PUBLIC COMMENT VERSION

Science-based Target Setting Manual

Version 1.0

September 2015

A product of the Science Based Targets initiative

Driving Ambitious Corporate Climate Action

NOTE – All text highlighted in GRAY is not final and will be updated.

[Include logos of CDP, UN Global Compact WRI and WWF]

An initiative by

Preface

This draft manual was developed by Science Based Targets, an international initiative on science-based target setting for companies initiated by CDP, United National Global Compact (UN Global Compact), the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF). The primary authors are:

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A multi-stakeholder process is being used to develop this manual. A technical advisory group of experts from industry and NGOs provided detailed input on early drafts of the manual. More than 10 companies with experience setting science based targets were interviewed to understand best practices and develop examples. This draft has been released for a public comment process to gain additional input from stakeholders world-wide.

Acknowledgments – To Be Updated

CDP, UN Global Compact, WRI, and WWF are grateful for the advice and inputs received from various experts during the development of the draft manual.

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Foreword

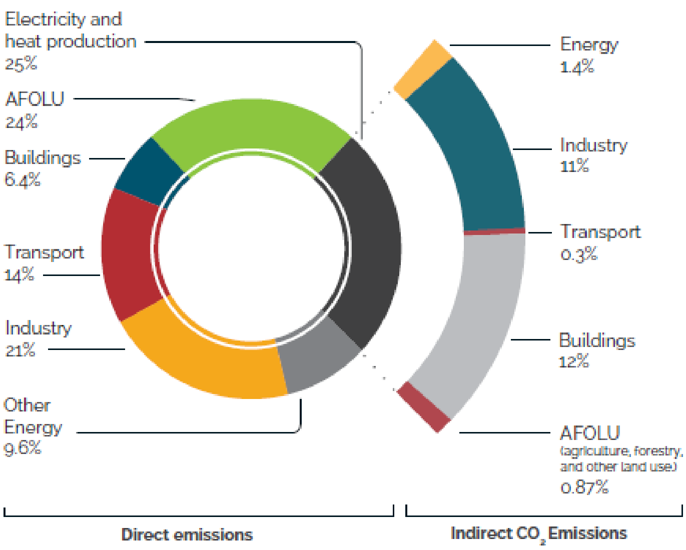
TO BE WRITTEN

Contents

Introduction

The Fifth Assessment Report from Intergovernmental Panel on Climate Change (IPCC)[1] clearly shows that despite a number of efforts intended to stabilize greenhouse gas (GHG) emissions, emissions levels continue to rise. According to IPCC, emissions have increased by 31% between 1990 and 2010. Population increase and economic growth are likely to lead to an increased demand for energy and in turn, drive additional emissions and an increase in the global mean temperature. This increase will have direct consequences, including: disrupted ecosystems, water scarcity, decrease in agricultural production, and potential political instability. This trajectory, also called the Business as Usual trajectory, which is also in part due to a lack of additional efforts and maintaining status quo, is well above the level of emissions that scientists predict will result in potentially severe impacts to the well-being of humans due to significant changes to the earth's climate. Under this current trajectory, global mean temperatures are projected to increase by 3.7 to 4.8ºC by the end of this century (2100), far beyond the level of warming that the global scientific community agrees will mitigate potentially significant impacts. In order to limit the increase in temperature to less than 2°C compared to pre-industrial temperature, the level recommended by the scientific community, emissions in 2050 need to be 41-72% below the level of 2010[2], which results in a remaining budget of about 1000 Gigatonnes (GT) or 1000 billion metric tonnes of carbon dioxide equivalent (CO2e) to spend. Continuing at the same emissions rate of around 49 GT per year, this budget will be spent in about 20 years. This means that a rapid transition towards a fossil fuel-free economy should be pursued and the level of emissions reduction actions need to be accelerated.

Direct and indirect global emissions result from the activities of major economic sectors including energy, agriculture, forestry and other land use (AFOLU), commercial buildings industry, transport industry and other energy production (see figure[3]). Corporations operate within all of these sectors and therefore their operations have a direct impact on past and future global GHG emissions.



Because of the pervasiveness of corporations across all economic sectors, companies have a crucial role to play within a transition to a low-carbon future. Companies will need to purposefully reduce emissions and seek ways to decouple emissions from economic growth in order to keep global warming to less than 2°C. Within the corporate sector, energy and power producers have a unique position in that the production of electricity and heat (much of which is consumed by corporations) accounts for 25% of global emissions (see box, below). The power producers in particular, will need to work in cooperation with corporations in order to stay within the recommended global emissions limit. Additionally, governments have a role to play in ensuring a successful transition by creating a supportive regulatory environment for corporations and power producers.

[1] IPCC (Intergovernmental Panel on Climate Change). 2014. Fifth Assessment Report. Summary for Policymakers.

[2] The range of percent decrease in emissions is due to uncertainty in emissions modeling projections. Additionally, a decrease of 49% is actually the lower threshold when recognizing that global net negative emissions would be required (-103 to -118%) in the second half of the century. (Table 6.3 in Chapter 6 of the Fifth Assessment Report, Working Group III).

[3] Adapted from IPCC, 2014 Summary for Policy Makers. (page 8)

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Energy Utilities / Power Sector

Energy production contributes approximately one third (electricity and heat production and "other energy" combined) of global GHG emissions. Given this significant contribution, action by utilities will be critical to meet the 2°C limit by 2050. The energy utility /power sector has an important role in most mitigation scenarios. Decarbonization in this sector is expected to be met through a shift of electricity generation from centralized to decentralized production and from fossil fuels to renewables. Besides the measures taken by the utility sector itself, companies can influence the use of low-carbon energy by investing in low-carbon options such as wind, solar, geothermal, and shifting in the transition period from coal to natural gas. Additionally, decoupling emissions from economic growth will be a critical component of a future low carbon economy. A report by CERES, NRDC and several corporations found that the largest 100 electric power producers in the US achieved a reduction in CO2e emissions (12% from 2008 through 2013) even as the economy grew[4]. This reduction is aligned with the linear trajectory necessary to achieve more than the minimum of 41% decrease by 2050 as noted by IPCC and demonstrates that decoupling emissions is feasible.

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According to data reported to CDP, 81% of the Global 500 companies already have GHG emission reduction or energy-specific targets.[5] However, most of those targets do not equate to reductions required to meet the threat posed by climate change: they are either not ambitious enough to align with science, they don't cover a meaningful percentage of the companies' emissions, or they are only short-term.[6]

The Science Based Targets Initiative

Recognizing that companies will need to set targets consistent with the level of decarbonization required by science to limit warming to less than 2°C compared to pre-industrial temperatures, CDP, the UN Global Compact (UNGC), World Resources Institute (WRI) and WWF formed the joint initiative -Science Based Targets. This initiative intends to increase corporate ambition on climate action by changing the conversation on GHG emissions reduction target setting. The overall goal of the initiative is to raise the ambition of corporate GHG reduction targets to support a transition to a low carbon economy and keep the planet below a 2°C temperature rise.

The initiative has three objectives:

1. By the end of 2015, at least 100 leading companies will commit to adopt emission reduction targets in line with climate science.
2. By 2020, 250 leading companies will adopt and disclose emission reduction targets in line with climate science.
3. The initiative will demonstrate to policy-makers the scale of ambition achievable among leading companies to positively influence international climate negotiations.

The Science Based Targets initiative has defined a science-based target as:

> Targets adopted by companies to reduce GHG emissions are considered "science-based" if they are in line with the level of decarbonization required to keep global temperature

[4] CERES et al., Benchmarking Air Emissions. July 2015.

[5] Data reported to CDP of the world's 500 largest companies set GHG emission reduction or energy-specific targets (e.g., percent renewable energy) in the 2014-15 financial year, see *mindthescience.sciencebasedtargets.org*

[6] *Mindthescience.sciencebasedtargets.org*

increase below 2°C compared to pre-industrial temperatures, as described in the Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC).[7]

Who should use this manual?

This manual provides guidance to companies that are considering setting, that are in the process of developing a new GHG emissions reduction target, or adjusting a previous target. Companies may also use this manual to validate if existing targets are aligned with science. Consultants who are providing support to companies or other organizations interested in the topic may also use this manual. Additionally, this manual can be used by investors, environmental groups, policy makers, and academics to inform them on best practices for setting corporate science-based GHG targets and serve as a framework for a company's GHG management strategy.

Purpose of the Manual

This manual should be used as a guide to develop GHG emissions reduction targets. It is intended to be method neutral and provides recommendations for setting science-based GHG reduction targets rather than prescribing a single method or specific requirements. This manual can also be used as a basis for setting other science-informed targets, such as energy, renewable energy or energy purchasing goals, but does not specifically address these categories of targets. This manual references the criteria of the Science Based Target (SBT) initiative's Call to Action campaign but does not *require* any of these criteria to be met within the context of this 'how-to' manual. Call to Action is a separate effort led by Science Based Targets and calls on companies to demonstrate their leadership on climate action by publicly committing to science-based GHG reduction targets.

How was the manual developed?

The manual was jointly developed by the partners of the Science Based Targets initiative, CDP, UN Global Compact, WRI and WWF.

Additionally, the Technical Advisory Group of the Science Based Targets initiative, consisting of experts from industry, consulting firms, and NGOs provided detailed input on various drafts of the manual.

