SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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Sector Development Framework

TWG-PRO-002 | version 1.0

February 23, 2017

An initiative by

CDP DRIVING SUSTAINABLE ECONOMIES

United Nations Global Compact

WORLD RESOURCES INSTITUTE

WWF

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Sector Development Framework

1 Introduction

Over the 20th century, economic growth was largely powered by fossil fuels. This model of growth came at the expense of a stable climate and now we must cut global greenhouse gas emissions by up to 70% by 2050 to limit global warming to less than 2°C and avert catastrophic climate change. Limiting global warming to 1.5ºC[1] requires even more ambitious reductions of up to 95% by 2050. If we are to reduce emissions at the necessary rate companies must do their part in accelerating the transition to a low carbon economy.

The Science Based Targets initiative (SBTi)[2], an unprecedented joint collaboration between CDP, the United Nations Global Compact, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF) provides a first-ever consistent vision and approach on how corporations can set ambitious GHG reduction targets in line with the latest climate science. The ultimate vision of the initiative is that by 2018, science-based target setting will become standard business practice and corporations will play a major role in closing the emissions gap left by country commitments.

In order to determine a science based emission reduction trajectory for each company the SBTi relies on various methods to allocate the limited amount of greenhouse gas emissions that can still be emitted to the atmosphere (the remaining "carbon budget"). The Sectoral Decarbonization Approach (SDA) is one of these methods and represents a comprehensive, sector based pathway for the transition to a low carbon economy. This paper explains how companies can become involved in its further development.

The Sectoral Decarbonization Approach (SDA)[3] is a method for companies to set GHG reduction targets in line with the International Energy Agency's detailed CO2 sector scenario for keeping warming to 2°C above preindustrial levels. The IEA's 2°C scenario allocates the remaining global carbon budget to sectors taking into account inherent differences among sectors, such as mitigation potential and projected growth. The Sectoral Decarbonization Approach uses these sectoral carbon budgets to help individual companies derive science-based emission reduction targets based on their relative contribution to the total sector activity, their growth projections and their carbon intensity relative to the sector's target intensity.

The SDA method was developed by the partners of the Science Based Targets initiative (SBTi) with technical support from Ecofys. The process to develop the SDA and accompanying online-tool included extensive feedback from stakeholders including public workshops and webinars and written feedback with more than fifty organizations representing a diverse range of sectors providing inputs. Version 1.0 of the SDA method was launched in June 2015.

The current SDA tool is best suited for companies in sectors with well-defined activity projections and physical intensity data i.e. homogenous sectors. These include: *electricity generation*; *iron and tteel*; *aluminium*; *cement*; *pulp and paper*; *road, rail, and air passenger transport*; and c*ommercial buildings*. Other less disaggregated sectoral pathways currently included in the method are: *Other transport* (freight transport), *Other industry* (manufacturing industries) and *Chemicals and Petrochemicals*. Some of these

[1] Keeping global warming below 1.5°C is the aspirational goal in the Paris Agreement and the level deemed safer by many scientists and vulnerable countries

[2] Learn more about us at http://sciencebasedtargets.org/about-us/

[3] http://sciencebasedtargets.org/wp-content/uploads/2015/05/Sectoral-Decarbonization-Approach-Report.pdf

covered sectors need more nuanced trajectories, and there is also the need for additional specific sector pathways to be covered.[4]

The Science Based Targets Initiative invites interested stakeholders to contribute to the development of new sector 2-degree pathways. This framework describes how organizations can contribute to the SDA expansion process.

2 Scope

This document contains the guidelines to be followed by organizations interested in developing a science-based emissions reduction pathway to be considered for inclusion in the Sectoral Decarbonization Approach or recognized by the Science Based Targets initiative. The objective is to enhance consistency and clarity of minimum requirements.

In order to maintain the scientific rigor and transparency of the SDA, the SBTi outlines a five step process for the addition of any:

a) Non-covered sector in the SDA,
b) Subsector in a sector covered by the SDA or,
c) Structural parameters to any of the covered sectors.

