard, Scope 3 Standard, Product Standard, Agriculture Guidance, LULUCF project guidelines, Brazil forestry tool. IPCC. Guidelines for National GHG Inventories. 2006 Guidelines, Good Practice Guidance for LULUCF, 2019 Refinement, ISO. ISO 14064 1:2018. Quantis. Accounting for Natural Climate Solutions Guidance. Gold Standard, Value Change Initiative.

Table 8. Additional guidance documents for calculating FLAG emissions.

Can use the following strategies to meet science-based targets	
<p><b>Land companies</b> with land emission in the supply chain</p>	<ul style="list-style-type: none"> <li>● Reduce emissions from fossil fuels.</li> <li>● NBS for land sector emissions/removals                             <ul style="list-style-type: none"> <li>○ informed by nature/conservation mitigation hierarchy Protect, Manage, Restore</li> </ul> </li> </ul>
<p><b>Non-land companies</b> without land emissions in the supply chain</p>	<ul style="list-style-type: none"> <li>● Reduce emissions from fossil fuels.                             <ul style="list-style-type: none"> <li>○ NBS investments encouraged but do not count towards emission reductions.</li> </ul> </li> </ul>

SUPERSEDED

## Appendix 4: Transitioning to global net-zero in line with climate and sustainability goals

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

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

As described in the IPCC SR15, pathways that limit warming to 1.5°C, with no or limited overshoot, require reaching approximately net-zero CO<sub>2</sub> emissions by no later than 2050, accompanied by rapid declines in non-CO<sub>2</sub> emissions. This is accomplished through rapid and profound transitions in the global energy, industry, urban, and land systems that involve:

- Full or near-full decarbonisation for energy and industrial CO<sub>2</sub> emissions achieving a zero-emission energy supply system by mid-century
- Eliminating CO<sub>2</sub> emissions associated with agriculture, forestry, and land-use by 2030
- Deep reductions in non-CO<sub>2</sub> emissions from all sectors
- Removing CO<sub>2</sub> from the atmosphere to neutralize residual emissions and, potentially, to sustain net negative emissions that reduce cumulative CO<sub>2</sub> in the atmosphere over time.

The different system transformations in 1.5°C mitigation pathways occur concurrently and all of them are needed for society to reach net-zero emissions and limit warming to 1.5°C. An understanding of the synergies and trade-offs between different climate change mitigation pathways and sustainable development should also guide climate action. Many such interactions exist. For example, research indicates that exceeding around 100 EJ of bioenergy per year could put unsustainable pressure on available land, food production and prices, preservation of ecosystems, and potential water and nutrient constraints. Some approaches to CO<sub>2</sub> removal also face technical, environmental, and socio-political challenges. These factors suggest that target-setting pathways should minimize residual emissions to avoid “locking in” dependence on CO<sub>2</sub> removal and that demand-side mitigation options such as modal shifts, reduced energy use, and increased circularity should be considered part of climate strategies.

## Appendix 5: Acronyms

AFOLU	Agriculture, Forest and Other Land Use
CDR	Carbon Dioxide Removal
COP	Conference Of the Parties
EAG	SBTi Net-Zero Expert Advisory Group
FLAG	Forests, Land-use and Agriculture
GHGs	Greenhouse Gases
GMST	Global Mean Surface Temperature
IPCC	Intergovernmental Panel on Climate Change
LT SBT	Long-term Science-Based Target
LULUCF	Land-use, Land-use change and Forestry
NBS	Nature-based Solutions
NT SBT	Near-term Science-Based Target
SR15	IPCC Special Report on 1.5°C
SAG	SBTi Scientific Advisory Group
TAG	SBTi Technical Advisory Group
UNEP	The United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

## Appendix 6: Glossary

### Abatement

Definition	Comments
Measures that companies take to prevent, reduce or eliminate sources of GHG emissions <u>within</u> their value chain. Examples include reducing energy use, switching to renewable energy and retiring high-emitting assets.	Also see: <ul style="list-style-type: none"> <li>Decarbonization</li> </ul>