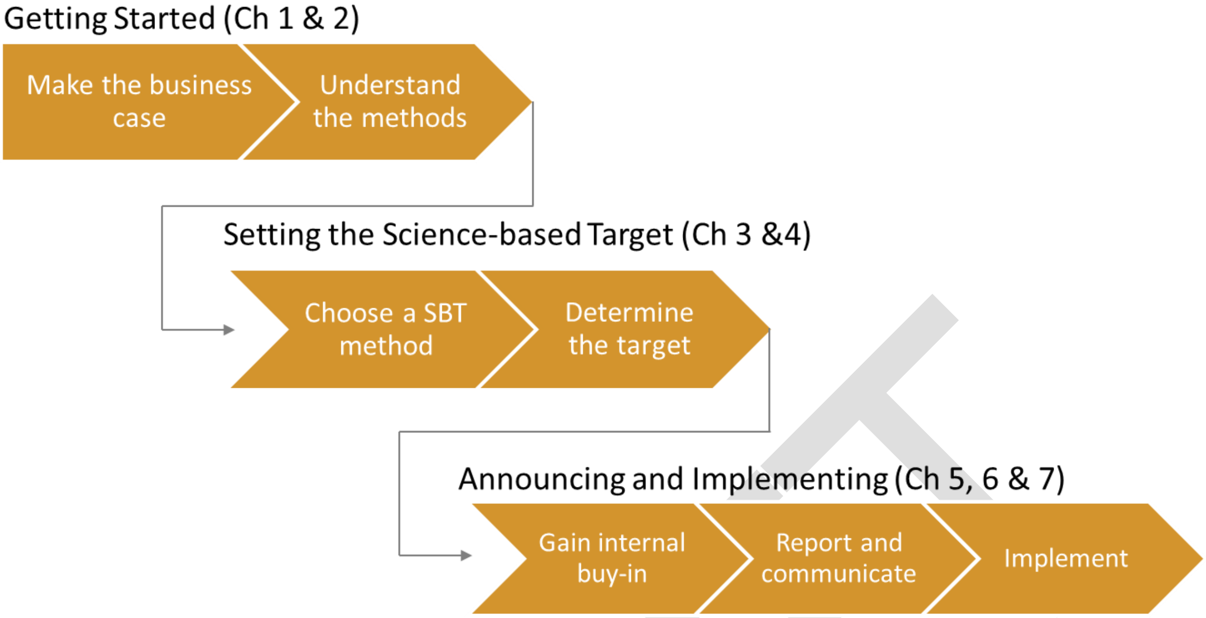
The draft manual was made available for public comment from September - November 2015, including a webinar and three in-person workshops in Washington, DC; Mumbai, India; and Lille, France.

Feedback from the Technical Advisory Group and stakeholders during the public comment process were taken into consideration and incorporated into the document.

What is in this manual?

This manual provides recommendations for companies on how to set emissions reduction targets in line with climate science. It takes the reader through the different steps of setting a GHG emissions reduction target including defining the business case, how to get internal buy-in and how to communicate to stakeholders. The manual also explains science-based target methods and outlines a process to assist companies with choosing one or more approaches. The basic steps for setting a method and the corresponding chapters are shown below:

[7] This definition applies to the Fourth or Fifth Assessment Report of IPCC, as well as the modeling of the International Energy Agency.


Getting Started (Ch 1 & 2)
Make the business case
Understand the methods
Setting the Science-based Target (Ch 3 &4)
Choose a SBT method
Determine the target
Announcing and Implementing (Ch 5, 6 & 7)
Gain internal buy-in
Report and communicate
Implement

1. Making the Business Case for Science-based Targets

More and more companies are tracking their GHG emissions and reporting them publicly every year. In fact, there has been a 20 fold increase in companies that disclose through CDP from 2003 to 2014, resulting in 1825 companies reporting to the climate change questionnaire in 2014 alone. Alongside tracking emissions, 75% of these companies have also set GHG emissions reduction targets[8].

However, a study conducted by We Mean Business, a coalition of international organizations[9] points out that most companies are not setting targets in line with science and very few companies have set public targets that reach beyond 2020.[10] It also stands to reason that companies in regions with historically high emissions or with significant future projected emissions (i.e., the EU, US and China) will need to set particularly ambitious targets to compensate for their current expected trajectory.[11]

In a separate review of 70 of the world's largest emitters, CDP found that nearly a third of reporting companies do not have targets and another third have targets that are not aligned with climate science (Figure 1.1).[12]

Unfortunately the efforts taken by governments, companies and society to date are not sufficient to avoid the predicted increase in temperature and most current target-setting practices have only led to incremental change in reductions. Companies have a significant role to play in stabilizing the climate and reversing the trend of increasing emissions. If companies do not sufficiently reduce emissions, the potential impacts and increased risks associated with climate change will adversely affect the economy and creating an unstable and unpredictable environment in which to conduct business.

This chapter outlines how businesses benefit from setting emissions reduction targets and specifically highlights the drivers and motivators for setting ambitious science-based targets.

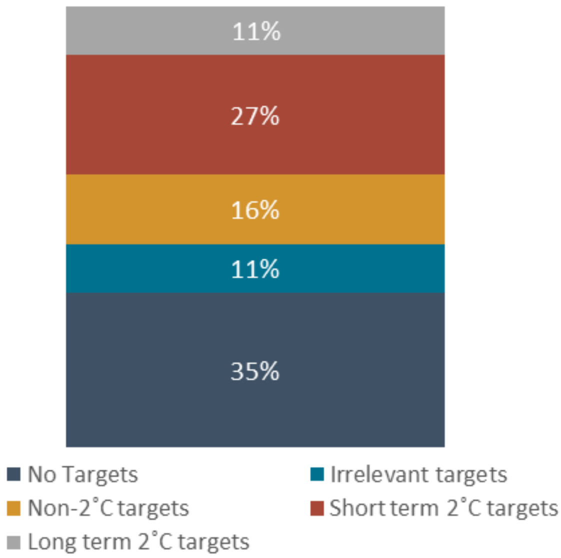


Figure 1.1 Companies that have set 2˚C targets

1.1. Moving beyond the status quo

Setting GHG emissions targets has become status quo for the majority of the world's largest companies. Creating an inventory is a critical step to understanding a company's GHG impacts and identifying risks

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8 Does not include separate energy-based targets

9 BSR, The B Team, CDP, Ceres, The Climate Group, The Prince of Wales's Corporate Leaders Group and WBCSD

10 We Mean Business. The Climate Has Changed, 2014 (p 13).

11 Key Findings from the Intergovernmental Panel on Climate Change, 2014; Climate Change: Implications for Extractive and Primary Industries. (WMB, p 13)

12 Mind the Science, May 2015.

and opportunities. In turn, setting a target incentivizes achieving reductions and sets a common goal and measuring stick against which emissions-reduction projects and programs can be evaluated.

Addressing corporate emissions through target setting can lead to a multitude of financial and reputational opportunities and provides a tangible signal to stakeholders that a company is doing its part to address climate change. However, while setting incremental targets based on estimates or comparison to peers results in some business advantages, only companies that set science-based targets (SBTs) can unlock the full benefit of a comprehensive GHG management strategy, demonstrate leadership, and best prepare for a low-carbon regulatory environment.

It is important to understand the advantages for companies that set ambitious targets informed by science. Companies that align their corporate goals with the future low carbon economy and policy environment now, will be able to evolve and transform through proactive planning and avoid a disruptive transition that unprepared companies are likely to face. Setting science-based targets (consistent with limiting global warming to less than 2°C compared to pre-industrial temperatures) will allow these companies to mitigate climate and policy-related risks and simultaneously capture the financial opportunities of a low carbon transition[13]. It should also be kept in mind that setting SBTs does not intrinsically limit the financial growth of a company – many methods directly take future growth projections into account while determining emissions reduction targets (see Chapter 2).

Moving beyond the status quo in target setting is paramount for companies that want to remain competitive in a carbon constrained environment. While the following general opportunities apply to both common- and science-based target setting, Table 1-1 below shows how science-based targets allow a company to capitalize on these opportunities to their fullest extent and move beyond incremental change. Setting targets can:

- Drive innovation and transform business practices and product offerings
- Build credibility and reputation
- Demonstrate leadership and influence policy
- Save money and increase competitiveness

Recognizing there are cost benefits to most target-setting exercises when reductions are met, the additional value of setting SBTs can be unlocked through increased recognition as a leader and corresponding reputational advantages. Section 1.2 gives several examples of the advantages of setting ambitious science-based targets.

Table 1-1 The benefits of adopting a science-based target

Opportunity	Common Practice Target Setting	Science-based Target Setting
Drive innovation and transform business practices	Setting targets can inspire companies and supply chain actors to discover new and novel solutions and product offerings. Because targets are short term and not a “stretch” companies may not be pushed to transform business practices.	Because SBTs include a long term vision, companies can think beyond the near term common solutions for GHG emissions reductions. New technologies and financing options can be developed in a corporate environment that prioritizes preparing for a low-carbon economy.
Build credibility and reputation	Companies that are transparent in their GHG emissions reduction efforts garner reputational credibility through demonstrating their commitment to addressing climate change. However, investors and other stakeholders are now demanding targets based on external, science-driven projections, which could put these companies at risk.	SBTs have higher credibility with stakeholders. Science is requiring companies to increase their level of ambition.