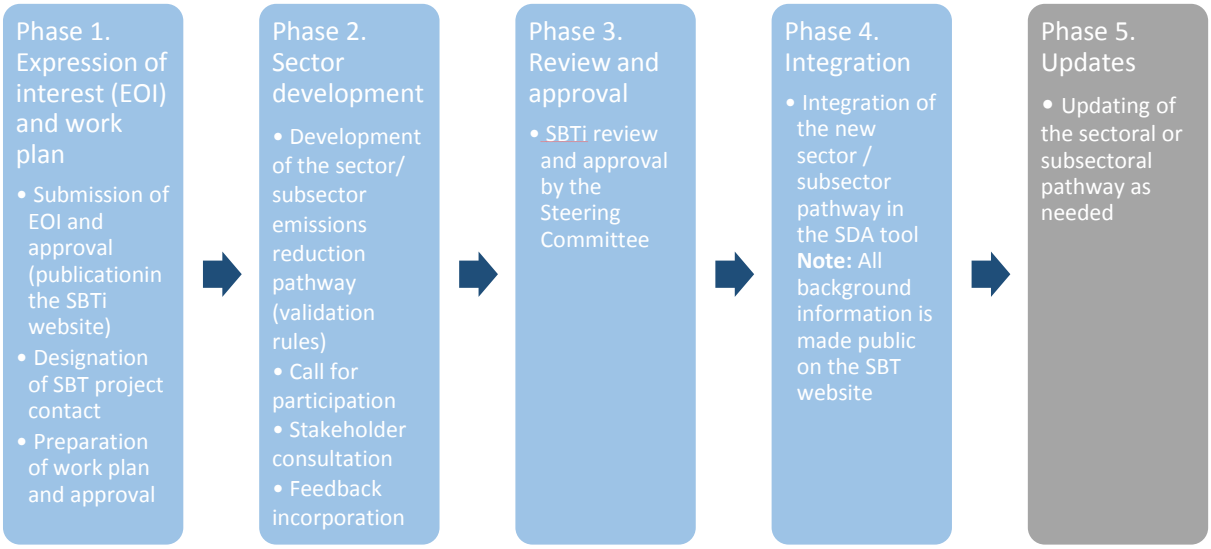

Figure 1 Phases for Sector Pathway Development

3 Key Responsibilities

Developer: The developer is the physical or legal entity, leading the development of a sector (e.g. technical experts, consultants, think tanks).
Project contact: A member of the SBT team or a person from any of the partner organizations, appointed to overview the sector development process.

[4] The carbon budget of non-covered sectors (e.g. agriculture emissions, residential emissions) is considered in the reference decarbonization model from which all these sector pathways have been derived.

Independent reviewer: A person appointed by the Steering Committee to perform due diligence of the final product before issuing a decision. This may occur in situations when the Steering Committee has technical concerns and requires advice from an external professional expert in the field.
Science Based Targets team: The staff from the partner organizations of the Science Based Targets initiative that forms the project core team. The SBT team reviews all sector developments seeking SBTI recognition.
Steering Committee: The Steering Committee, comprising one designated member per partner organization, is the main operational decision-making body of the initiative responsible for designing and overseeing the implementation of the strategy and ensuring an effective attainment of the project outcomes. The Steering Committee provides sector development sign-off.

4 Description

4.1 Phase 1: Expression of Interest and work plan

Submitting an expression of interest (EOI) to the SBT team is the first step for sector development and ideally it will occur before any work is done. However, in instances where some work has been done on a specific sector development it could also be eligible for incorporation in the SDA tool. In this case an expression of interest should also be submitted, and in general all the phases as applicable should be followed.

- **Submission of EOI and approval**

The interested organization, hereby the developer, is encouraged to set up a conversation with the SBT team to test an initial idea before submitting an EOI. An EOI submission includes:

- **Motivation for the sector development.** A description of the need for the development of the sector and the motivation in contributing to this.
- **Project proposal.** The project proposal should clearly describe the scope and how it relates to gaps in the current SDA: a) Development of a decarbonization pathway for a sector that is not currently covered in the Sectoral Decarbonization Approach (SDA), or b) Development of a subsector within an existing SDA sector, or c) Refinement of an existing SDA sector pathway through the introduction of additional structural parameters.
- **Process.** A brief explanation of the process planned to develop the sector or subsector pathway.