### Absolute contraction

Definition	Comments
Method used to calculate absolute emissions reduction targets that requires organizations to reduce annual emissions by an amount consistent with underlying mitigation pathways.	Also see: <ul style="list-style-type: none"> <li>Science-based target methods</li> </ul>

### Bioenergy

Definition	Comments
Energy generated from the combustion of biomass. In certain cases, bioenergy is considered “carbon neutral” because combustion-related CO <sub>2</sub> emissions are balanced by CO <sub>2</sub> that is sequestered during the growth of bioenergy feedstock.	

### Biomass emissions

Definition	Comments
Definition to be added	

### Carbon Dioxide Removal (CDR)

Definition	Comments
According to the Intergovernmental Panel on Climate Change (IPCC), “anthropogenic activities removing CO <sub>2</sub> from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products” The removals are either nature-based, geological or a hybrid.	Also see: <ul style="list-style-type: none"> <li>Nature-based Solutions</li> </ul>

### Climate change mitigation

Definition	Comments
According to the Intergovernmental Panel on Climate Change (IPCC), “a human intervention to reduce emissions or enhance the sinks of greenhouse gases.”	Also see: <ul style="list-style-type: none"> <li>Corporate Climate Mitigation Blueprint</li> <li>Mitigation strategy</li> </ul>



### Compensation

Definition	Comments
Measures that companies take to prevent, reduce or eliminate sources of GHG emissions <u>outside</u> their value chain. Examples include purchasing carbon credits and providing direct finance to climate mitigation programs.	This term is under review and is being used as a placeholder. Also see: <ul style="list-style-type: none"> <li>• GHG emissions</li> <li>• Offsetting</li> <li>• Value chain emissions</li> </ul>

### Corporate climate targets

Definition	Comments
Goals set by a corporation to reduce the corporation's impact on the climate. Targets may include a variety of climate forcers across different corporate activities (i.e. operations, value chain, or products) and may use emissions abatement, compensation, or neutralisation	Also see: <ul style="list-style-type: none"> <li>• Abatement</li> <li>• Compensation</li> <li>• Neutralisation</li> </ul>

### Decarbonization

Definition	Comments
The process by which CO <sub>2</sub> emissions associated with electricity, industry, and transport are reduced or eliminated.	

### Emissions (or GHG) inventories

Definition	Comments
According to the GHG Protocol, a "quantified list of an organization's GHG emissions and sources." Emissions inventories typically include emissions in scopes 1, 2, and 3.	Also see: <ul style="list-style-type: none"> <li>• Scope 1 inventory</li> <li>• Scope 2 inventory</li> <li>• Scope 3 inventory</li> </ul>

### Forests, land and agriculture (FLAG) emissions

Definition	Comments
GHG emissions from Forestry, Land use and Agriculture. Examples of key sources of FLAG emissions include: deforestation, forest & grassland fires enteric fermentation, fertilizers, manure management and rice cultivation Reducing FLAG emissions, as well as enhancing land-related carbon sinks through activities such as reforestation, is an important climate change mitigation opportunity.	Other similar related terms are Agriculture, Forestry and Other Land uses (AFOLU) and Land-use, Land-use change and Forestry (LULUCF; AFOLU + agriculture GHGs)

### Global emissions budget

Definition	Comments
A cumulative emissions threshold that must not be exceeded in order to limit global temperature	Also see: <ul style="list-style-type: none"> <li>• Greenhouses gases</li> </ul>

rise by a specified amount and probability. Emissions budgets can be determined for CO <sub>2</sub> only or all greenhouse gases (GHGs).	<ul style="list-style-type: none"> <li>Paris Agreement</li> </ul>
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### Greenhouse gases (GHGs)

Definition	Comments
Gases which absorb and re-emit infrared radiation, thereby trapping it in Earth's atmosphere. Includes carbon dioxide (CO <sub>2</sub> ), water vapor, methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF <sub>6</sub> ), and nitrogen trifluoride (NF <sub>3</sub> ).	