[13] UNGC, C4C

Opportunity	Common Practice Target Setting	Science-based Target Setting
Demonstrate leadership and influence policy	Companies with targets have shown leadership in their commitment to reduce emissions. However, the majority of large companies are now setting targets. In order to demonstrate leadership companies must set SBTs.	Setting SBTs can differentiate a company from its peers. SBTs can also position a company to be more resilient to regulatory and policy changes while also being in a better position to influence policy.
Save money and increase competitiveness	A reduction in GHG emissions often corresponds to decreased costs and an increase in companies' operational efficiency. See Financial Benefit Box.	Incremental targets may limit companies to only going after the "low hanging fruit". Methods to set SBTs do not automatically limit growth.

1.2. Benefits of setting science-based targets

This section provides additional examples of how companies can benefit from setting SBTs.

Drive innovation and transform business practices

- When companies set aggressive reduction targets, it often leads to high levels of innovation and investment that causes them to not only meet, but even exceed their targets. Setting an ambitious target causes employees to think beyond incremental changes and low hanging fruit and be truly transformational in their business practices.
- Innovation leads to creating new business models and sources of value. Innovation can redefine companies' bottom lines by creating new products, new ways to source materials, and new ways to grow markets. Radical innovation can, in turn, disrupt currently unsustainable economic systems.
- Innovative financing practices such as internal carbon pricing or carbon taxes have also started to become more common for SBT-setting companies. Creative financing practices can enable the significant capital and R&D investments needed to achieve ambitious targets and achieving these targets can in turn result in an improved bottom line.

Build credibility and reputation

- Companies that come forward with targets commensurate with climate science will gain reputational advantages due to the increased attention regulators, the public and investors are putting on climate change issues.
- The visibility and positive reputation garnered through setting SBTs will also add to general employer attractiveness.
- Companies that set science-based targets show leadership by understanding and directly tackling their contribution to future climate change. Setting these targets and publicly announcing them also lends credibility to the company in the eyes of its investors, employees, customers and policy makers.

Demonstrate leadership and influence policy

- Being at the forefront of SBT setting will differentiate a company from its competitors and peers. These leading companies are also well-positioned to play a role in helping to shape the regulatory environment.
- Acting now, in advance of GHG-related regulations, will allow companies to smoothly shift to regulatory and policy changes that might otherwise impact daily business operations and

impede financial growth. Those that set and meet science-based targets will reduce their exposure to more stringent emissions and energy regulations.

- Companies can also influence policy by creating demand for renewable energy solutions that would be better supported by favorable policy conditions.

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Leadership catalyzing action

COMPANY X's Corporate Business Principles include a commitment to environmentally sustainable practices. As part of this commitment, COMPANY X has signed on to the six CDP Road to Paris initiatives, which includes setting a science-based target. COMPANY X recognizes the importance of addressing climate change due to the potentially severe impacts it will have on raw materials, water availability and other related supply chain disruptions. Committing to a science-based target highlights the current practices at COMPANY X that are already part of its company values. COMPANY X sees its public commitment as a way to "help catalyze the business sector to provide a strong message of leadership from the business community to the policy makers" which in turn serves as a call to action for governments.

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Save money and increase competitiveness

- Companies that take GHGs out of their operations and value chain will benefit from increased durability and competitiveness in a low carbon economy. These companies will make their products and services using less energy and/or less carbon intensive energy, leading to cost savings and a more resilient business model when the embedded cost of carbon increases.
- Achieving steeper carbon reductions will make a larger decrease in companies' energy costs, and therefore increase their competitiveness as manufacturing, logistics costs, etc., will decrease faster than their competitors. Additionally, decreasing energy consumption reduces their exposure to the risks associated with fossil-fuel price fluctuations.
- Competitiveness can also be increased by achieving a higher internal rate of return on investments. In the We Mean Business study, a group of forward-thinking companies that have set science-based targets and also reduced their emissions from 2012 to 2013, achieved a better internal rate of return (IRR) on low carbon investments when compared to their peers. These companies purposefully set aggressive targets and have invested in low carbon solutions that have a high financial return (see Figure 1.2). [14]

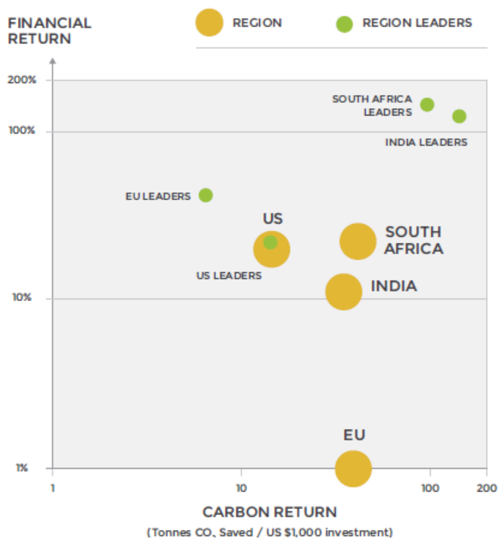

Figure 1.2 IRR of low carbon investments by region

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[14] We Mean Business. The Climate Has Changed, 2014 (p 17).

Possible COMPANY Y (energy company) renewable portfolio box and staying ahead of regulation / being supported by it

-----------end box -----------------

Setting a science-based target is not at odds with economic growth. As demonstrated by the benefits noted above, aspiring to innovative business strategies can catalyze financial success and differentiate companies all while preparing them to thrive in a low carbon economy. Corporate actors will collectively benefit from a stabilized climate by maintaining an environment that is conducive to business and mitigates disruption to business operations. In order to ensure this future state, companies will need to set targets that are in line with limiting global warming to less than 2°C.

2. Understanding Science-based Target Setting Methods

An overview and comparison of existing science-based target setting methods

This chapter describes the basic components used in constructing SBT methods as well as a description of all the methods identified to date.

2.1. What is a science-based target method?

The Science Based Targets initiative defines science-based corporate GHG emission reduction targets as "targets adopted by companies to reduce GHG emissions in line with the level of decarbonization required to keep global temperature increase well below 2°C compared to pre-industrial temperatures, as described in the assessment reports of the IPCC."[15] While this definition appears to be specific enough about the level of ambition that would be considered science-based for a corporate emission reduction target, there are multiple ways in which a company can determine this target based on a number of considerations. A simple question that starts revealing the complexities behind setting a science-based emission reduction target is this:

Are all companies expected to undertake the same amount of emission reductions?

If the answer to this simple question were yes, then determining a science-based target would be relatively simple from a mathematical point of view. However, it is widely acknowledged that the contribution to the accumulation of GHG emissions in the atmosphere and the ability to reduce GHG emissions differ broadly across regions and sectors. In recognition of this, the UN Framework Convention on Climate Change (UNFCCC) and the climate community often apply the principle of 'common but differentiated responsibilities'. Applying the principle of 'common but differentiated responsibilities' to the determination of science-based GHG emission reduction targets for companies, leads to GHG reduction trajectories that differ across companies based on a number of factors including: responsibility, capacity, and economic considerations, amongst others.

A science-based target setting method refers to a procedure that companies can follow in order to determine a level of decarbonization that is consistent with the goal of keeping global temperature increase below 2ºC compared to pre-industrial temperatures. Science-based target setting methods can often be described by three main elements (see Figure 2.1 below):

a. An underlying emissions scenario;
b. A level of disaggregation and;
c. An allocation mechanism.

Each of these components is described in more detail in the rest of this chapter.

[15] Some methods use the IPCC's Fifth Assessment Report and others use the Fourth Assessment Report. While they use slightly different carbon budgets, both are acceptable.

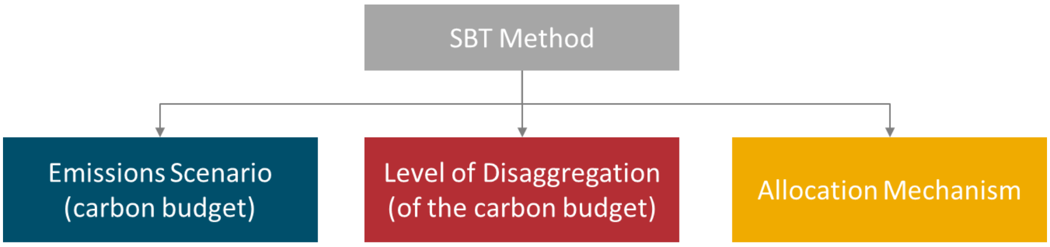


Figure 2.1 The three main elements of a SBT method

2.2. Components of a science-based target method

2.2.1. Emissions scenario

A global warming threshold of 2ºC compared to pre-industrial temperatures has been widely-used as a global goal in national and international climate policy. The Intergovernmental Panel on Climate Change (IPCC), the leading authority on current climate change scientific knowledge, has developed long-term emission scenarios that have been included in the third, fourth and fifth assessment reports of the IPCC. Based on these long-term emission scenarios, IPCC has provided a range of emissions and a level of emission reductions that would be consistent with the goal of not exceeding 2ºC of global warming[16]. Moreover, the fifth assessment report of the IPCC presents a cumulative GHG emissions budget that would be consistent with the 2ºC target.