If you are interested in applying, please send your EOI by email to info@sciencebasedtargets.org.

Applicants can apply for recognition of a sector/subsector pathway in the SDA at any stage in the development process. However, the SBTi encourages developers to submit an EOI at the outset of the process as this will allow for SBTi participation during the development and will likely result in a shorter review period and less final changes.

The Steering Committee will determine whether the EOI aligns to the needs for further development of the SDA, and will indicate the conditions under which the sector development would be accepted by the SBTi. Once formal written approval is secured from the Steering Committee the developer may proceed to the next step and the sector development process will be reflected on the **Science Based Targets website**.

- **Designation of SBT project contact**

Once an EOI is formally accepted by the SBTi Steering Committee, a person from the SBT team will be appointed as a project contact to provide oversight and support for all steps in the process. The project contact is expected to: participate in technical discussions, provide regular updates to the SBT team and the Steering Committee, ensure validation is consistently applied, and provide oversight and advice in the stakeholder consultation process.

- **Preparation of work plan and approval**

The developer would need to prepare a work plan covering key project elements including at a minimum:

- **Project description**

a) *Scope of the project and emissions coverage*: New sector/ Subsector/ Addition of structural parameters to a sector; at the minimum Scope 1 annual and cumulative emissions with optional addition of Scope 2 and Scope 3.
b) *The methodology to be used*: Methodologies can be top-down "burden-sharing", bottom-up "marginal abatement cost curves" or a combination of both. The developer is expected to explain the choice of method and demonstrate its consistency with the 2-degree budget.
c) *Data sources:* Data sources to be used in the development of the sector pathway.
d) *Decarbonization scenarios:* The decarbonization scenario chosen by the developer must be at the minimum a 2°C scenario comparable to the RCP2.6 pathway in the IPCC's Fifth Assessment Report.

- **Developer description.** Names, contact details and short-bio.
- **Carbon budget validation.** The developer needs to consider that any sector development would need to demonstrate through a conservative method conformance with the carbon budget. The Steering Committee encourages proposals to develop subsectors in parallel for an overarching sector, to facilitate validation of the carbon budget.
- **Timeframe and phases:** What is the expected timeframe and phases for the completion of the project?
- **Stakeholder engagement:** The proposal should describe the plans for getting input from a wide range of interested stakeholders (e.g. industry associations and peer-review companies) and how decisions will be made for integrating their feedback. The stakeholder engagement process should align with the framework for Phase 2 as described further in this document.
- **Casting forward:** Developers are encouraged to plan for at least one update of the sector pathway a year or two from its launch/integration into the SDA tool. This is necessary to ensure that lessons learned from implementation can be captured. If the developer is willing to take responsibility for keeping the sector updated for a longer period of time, the SBTi would welcome an indication of this intent in the work plan.
- **Financing model:** The developer should explain how the sector pathway will be funded.

The SBTi will approve the project plan and determine the cost of review and a cost plan based on work packages / deliverables.

4.2 Phase 2: Sector development

The core of the sector development process happens in Phase 2.

- **Development and validation rules**

The project contact will closely follow the work of the developer during this phase. The developer must demonstrate conformance with the following validation rules.

Emission reduction scenario	**Any proposed pathway development must be derived at the minimum from a 2°C decarbonization scenario comparable to the RCP2.6 pathway in the IPCC´s Fifth Assessment Report.**
Carbon budget allocation	• In the development of **new SECTORS**, the developer must demonstrate through a conservative method that the allocation of the carbon budget is reasonably shared among other not covered sectors. • Ideally, the allocation of a carbon budget for a **specific SUBSECTOR** (e.g. maritime freight) should be done in parallel with the allocation of carbon budgets for complementary subsectors (e.g. all other subsectors covered under 'other transport'). If the developer is planning to develop a pathway for only one subsector, the emissions pathway for this subsector should be at least as ambitious as that of the sector from which the subsector pathway is derived (e.g. the pathway for maritime freight should be at least as ambitious as the pathway for 'other transport').