### Greenhouse Gas (GHG) emission reduction targets

Definition	Comments
Goals set by an organization to reduce direct or indirect emissions by a specified amount	Also see: <ul style="list-style-type: none"> <li>Greenhouse Gas emissions</li> </ul>

### Insetting

Definition	Comments
Insetting is used to describe projects that are wholly contained within a Scope 3 supply chain boundary of a company, a project partially within their Scope 3 supply chain boundary (spanning their supply chain and other companies' supply chains) and a project adjacent to a supply chain boundary.	There are multiple definitions for the term "insetting" in use and no standardization of the term.

### Intensity convergence

Definition	Comments
Method used to calculate emissions intensity targets based on the principle of converging to a sector-wide physical emissions intensity in a future year of a mitigation pathway.	Also see: <ul style="list-style-type: none"> <li>Science-based target methods</li> <li>Physical emissions intensity</li> </ul>

### Intergovernmental Panel on Climate Change (IPCC)

Definition	Comments
United Nations body for assessing the science related to climate change	Also see: <ul style="list-style-type: none"> <li>IPCC Special Report on 1.5°C (SR15)</li> </ul>

### Long-term science-based target (LT SBT)

Definition	Comments
GHG reduction targets that are in line with what the latest climate science deems is necessary to	

reach net-zero at the global or sector level in 1.5°C pathways before 2050.

### Near-term science-based target (NT SBT)

Definition	Comments
GHG reduction targets that are in line with what the latest climate science deems necessary to limit warming to 1.5°C above pre-industrial levels and are achieved within a 5-10 year timeframe from the date of submission.	

### IPCC Special Report on 1.5°C (SR15)

Definition	Comments
A Special Report requested by the United Nations on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. The report includes over 6,000 scientific references and was prepared by 91 authors from 40 countries	Also see: <ul style="list-style-type: none"> <li>• Paris Agreement</li> <li>• Pre-industrial levels</li> </ul>

### Mitigation strategy

Definition	Comments
A set of measures planned by a company to mitigate GHG emissions that may include abatement, insetting, compensation and neutralisation.	Also see: <ul style="list-style-type: none"> <li>• Mitigation</li> <li>• Abatement</li> <li>• Insetting</li> <li>• Compensation</li> <li>• Neutralisation</li> </ul>

### Nature-based Solutions (NBS)

Definition	Comments
The WWF defines NBS as “Ecosystem conservation, management and/or restoration interventions intentionally planned to deliver measurable positive climate adaptation and /or mitigation benefits that have human development and biodiversity co-benefits managing anticipated climate risks to nature that can undermine their long-term effectiveness.”	Also see <ul style="list-style-type: none"> <li>• Carbon-dioxide removal</li> <li>• Neutralisation</li> <li>• Insetting</li> </ul>

### Neutralisation

Definition	Comments
Neutralisation with regards to GHG emissions are the measures that companies take (inside and	Also see: <ul style="list-style-type: none"> <li>• Nature-based Solutions</li> </ul>

outside of the value chain) to remove carbon from the atmosphere to counterbalance the impact of a source of emissions that remains unabated.	<ul style="list-style-type: none"> <li>Carbon credits</li> </ul>
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### Residual emissions

Definition	Comments
Emissions sources that remain unabated in a specific year of a mitigation scenario. Long-term SBTs are consistent with the level of residual emissions in the year of global or sector net-zero in 1.5°C-aligned mitigation pathways with low or no overshoot.	Also see: <ul style="list-style-type: none"> <li>Paris Agreement</li> </ul>