Other credible sources, like the International Energy Agency (IEA), have developed their own modeling, largely based on the IPCC scenarios, providing more detailed emission trajectories at the regional and sectoral level. The IEA scenarios are included in the Energy Technology Perspectives report (accessible here) and the World Energy Outlook (accessible here).

While many of the 2ºC compatible emission scenarios follow a 'peak and decline' pathway, it is considered acceptable to use a linear simplification of these scenarios for the determination of science based GHG emission reduction targets for corporates. A summary of recommended scenarios for the determination of science-based corporate GHG reduction targets is included in Table 2-1.

Table 2-1. Emissions Scenarios

Source	Base year	Target	
IPCC – Fourth Assessment Report (A-450 ppm CO_2-eq)	1990	***2020 Annex I*** -25% to -40%	***2050 Annex I*** -80% to -95%
		2020 Non-Annex I Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia.	**2050 Non-Annex I** Substantial deviation from baseline in all regions.
IPCC – Fifth Assessment Report (Overshoot < 0.4 W/m^2)	2010	**2050** -41% to 72%	
IPCC – Fifth Assessment Report (RCP 2.6[17])	2010	**2050** -66%	
IEA 2DS (ETP 2015)	2012	**2050** -76% (net)	

[16] The third and fourth assessment reports of the IPCC assesses GHG concentrations rather than temperature thresholds.
[17] RCP = Representative Concentration Pathway

2.2.2. Level of disaggregation

Global GHG emissions are often disaggregated by sector and/or region in the underlying emission scenarios that are used for the determination of science-based emission reduction targets. The mechanism to disaggregate emissions responds to equity criteria that are incorporated in the climate models. As discussed earlier in this chapter, some of the most common equity criteria embedded in climate scenarios include: historical responsibility, ability to reduce emissions, mitigation costs, expected development pathways, population growth, and others.

The application of these equity criteria lead to the allocation of a portion of the global carbon budget to a particular region or sector and explain why certain regions or sectors are allocated a more generous share of the carbon budget than others.

Some emission scenarios offer more resolution than others in the geographic and sectoral disaggregation. For instance, RCP 2.6 disaggregates CO2e emissions across five world regions and two broad sectors (fossil fuels and industry and land-use change). In contrast, the IEA 2DS scenario disaggregates CO2 emissions across nine world regions, five broad sectors (power, transport, industry, buildings and others) and a number of sub-sectors.

Generally speaking, it can be intuited that, when possible, the use of a disaggregated emissions scenario represents a more specific and potentially more equitable description of the pathway that a company would have to follow to be in line with a 2ºC pathway. For instance, if a company predominantly operates in an Annex-I country, then the use of an Annex-I emissions trajectory may be more equitable than the use of a global emissions trajectory. Likewise, an emissions scenario that disaggregates GHG emissions for the power sector would be more informative for an electric power company than an aggregated emissions scenario.

-----------Begin Box-------------

Global Climate Considerations

Companies play a central role in reducing global emissions and influencing the development of climate policy. Science-based targets inform the ambition of company mitigation efforts. Companies' adoption of SBTs demonstrates the political and economic feasibility of low-carbon economic growth to policymakers. While SBTs play an important role in aligning economic activities with less destructive global climate outcomes, their development and adoption also raise issues of equity, competitiveness, and scaling.

Global climate is clearly related to cumulative GHG emissions in the scenarios presented by the IPCC in its fifth assessment report. The relationship between climate and human development is less clear. However, it is clear that companies, governments, and other stakeholders are more likely to adhere to emissions mitigation programs with more equitable and legitimate allocation approaches.

The impacts of mitigation-related costs vary by region and sector. Financial capital, energy and resource availability, and ideas of historical responsibility differentiate mitigation efforts. Rather than addressing differences, most SBT methods use global or sector-based assumptions to bring all stakeholders onto a level playing field. The Sectoral Decarbonization Approach (SDA) method, for example, assumes global convergence of key sectors' emissions intensity by 2050—i.e., the emissions intensity of steel production is assumed to reach the same level in China, the U.S., and Brazil in spite of its current diversity. While this assumption fits with large companies' global scope and ability to locate production facilities, it does incur higher mitigation costs on some regions than others.

----------end box------------

2.2.3. Company allocation mechanism

There are three main approaches to allocating emissions at a company level:

a. **Convergence of carbon intensity:** In this mechanism, it is assumed that the carbon intensity of a company converges towards the 2ºC carbon intensity of the sector at a rate that ensures not exceeding the sectoral 2ºC carbon budget. The rate of convergence of a company is a function of the initial carbon intensity of the company, the 2ºC carbon intensity of the sector, and the growth of the company relative to the growth of the sector. This method can only be used with emissions scenarios that disaggregate emissions at the sector level.

b. **Compression of carbon intensity:** In this allocation mechanism, it is assumed that all companies within the same level of disaggregation (i.e. sector, region or globally) reduce their carbon intensity at a uniform rate that would ensure not exceeding their respective 2ºC carbon budget. The rate of compression in this mechanism is a function of a decreasing carbon budget and the expected level of activity for the sector or region. Activity can be expressed using economic (e.g. value added) or physical (e.g. ton of product) indicators.

c. **Contraction of absolute emissions:** With this allocation mechanism, all companies within the same sector, region, or globally (in case of an aggregated emissions scenario) reduce emissions at the same rate. For instance, taking IPCC AR4 as the underlying emissions scenario, a company that predominantly operates in an Annex I country would have to reduce GHG emissions by 80% to 95% compared to its 1990 emissions.

Figure 2.2 below illustrates the graphical and Y axis unit differences between compression and convergence of emissions intensity:

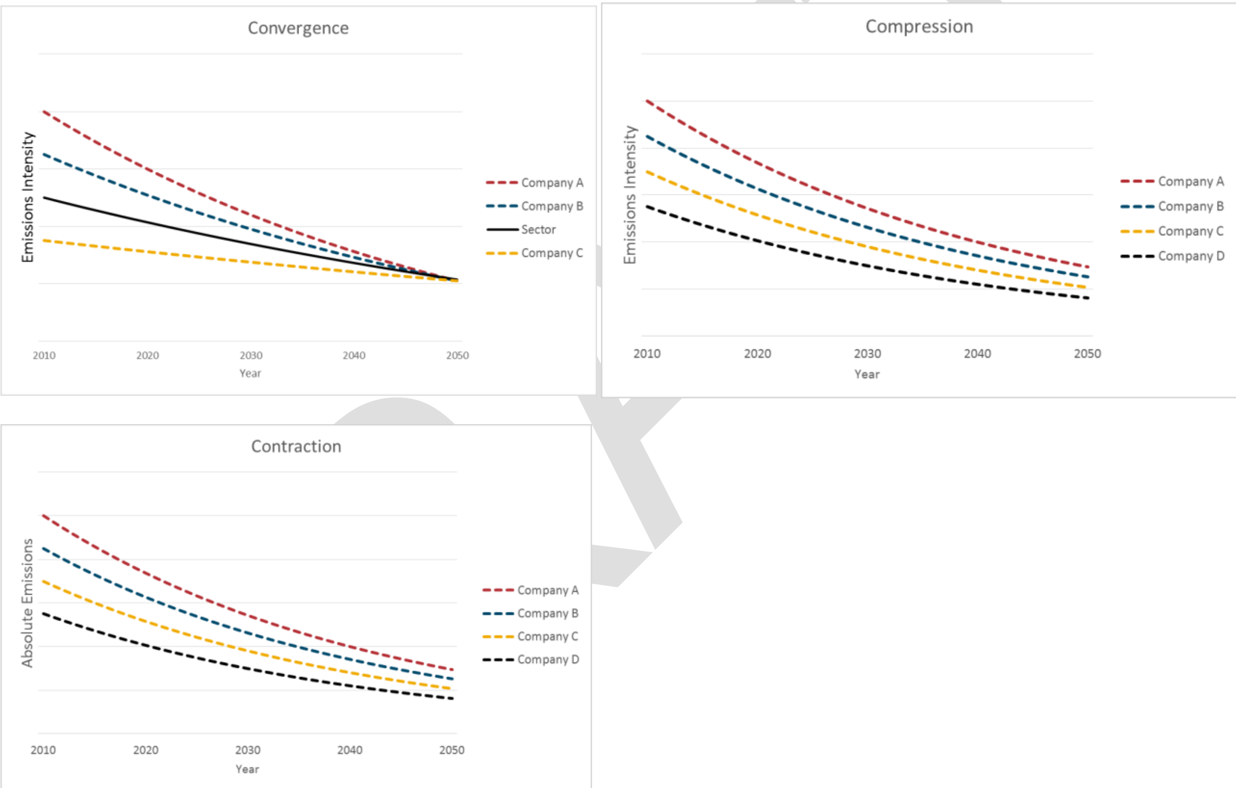


Figure 2.2 Examples of Convergence, Compression, and Contraction

In summary, the three elements of a SBT Method can be represented by the following figure (Figure 2.3):