Table 1 Validation rules

Further guidance:

- **Scope 2 electricity-related emissions** pathways must be aligned to the carbon intensity mitigation curve of the power generation sector in the SDA tool.
- It is recommended to consider emissions related to **district heating and cooling** as scope 1 emissions.
- All SECTOR/SUBSECTOR pathways should consider the effect of **non-CO2 gases**, where relevant.
- **Real data** for past years should be included in the decarbonization pathway as available.
- All data used should be traceable.
- All **assumptions**[5] must be stated and justified.
- The developer may conduct a **high level impact assessment**, of socio-economic implications or environmental impacts, environmental impacts, carbon leakage, including impacts on biodiversity and natural ecosystems, due to the inclusion of contentious technologies or measures embedded in the pathway, or potential competition with other sustainable development goals.

Currently, the Sectoral Decarbonization Approach is constructed with the 2°C scenario (known as 2DS) from the International Energy Agency in its Energy Technologies Perspectives Report 2016 that lays out an energy system deployment pathway and an emissions trajectory consistent with at least a 50% chance of limiting the average global temperature increase to 2°C.

[5] For example: use of CCS, BECCS, carbon price, emissions factors, economic growth, population growth, demand of materials, availability of natural resources, the extent to which mitigation measures are deployed, policies in place, etc.

- **Call for participation**

After a draft of the proposed pathway is completed the developer must prepare the stakeholder consultation. The SBTi will call on participation of interested stakeholders. For instance, all relevant companies committed or approved by the SBTi will be invited to participate in the stakeholder consultation process.

- **Stakeholder Consultation**

For the SBTi to ultimately accept and integrate a sector or subsector pathway, it should serve the need of all the companies operating in that sector or subsector while maintaining scientific credibility. Therefore, an inclusive, consensus-based stakeholder engagement process is required. The developer, will conduct this process as agreed with the SBTi in phase 1. The SBTi reserves the right to include specific experts, organizations or companies in the stakeholder consultation process (e.g. partner business networks or companies participating in the initiative). Stakeholders that responded to the "Call for Participation" will be contacted by the developer.

Stakeholder consultation can be conducted through different means or in different stages as agreed in the planning phase. For example, several calls and workshops during the development phase can set a foundation for further engagement once a final product is ready. This is highly recommended in order to enrich the process.

The stakeholder consultation process should consist of the following elements:

- The developer will organize a minimum of two in-person or virtual workshops at key milestones in the project to seek input. To ensure broad buy-in to the sector development the developer should be able to prove that a significant number of affected organizations were represented in at least one webinar or workshop.
- Invitations must be balanced in terms of stakeholder representation (NGOs, think tanks, industry associations, government representatives, research centers, companies and business coalitions with a stake on the sector development).
- The developer should plan for questions and design a survey. The survey can be published via the SBT initiative website.
- The main topic of consultation is the sector pathway. Therefore, the developer should provide the audience with the general context to understand the pathway and the way it addresses a gap in the current SDA.
- The developer should record the workshops and webinars when possible, and take notes.
- Developers should ensure that workshops and webinars fulfill the objective of building broad industry support and buy in. This means that concerns and comments raised by participants should be seriously considered and taken into account for revised drafts of the sector pathway.
- Interested stakeholders should be provided with an opportunity to provide written feedback to draft versions of the sectoral pathway.
- Individual interviews or consultations can be organized as necessary with minutes from this type of engagement integrated into a **stakeholder consultation report**. This report consists of an executive summary, minutes, participant lists, pictures, recordings, materials, results of pilot tests and survey responses. The report should include a comprehensive overview of all feedback received.

- **Feedback incorporation**

Feedback from the stakeholder consultation must be analyzed and integrated in the sector accordingly. The developer should inform all participant stakeholders about how their feedback was taken into account. Therefore, the developer will provide a **summary of incorporated feedback** and actions taken to the project contact so that it could be uploaded to the SBT website. When necessary, the developer should prepare follow-up webinars or group calls to explain how certain recommendations were incorporated.

The project contact will assess the content and quality of the **stakeholder consultation report** and **summary of incorporated feedback** and may request the developer to follow up on some specific queries.