### Science-based targets (SBTs)

Definition	Comments
Targets that are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement – to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C	Also see: <ul style="list-style-type: none"> <li>Interim Science-Based Targets</li> <li>Paris Agreement</li> <li>Pre-industrial levels</li> </ul>

### Science-based target methods

Definition	Comments
Methods used to calculate science-based targets from a mitigation pathway, company input variables, and an allocation formula.	Also see: <ul style="list-style-type: none"> <li>Absolute contraction</li> <li>Intensity convergence</li> </ul>

### SBTi Net-Zero Expert Advisory Group (EAG)

Definition	Comments
Advisory body to the SBTi consisting of representatives from civil society organizations, corporate climate action initiatives, research agencies, and other stakeholders that contribute specifically to the development of the Net-Zero Standard.	

### SBTi Scientific Advisory Group (SAG)

Definition	Comments
Advisory body to the SBTi consisting of recognized experts in climate change mitigation, integrated assessment modelling, energy system and land-use dynamics, and other topics that contribute to developing the SBTi's scientific foundations.	

### SBTi Technical Advisory Group (TAG)

Definition	Comments
Advisory body to the SBTi consisting of practitioners and experts in topics such as corporate sustainability, greenhouse gas accounting, and target-setting that provide invited feedback on SBTi methods, criteria changes, and guidance.	

### Scope 1 emissions

Definition	Comments
Defined by the GHG Protocol accounting standard as “A reporting organization’s direct GHG emissions”	Also see <ul style="list-style-type: none"> <li>• GHG emissions</li> </ul>

### Scope 2 emissions

Definition	Comments
Defined by the GHG Protocol accounting standard as “A reporting organization’s (indirect) emissions associated with the generation of electricity, heating/ cooling, or steam purchased for own consumption”	Also see <ul style="list-style-type: none"> <li>• GHG emissions</li> </ul>

### Scope 3 emissions

Definition	Comments
Defined by the GHG Protocol accounting standard as “A reporting organization’s indirect emissions other than those covered in scope 2”	Also see <ul style="list-style-type: none"> <li>• GHG emissions</li> <li>• Scope 2 inventory</li> </ul>

### The Paris Agreement

Definition	Comments
Stated by the UNFCCC, the Paris agreement is a “legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels”	Also see: <ul style="list-style-type: none"> <li>• Pre-industrial levels</li> </ul>

### Physical emissions intensity

Definition	Comments
A metric describing the emissions per physical unit of an activity (e.g., cement production). The intensity convergence method is based on the principle that all companies in a sector will	Also see: <ul style="list-style-type: none"> <li>• Decarbonization</li> <li>• Pre-industrial levels</li> <li>• Paris Agreement</li> </ul>

converge to the same physical emissions intensity in a future year of mitigation pathways.

### United Nations Climate Change Conference (2021: COP26)

Definition	Comments
<p>The annual Conference of the Parties brings together the 197 countries (Conference of the Parties, COP) that have ratified the United Nations Framework Convention on Climate Change (UNFCCC). As the twenty-sixth such gathering, it is known as COP26 and will take place in Glasgow in November 2021.</p> <p>The United Nations Environment Programme (UNEP) states that “Under the Convention, nations have reached two key agreements on reducing greenhouse gas emissions: the Kyoto Protocol adopted in 1997, and the Paris Agreement adopted in 2015. The Paris accord is built around so-called “nationally determined contributions” as a means of achieving the goal of limiting the global temperature increase, and to step up those contributions over time.”</p>	<p>Also see:</p> <ul style="list-style-type: none"> <li>• Paris Agreement</li> </ul>

### Value-chain emissions

Definition	Comments
<p>A company's scope 1, 2, and 3 emissions as defined by the GHG Protocol accounting standard</p>	<p>Also see:</p> <ul style="list-style-type: none"> <li>• Scope 1 inventory</li> <li>• Scope 2 inventory</li> <li>• Scope 3 inventory</li> </ul>