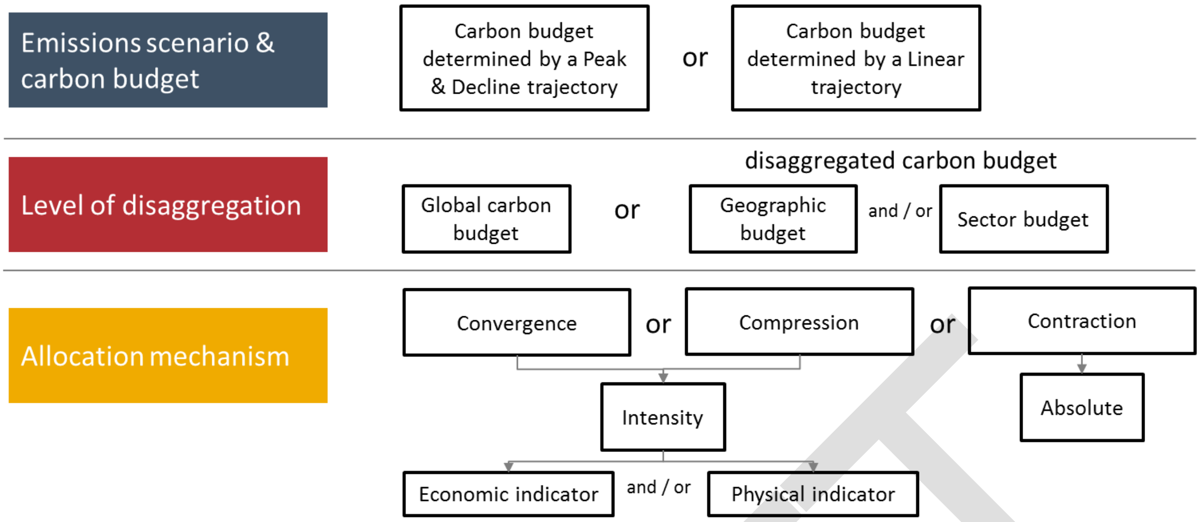


Figure 2.3 Components of an SBT Method

2.3. Model parameters

In addition to the method's emissions scenario and allocation mechanisms, each model requires company inputs and produces output results (the target). A general description of both are found in the following two subsections. The figure below (Figure 2.4) depicts how company inputs combine with the SBT Method to produce the emissions target.

Figure 2.4 Modeling science-based targets

2.3.1. Company inputs

Company-specific data are necessary to produce a target under any of the SBT methods. These inputs can include but are not limited to the base year, target year, base year emissions and activities, and growth projections. See Table 2-2 for a list of the information required by each of the methods described below.

The requirement of the methods to include certain data is indicative of what is factored in during target setting. The base year determines the quantity of other inputs such as base year activities and emissions. In addition, other forward looking metrics are sometimes factored in, such as activity or gross margin projections or changes in market share. The models are sensitive to these inputs as errors can propagate throughout the model. Company data should therefore be as accurate as possible.

-----------begin box---------

Sensitive or confidential data

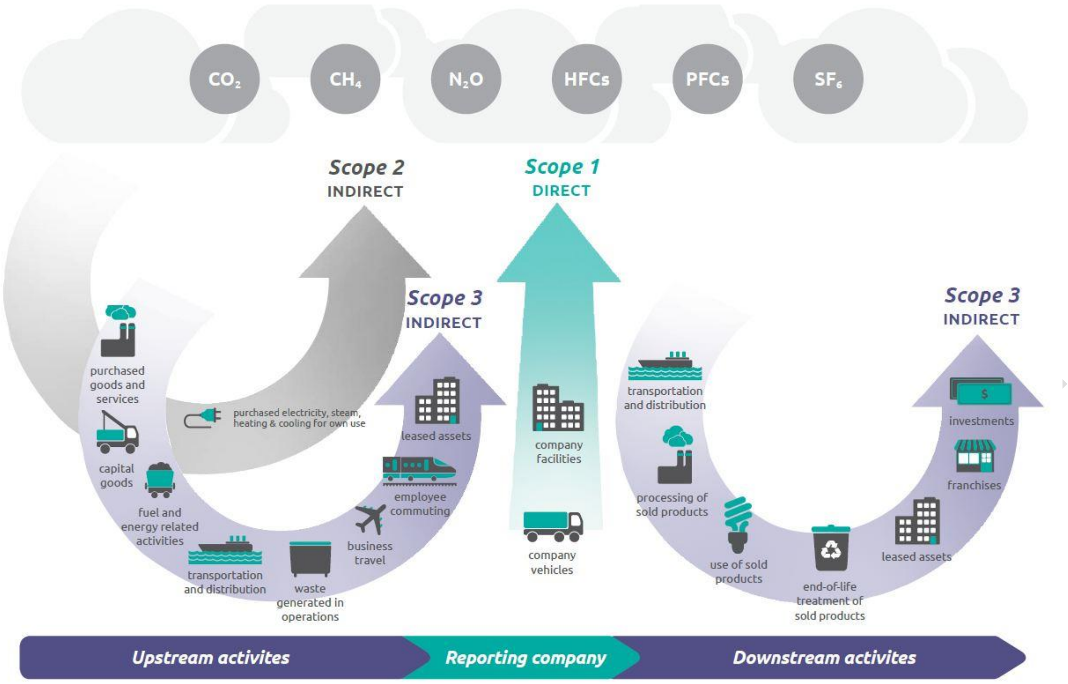
Placeholder for discussion of companies using sensitive data to produce targets. How this data is not necessarily publically disclosed as part of the target and can be kept confidential.

---------end box-----------

Another major type of input is the company's emissions scopes (see box below for a depiction of activities that are included in each scope). The methods cover various combinations of scopes 1, 2, and/or 3 and thus affect which scopes companies can include in their targets. The scopes can be treated in combination (e.g., a 30% reduction in scope 1 and 2 emissions where the reductions can take place in order to meet the targeted emissions quantity) or separately (e.g. a 30% reduction in scope 1 and 30% reduction in scope 2) depending on the emissions accounting principles used by the method.

---------begin box ------------

GHG Emissions Scopes



--------------end box -----------

2.3.2. Company emissions trajectory

The expression of targets can differ between methods, depending on the method chosen. A company can choose to use the suggested output format and also translate it to other formats depending on reporting and communication preferences. The primary output formats are noted below and are also included in Table 2-2:

- Absolute emissions (tCO2) or intensity (e.g. tCO2/MWh)
- Absolute value (e.g. target is to emit ≤ 300,000 tCO2 by 2050) or amount relative to base year (e.g. 80% reduction from 2010 level)
- A single number for the target year (e.g. 80% reduction by 2050 compared to 2010 levels)
- A pathway to target year (thus specifying what might be interim targets for years in between) (see also Section 4.1.3, Choosing base and goal years).

Similar to the way scenarios have different trajectories from base to target year, so do individual company target pathways. The area under the curve will represents cumulative emissions, giving different amounts for the different pathways.

2.4. Overview of methods

All methods described in this section are free and publically available. The methods are described using a simple framework that assesses: how the method covers the key requirements to be a science-based target; additional features relative to the method; and additional commentary on the specific method. The allocation mechanisms (convergence, compression, and contraction) have been categorized and explained in Section 2.2.3. With regards to emissions scenarios, there are several important points to consider, namely:

1. Update status: when they have been developed and how updated they might be, e.g. the family of scenarios incorporated in the IPCC AR4 is naturally older and less updated than the family of scenarios considered in the IPCC AR5. The use of integrated assessment modelling, for socio, environmental and economic modelling of climate scenarios has evolved considerably in recent years.

2. Coverage: what gases are considered in the scenario, namely CO2 only, or CO2 and other GHG's; what sectors of activities are considered (e.g. IEA focuses on the energy system, and not on land use change or agriculture emissions).

3. Granularity: if it is an aggregated global scenario, or if it is a global scenario with sectoral disaggregation or a global scenario with regional and sectoral disaggregation. Regional and country scenarios can also exist, with an understanding that questions may arise regarding how compatible they are with other scenarios and how allocation between different regions is addressed.

4. Scenario assumptions: are the scenario assumptions reasonable for setting a science based target. For example, within the AR5 there are 2°C scenarios which forecast emissions will continue to rise up to 2030, which implies stronger risks of not meeting the budget and higher dependence on carbon capture towards the end of the century. Some scenarios are more stringent than others and the Science Based Target initiative advocates for early and ambitious action in order to avoid the worst scenarios, while continuing to work to reach a 2° scenario.

5. Data: additionally, it should also be checked if the publicly available information on the scenario provides only the emissions data, or if other variables, either projected or used as input for the scenario (e.g. GDP growth, electricity production, cement production, etc.) are available, as they might be needed to be used in certain methods and provide further transparency as to scenario assumptions.

Emissions scenarios are characterized by the aspects above within the high-level description of each individual method. The allocation mechanism(s) for each method is also noted in its description. Additionally, methods have been assessed based on the following criteria:

<u>Budget:</u>

- Can the allocation mechanism guarantee that the equal application of the method to N companies, would guarantee to stay below the budget; what conditions need to be observed for that;
- Mechanisms that are in place to guarantee the budget is observed.

<u>Validation:</u> To what extent has the method been validated or is able to be validated.

- By publication in scientific peer review journals;
- By providing clear documentation on its principles and mechanisms, as well a clear mathematical formulation of the method
- By means of experts groups reviews or public consultation.