4.3 Phase 4: Integration

Once the Steering Committee signs-off, the integration into the SDA tool needs to be planned and implemented. Data that requires a license will be managed appropriately in the tool.

The developer should also prepare a **technical paper** to be part of the SDA tool description. The technical paper should include at the minimum:

- A sector pathway summary in terms of change in annual emissions, activity projections and carbon intensity between 2010 and 2050, as well as the change in cumulative emissions;
- All the underlying assumptions and reasoning behind the sector pathway
- Data sources;
- A summary of conformance to the validation rules;

All sector development recognized by the SBT initiative will be included in the SDA tool and be made publicly available.

The developer could also prepare a guidance document for companies on how to apply the sector or subsector pathway for target-setting purposes. This guidance must be aligned to the Science-based Target Setting Manual. Sector and subsector guidance can be reviewed by the initiative to be considered in the resources list.

4.4 Phase 5: Updates

As different companies start using the pathways for new sectors and subsectors there will be lessons learned and possible refinements required (e.g. availability of more refined modeling). The SBTi strongly encourages developers to commit to supporting at least one update of the pathway they developed one or two years after its integration in the SDA.

4.5 Joint implementation

In some cases, the SBTi may be approached by one or more organizations to collaborate directly in a sector development. Such instances will be considered to be “joint developments”. Due to limited staff resources the SBTi will prioritize requests for joint development based on criteria that include aggregate GHG impacts as well as funding opportunities.

4.6 Recognition

The developer will receive recognition from the SBT initiative from the moment that the EOI is accepted. In the case of joint implementation, the SBTi and the developer will be acknowledged as co-developers. All other stakeholders will also be recognized for their participation and input.

The developer cannot use the SBTi logo in their communications, without written confirmation from the SBTi.

4.7 Use of new sector pathways

New sector pathways will be publically available at the SBTi website in the SDA tool and free-of-cost. The objective of the sector development process is to develop sector or subsector decarbonization pathways that reduce the barriers to entry for companies that wish to set science-based targets.

4.8 Cost of Review

Applicants for sector pathway development will be asked to reimburse the Science Based Targets initiative for the cost of reviewing the draft pathway and participating in the development process. The cost will be specified and agreed to after an initial determination of review needs in Phase 1. There are no royalty fees associated with using the outputs.

4.9 Clause

The SBTi may from time-to-time, reevaluate these sector development guidelines and make amendments to this document including the addition or reduction of guidelines, requirements and limitations for receiving approval/recognition.

4.10 General inquiries

If you have any general questions pertaining to this document please email info@sciencebasedtargets.org

5 Glossary

Approval: The formal approval of the new sector or subsector decarbonization pathway by the Steering Committee, after all steps in the process have been completed.
Expression of interest: Formal communication of interest to develop a sector or subsector for recognition of the Science Based Targets initiative and integration into the Sectoral Decarbonization Approach.
Integration: Integrating the new sector development into de SDA tool for public use.
Joint development: An instance where the SBTi work together with another physical or legal entity in developing a sector.
Sector development: Development of a decarbonization pathway for a sector that is not currently covered in the Sectoral Decarbonization Approach (SDA) or a subsector within an existing SDA sector. Refinement of an existing SDA sector pathway through the introduction of additional structural parameters may also need to follow the present framework.
Sector development process: The sector development process starts from the reception of an expression of interest and ends with the integration of the new pathway into the SDA Tool.

Stakeholder consultation: It refers to an inclusive, consensus-based stakeholder engagement process to provide feedback on a final sector development. The developer conducts a stakeholder consultation process aligned with the guidelines established for it.
Updates: The sector pathway constructed might need adjustment in the future after being approved and integrated into the SDA tool due to changes in the assumptions, the models or the emissions scenarios used, or if users identify issues not detected during the stakeholder consultation period. Developers are encouraged to participate in at least one first update to the sector pathway.
Validation: The developer must demonstrate conformance against the validation rules established by the SBTi, to ensure alignment to the latest climate science and the remaining carbon budget.

6 Document History

Version	Change/update description	Date finalized	Effective Dates
1.0	First version	Feb 23, 2017	Feb 27, 2017