<u>Usability:</u>

- Availability of a tool able to support the method application;
- Extent to which the method has been formulated, documented and there are publicly available support materials for its application;
- Extent the method has already been used by companies;
- Maintaining/updating method;

Targets:

- Absolute or intensity
- Base years
- Target year;
- Pathway: none, linear, as per scenario (APS), compound annual growth rate (CAGR);
- Scopes

Authors and year published

Notes: Any additional notes that characterize the method, its potential for other uses or plans for future updates to the extent they are known.

The following methods are presented in alphabetical order by their non-abbreviated names and assessed according to their emissions scenario, allocation mechanism, and other criteria as noted above:

- Absolute emissions compression
- Climate Stabilization Intensity Targets (CSI)
- Context-based Carbon Metric (CSO)
- Corporate Finance Approach to Climate-stabilizing Targets (C-FACT)
- Greenhouse Gas Emissions per Value Added (GEVA)
- Sectoral Decarbonization Approach (SDA)
- 3% Solution

In Figure 2.5 the methods are mapped across two key aspects: emissions scenario used and allocation mechanism.

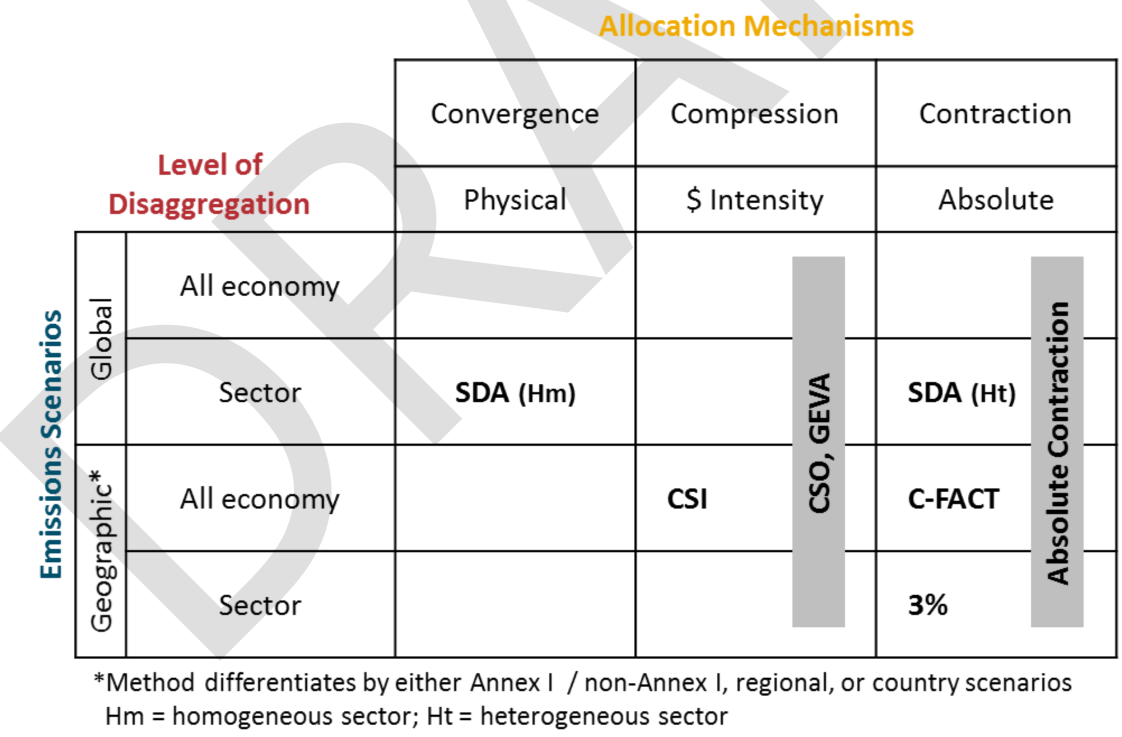


Figure 2.5 Mapping methods in accordance to scenarios and allocation mechanism

Below, a high level description of each method is given.

Absolute Emissions Contraction

Scenario: Generally proposed with AR5 range of scenario results, requiring 41-72% reduction from 2010 to 2050, but any suitable scenario can be used. However, the use of certain scenarios require less emission reduction up-front, necessitating that more emissions are captured and stored in the future - delaying action and creating a "carbon debt" for future generations. As such, the use of the lower end of the range (41%) of 2 degree scenarios is not recommended. The Science Based Targets initiative encourages companies to set a minimum 56% reduction in order to more likely avoid the future carbon debt issue and to adjust for other potential influences on the global carbon budget.

Allocation: Contraction of absolute GHG emissions. This type of method allocates emissions proportionally to historical emissions in the base year. As such, new or growing businesses might find it difficult to use this method to get to their "fair share" of the carbon budget during the transition to a low carbon economy.

Budget: Budget is maintained, as all companies reduce in line with scenario, provided no new businesses are created. As that is not a reasonable assumption, the scenario predictions should be reviewed periodically (5 to 10 years) and targets adjusted accordingly in order to maintain the emissions budget.

Validation: Not published and no general mathematical formulation of the method publicly available.

Usability: The method is easy to use and follow. No documentation exists so far on this method. No updates envisaged.

Targets: Absolute emission reductions, with either linear, CAGR or mirroring the scenario pathway. Base year and target year can be specified according to scenario. Method can be used for any scope, provided suitable scenarios exist.

Authors and year published: None, however Mars has used a similar approach when it first set its GHG emission reduction targets in 2009.

Notes: This method has been identified by the Science Based Targets initiative as a simple, straightforward approach in setting and tracking progress toward targets. The different pathways connecting base and target year can results in targets variations: linear emission reductions; peak and decline; CAGR. Some pathways might be more suitable to some companies than others, e.g. a linear reduction pathway is not as practical as a peak and decline pathway for some companies because reductions are expected to be achieved annually, starting with the first year after the base year.

Climate Stabilization Intensity Targets (CSI)

Scenario: AR4, 80% reduction of GHG by 2050 compared with 2007 base year. Economic growth of 5.9% per annum (pa) in period 2007 – 2050.

Allocation: Compression of GHG intensity per value added (GEVA).

Budget: See comments for GEVA.

Validation: Based on GEVA which has been peer review and published in a scientific journal. This particular application has been documented in a paper publicly available here. No detailed general mathematical formulation of the method beyond value added definition and GHG intensity per value added.

Usability: The method is easy to use and follow and is documented. No tool is available. Only requires tracking of emissions and value added to set and track target. No updates envisaged.

Targets: Intensity target in the form of tCO_2e/$ value added. Base year and target year can be specified according to scenario. Targets follow a CAGR trajectory to target year. It aggregates scope 1+2 and does not cover scope 3.

Authors and year published: Chris Tuppen, BT & Jørgen Randers, Norwegian School of Management (2012)

Notes: The Climate Stabilization Intensity Targets is a specification of GEVA to the case of a particular company (BT) and using a particular scenario: considering 80% GHG emissions reductions by 2050 compared to 2007 and economy growth at 5.9% pa (current prices). This results in a long-term target prescribing reduction of scope 1+2 GHG intensity (tCO_2e/million GDP) of 9.6% pa for companies in developed countries. It follows the principle that all companies within a given geography (in this case, developed countries) will decrease its GHG intensity per value added at the same rate.

Context-based Carbon Metric (CSO)

Scenario: Multiple scenarios can be used with this method that can lead to method covering different geographies, target years or sectors.

Allocation: Compression of GHG intensity per value added (GEVA).

Budget: See comments for GEVA. Additionally, CSO implements a mass balance approach as a mechanism to ensure method complies with scenario budget.

Validation: Based on GEVA that has been peer review and published in a scientific journal. No general mathematical formulation of the method publicly available. Updated as needed by the Center for Sustainable Organizations (CSO).

Usability: The method is easy to use and follow. Documentation is available here. A tool is available, specifying the method for one scenario. Only requires tracking of emissions and value added to set and track target. The tool can be used also for target tracking by the company.

Targets: Intensity target in the form of tCO2e/$ value added (per the implementation available online). Base year and target year can be specified according to scenario. Targets follow a CAGR trajectory to target year. Deals with Scope 1 and 2 targets, with Scope 3 optional to user.

Authors and year published: Mark McElroy (CSO), 2006.

Notes: Originally developed and piloted for the setting of Ben & Jerry´s targets in 2006 (last update March 2014). Performance is reported annually and cumulatively in three ways: intensity, absolute, and "context-based" (a rating evaluating the ratio actual emissions/targeted emissions). Method is flexible and can accommodate variations to emissions scenario and intensity metric.

Corporate Finance Approach to Climate-stabilizing Targets (C-FACT)

Scenario: AR4, 80% reduction of GHG by 2050 compared with 2007 base year, for developed countries; 50% reduction of GHG by 2050 compared with 80% for developing countries; companies specify their own future value added projection (based on contribution to GDP). As with previous tools, different scenarios can be accommodated.

Allocation: Contraction of absolute emissions (in version 1.0 of method), although targets also communicated as intensity (value added).

Budget: Budget is maintained to the extent growth of companies equals or is smaller their projection used in the scenario. Companies have reductions similar to scenario.

Validation: Not published in peer reviewed journal, but a description of method is available. No general mathematical formulation of the method publicly available. Autodesk consulted with the U.S. Environmental Protection Agency (EPA), the Climate Group, WRI, and ClearCarbon (now Deloitte).

Usability: The method is easy to use and follow. Documentation is available here. A tool is available upon request and allows setting targets for companies in developed countries and can easily be specified for developing countries. Only requires tracking of emissions and value added to set and track target. This method has been proposed and used by Autodesk. Not clear if any updates or releases are envisaged, however a separate method for cities has also been developed.

Targets: Intensity target in the form of tCO2e/$ value added based on contraction of absolute emissions. Base year and target year can be specified according to scenario. Targets follow a CAGR trajectory to target year. Method proposes coverage of scope 1+2+3 emissions.

Authors and year published: Emma Stewart and Aniruddha Deodhar, Autodesk (2009).

Notes: The method has a five-year sliding window companies can use to evaluate overall short-term progress towards the target. In version 1.0 of the tool, the target has an absolute emissions reduction target, upon which the intensity target is constructed based on the growth projection of company. Method proposes that companies track their intensity target. Thus, budget is respected to the extent growth of the company is equal or smaller to the projected growth in the scenario. Target is only set once according to method, so does not account for updates to growth projections although a company could use the method to recalculate if it chooses to.

Greenhouse Gas Emissions per Value Added (GEVA)

Scenario: The original scenario uses 50% reduction by 2050 (AR4) and economic growth of 3% pa but can be used with different scenarios.

Allocation: Compression of GHG intensity per value added (GEVA).

Budget: Budget is maintained to the extent the growth in value added of companies equals or is smaller than the projection used to calculate the intensity target.

Validation: Published in peer reviewed journal where description of method is available (here). No general mathematical formulation of the method publicly available.

Usability: The method is easy to use and follow. Documentation available for other methods based on this one (see CSI, CSO and C-FACT method). Tools are available that implement variations of these methods (see CSO and C-FACT). Only requires tracking of emissions and value added to set and track target. No updates envisaged.

Targets: Intensity target in the form of tCO_2e/$ value added. Base year and target year can be specified according to scenario. Targets follow a CAGR trajectory to target year. Method proposes coverage of scope 1 and opens possibility to scope 2.

Authors and year published: Jørgen Randers, Norwegian Business School (January 2012)

Notes: The GEVA method is the basis of several other methods who base its allocation on value added. There are different ways of constructing the allocation of emissions based on value added, as well as different scenarios that can be used to form the basis of the allocation. These will cause some degree of variation in the final result of the methods.

Sectoral Decarbonization Approach (SDA)

Scenario: The method uses the 2DS scenario (2014) developed by the IEA, which is compatible with the RCP2.6 scenario. The scenarios comprise an emissions scenario, as well as an activity scenario, which are used to compute sectoral intensity pathways. Originally constructed with global sectoral scenarios, but evolving to accommodate regional differentiation of sectoral scenarios. However, the SDA method can accommodate different type of scenarios. Reference data for IEA ETP scenarios is publicly available and can be acquired here.

Allocation: Two allocation principles are used: physical intensity convergence, for homogeneous sectors; and contraction of absolute emissions, translated as intensity pathways (value added), for heterogeneous sectors.

Budget: Each sectoral budget is maintained, to the extent the sum of sectoral activity does not go beyond the one projected for the scenario, in homogeneous sectors; and for heterogeneous sectors, provided no new businesses are created. It is recommended a periodic revision of the scenarios and of targets, in order to incorporate new information related to historical emissions, technological developments and the necessary reduction efforts by sector.

Validation: Published in peer review journal (here). A publication detailing the method as well as the majority of the scenarios used can be found here. The method is mathematically formulated and publicly available. It has been reviewed by a Technical Advisory Group and was open for public comment.

Usability: The method is more complex than other existing methods to the extent that it requires physical data that might not be publicly available (but should exist in companies) and it uses a sector/activity approach which might require companies to set multiple targets. It is more oriented to energy and carbon intensive industries, although for non-carbon intensive it falls back to an absolute emissions compression method. Both a tool and documentation (Quick guide to SDA) exists to support companies using this method. Updates and actualization of the method – scenarios, allocation methods and performance tracking are envisaged.

Targets: Can be expressed as absolute or intensity (physical or value added, depending on sector). Allows different base years starting from 2010 and different target years up to 2050. Target pathways follow the contour of the sector scenario pathway. Requires companies to gather both emissions and activity data and to forecast activity. Covers scopes 1 and 2, with distinct targets for both. Guidelines are provided to use the method for scope 3, though not at a detailed level. Light road vehicles manufacturing is the only scope 3 sector in the tool.

Authors and year published: CDP, WRI and WWF with Ecofys as a technical consultant (2015)

Notes: The method takes sectoral differences and abatement potentials into account, to the extent these are considered in the making of the different sector scenarios. It also has defined specific scope 2 scenarios, which better translate the corporate GHG accounting practices, and it can be used to set valid scope 3 targets to the extent certain activity scenarios match with certain scope 3 categories. For homogeneous sectors it also accommodates the issue of historical action, as it requires GHG emissions intensive companies to reduce their emissions faster. New companies in homogeneous sectors can also be accommodated and allocated portions of budget. As it currently stands, the method does not cover several activity sectors (Agriculture, forestry, and other land use; Oil and gas production; Residential buildings).

3% Solution

Scenario: Emissions reduction commitments of US Government to 2020, followed by proprietary modelling by McKinsey on costs and costs reductions of emission reduction activities by key sector in US. Reduces energy-related corporate emissions 3.2% pa.

Allocation: Contraction of absolute emissions. Allocates financial benefits, rather than environmental burdens. All sectors assigned emissions reduction opportunities based on equity value generation potential.

Budget: Maintained to the extent McKinsey modelling accommodates for the emission reductions of 25% targeted by US government from 1990 through 2020.

Validation: Not published in peer review journal. Base data for method derivation not publicly available. No general mathematical formulation of the method publicly available. Informal peer reviews with EDF, WRI, and C2ES before launch.

Usability: The method is simple to use and a tool is available for companies to set their targets. Limited documentation can be found here. An update post-2020 is envisaged, but not yet scheduled.

Targets: Expressed as absolute emission reductions to 2020. Covers scopes 1 and 2 for companies other than utilities. For companies that have supply chain and transportation related emissions in the US, the formula could also be applied to each scope 3 category using the appropriate sector targets.

Authors and year published: WWF with CDP, McKinsey & Company, and Point380 (2013)

Notes: Only applies to companies and emissions in the U.S. Cuts all U.S. corporate emissions 3.2% per year as a whole (targets vary by company) based on what can be profitably reduced and determines potential cost savings from those reductions for up to 11 sectors.

Table 2-2 Inputs and outputs required by each method

Information	Absolute Emissions Compression	CSI	Context-Based Metric (CSO)	C-FACT	GEVA	SDA	3% Solution
Base Year	Yes	Yes	Yes, flexible	Yes, prefers 2009, but flexible	Yes, prefers 2010, but flexible	Yes, from 2010 onward	Yes with a limited set of base years
Target Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country/Region differentiation	Yes, dependent on scenario	Yes, dependent on scenario	Yes, dependent on scenario	Yes, dependent on scenario	Yes, dependent on scenario	Yes, dependent on scenario	Yes, designed for companies with substantial U.S emissions
Sector differentiation	No	No	Yes or no, dependent on scenario	No	No	Yes	Yes
Base Year Scope 1+2 Emissions, Intensity, or Absolute Reduction	Absolute emissions, scope 1+2+3 if desired	Combined scope 1 and 2 intensity	Scope 1 and 2 absolute and intensity emissions (separately)	Absolute scope 1, scope 2, or scope 1+2+3 if desired	Either intensity or absolute scope 1, scope 2, or scope 1+2	Scope 1 and 2 absolute emissions (separately)	Scope 1 and 2 absolute emissions
Target Year Scope 1+2 Emissions, Intensity, or Absolute Reduction	Absolute reduction, scope 1+2+3 if desired	Combined scope 1 and 2 intensity	Scope 1 and 2 absolute and intensity emissions (separately)	Presents intensity and absolute reductions	Intensity target or absolute target	Scope 1 and 2 absolute emissions and intensity (separately)	Scope 1 and 2 absolute emissions
Base Year Gross Profit/Margin, Revenue or Physical Activity	Not needed	Gross Profit	Gross Profit, Revenue, Physical Activity	Gross Profit, Revenue	Gross Profit	Physical Activity; Gross Profit	Not needed
Target Period Activity Growth/Growth Rate	Not needed	Specified by method scenario	As projected by company	As projected by company	Specified by method scenario	As projected by company	As projected by company, requires change in market share
Gross Profit/Margin Target	No	No	As determined by company	Yes	No	Yes, only for companies in heterogeneous sector	No

3. Choosing a Science-based Target Method

Chapter 2 describes the existing methods for setting a science-based corporate GHG reduction target. Because there are multiple options, it can be challenging for a company to determine which method best serves both the business and the environment. This chapter outlines a process to evaluate methods by taking into account specific corporate characteristics and business activities and how they relate to the principles that underlie the various methods.

To determine the method best suited to your business, it is necessary to understand the company's key attributes and how they match up to the method's defining characteristics. The following sections guide the decision process and allow companies to weigh options and discard methods that are not well-matched to the attributes of the business and their business goals. It should be kept in mind that target setting is often an iterative process and that a company may need to test one or two methods before determining the final method to use and the corresponding target.

3.1. Defining the company's key attributes

Companies operate in different regions, sectors and economic scenarios and each of these factors can influence the choice of an appropriate SBT method.

- **In which sectors does the company operate?**

Understanding the sectors in which the company operates will help determine which method is most applicable. If a company operates in a single sector that is featured in the 3% Solution (in the US) or the SDA method, choosing one of these may be the most appropriate choice. If a company is in multiple sectors, separate targets may be developed for each, or a company may choose to use a method that is not sector-based (see Table 3-2). Taking as an example a company that operates in the aluminum sector and has power generation operations to supply the aluminum production, the company can select both the aluminum and power generation sectors under the SDA to set targets.

Example: A conglomerate [Text to be developed]

3% Solution Sectors (US)

- Commercial & Professional
- Consumer Discretionary
- Consumer Staples
- Energy
- Financials
- Healthcare
- Industrials
- IT
- Materials
- TelCom Services
- Transport

SDA Homogeneous sectors

- Power Generation
- Iron & Steel
- Cement
- Chemicals
- Aluminum,
- Pulp & Paper
- Services / commercial buildings
- Transport

- **Does the company operate in homogeneous or heterogeneous sectors?**

A homogeneous sector is one that produces a set of products that are uniform across the various producers. The sectors that fit into this definition include commodity materials production such as iron, steel, and pulp and paper. This consistency of products across a company and across a sector enables one physical indicator to be used to assess GHG intensity. For example, outputs from the cement industry can be measured by the activity indicator, tons of cement. Heterogeneous sectors, on the other hand, are those that can't be described using a single physical indicator. For example, the chemical sector is heterogeneous because it produces a diverse array of chemicals that each have unique characteristics and traits and are difficult to compare to one another. Understanding if your company operates in homogeneous and/or heterogeneous sectors influences the selection of a method

When the company operates in a homogeneous sector, the recommendation is to use a method to set reduction targets that can be benchmarked against other companies in the sector. This is possible because an intensity target can be set using a common physical unit (product output). The SDA method uses a convergence approach that allows companies to set intensity (CO_2 emissions per physical unit) and absolute targets based on future activity projections. See Table 3-3 in Section 4.1.1 for additional information on intensity versus absolute targets.

In the case of heterogeneous sectors, the best available approaches are 1) compression of an intensity metric or 2) contraction of absolute emissions. The selection of either of these approaches influences the way the company´s target is allocated and ultimately expressed.

------begin box--------

See Section 2.2.3 for definitions of convergence, compression and contraction.

------end box---------

- **In heterogeneous sectors, can the company´s activity be easily described by a physical indicator?**

In a heterogeneous sector if the approach "compression of intensity" is used, the recommendation in this manual is to prefer the compression of carbon intensity based on a physical unit, over an economic indicator, when possible. For example, a manufacturing company that can easily estimate the mass of the diversity of its products would prefer setting a target based on the $tCO2/(t products)$ over a target based on $tCO2/(value added or revenue)$. The rationale is that GHG emissions are best correlated to physical output.

For sectors with limited fluctuations in prices over time, growth in emissions is generally directly associated with economic growth of the company: if a company sells more products, more emissions are produced to make those products. However, for some sectors financial growth of a company is not always tied to increased emissions and can be influenced by other market forces, such as supply and demand and price fluctuation. For example, a pharmaceutical's prices for certain drugs may fluctuate based on demand, patents, or regulatory influences although the emissions per production of the pharmaceuticals should remain relatively stable regardless of price. A price stable company may, therefore, want to choose an economic-based approach, where a company subject to price fluctuation may want to choose a non-economic method. On the contrary, companies selling premium products, value added (or gross profit) is not entirely associated to increased emissions, value added can be related to marketing and willingness to pay for a premium product, which introduces variability into pricing. Also, certain industries are subject to commodity pricing (e.g., the metals industry) which makes it difficult to maintain a consistent financial correlation to emissions over time if applying an economic allocation method.

- **In which geographic regions or countries does the company operate?**

Several of the SBT methods take into account the location of a company and its operations when allocating GHG emissions reductions. When choosing a SBT method, a company should consider the percentage and type of operations in developed and developing nations (or Annex I and non-Annex I countries according to UNFCCC[18]). A company can then choose to set its target based on where the majority of its operations are located, where its headquarters are located, or develop multiple targets specific to the location of operations.

For example, companies that operate mostly in developing countries in Latin America (e.g. 80%) and are headquartered in Europe with dispersed plants in developed countries may choose a method that differentiates between Annex I and non-Annex I countries in one of the following ways:

a) Use the reduction rate in the method for non-Annex I countries for the corresponding part of operations(i.e. 80%) and the reduction rate for Annex I countries for the remaining part of operations (i.e. 20%)
b) Use the reduction rate for non-Annex I countries for the 80% of the operations and a global method for the rest of the operations.
c) Use the reduction rate for Annex-I countries for all of the company operations.

18 UNFCCC Annex I and Annex II reference to be added

It is also possible to apply the reduction rate of non-Annex I companies to all the company operations since most of these are in developing countries, however the company must observe any specific country regulations, particularly in developed countries, with stricter rules.

The majority of methods take geography into account (as noted in Section 2.4) based on the emissions scenario to which they are tied. With the exception of 3% Solution, which is US-based, and SDA which is based on global scenarios, the other methods address geography by assigning stricter carbon budgets to countries with historically higher emissions (developed, OECD[19], or Annex I countries) as compared to countries that are still emerging (developing or non-Annex I countries) to allow for economic growth. In contrast, global methods tend to balance the level of ambition of the target across countries.

Geographic Location	Method
Developed or Developing	Absolute Contraction, C-FACT, CSI, CSO, GEVA
US-based	3% Solution
Global	SDA

------------begin box -------------

Insert short discussion of countries with stricter rules, e.g., France, mandatory carbon price, EU objectives in 2030 and 2050 etc.

-----------end box --------------

- **Does the company's projected growth rate, in physical or economic output, exceeds that of the sector?**

Companies with high growth rates have to select the method cautiously, in order to determine the best approach for both the company´s goals and the environmental integrity. An indicator to identify high growth rate companies, is comparing the company´s projected growth rate, in physical or economic output, to that of the sector. If greater on an annual basis, the recommendation is to use an available method that accommodates change in market share. This is related to the company allocation approach of the method. The "contraction of absolute emissions" approach tends to reduce the amount of absolute emissions, depending on the emissions trajectory behind the method (see box, Shortcomings of peak and decline). While the approach of "compression of emissions intensity" might not always result in a decrease of emissions, depending on the company´s activity behavior and projections. The best option is to choose a method that takes into account the company´s activity and its market share to make the emissions entitlement, if available.

-----------Begin BOX-------------

Shortcomings of the peak & decline emissions trajectory

Emissions are assumed to peak around 2020 and decline afterwards according to "Peak & Decline" models (e.g., SDA). The adoption of such models by developed countries, in which stricter regulations might be in place, makes it inconsistent for existing policies and represents a step backwards in target setting, since an allowance for increasing emissions in the short term may appear acceptable.

The peak and decline trajectory can be adapted to regions improving resolution and aligning to the ambition required by governments. Peak and decline models are strictly tied to the carbon budget recommended by scientists to avoid dangerous anthropogenic climate change. The budget must be maintained regardless of the distribution of such budget. Nevertheless, global peak and decline models may not always be counterproductive. Since models are based on the possibility to deploy existing

[19] See http://www.oecd.org/about/membersandpartners/list-oecd-member-countries.htm for list of 34 OECD countries.

technologies, setting more ambitious targets may unlock low-carbon frameworks in developing countries.

----------------End BOX--------------

Table 3-1, below, summarizes the key company attributes and methods that may apply.

Table 3-1 Summary of profiling factors.

Profiling Factors	Methods	Notes
Sector assignment	SDA	Different treatment for homogeneous and heterogeneous sectors
	3% Solution	Includes GHG reduction opportunities plus net savings per sectors included (Companies are encouraged to use sectoral methods when available)
Homogeneous vs heterogeneous sectors	SDA	Best suited to homogeneous sectors (convergence approach)
	Absolute Contraction, C-FACT, CSI, CSO, GEVA	Heterogeneous sectors best suited for compression or contraction approaches
Heterogeneous sectors: Physical vs economic indicators	No methods currently tailored for heterogeneous sectors and physical indicators	Physical indicators are best when possible
	CSI, CSO, GEVA	Economic indicator should be correlated to emissions
Geographic location	Absolute Contraction, C-FACT, CSI, CSO, GEVA	Annex I & non-Annex I (based on emissions scenario chosen)
	3% Solution	US-Based (Companies are encouraged to use geographic methods when available)
Projected growth	GEVA, CSI, CSO	Compression of intensity approaches are best suited for companies with a higher annual growth projection than the sector (or global projections)
	Absolute Contraction, C-FACT, 3%	Contraction of emissions is recommended for companies with equal or lower annual growth projection than the sector (or global projections)

3.2. Assessing and choosing a method

Defining the company's key attributes will assist a company in determining which methods may be appropriate for setting a SBT. Using these profiling factors, there will likely be only a few methods that are a good match.

The table below (Table 3-2**Error! Reference source not found.**) takes a company through a series questions based on the profiling factors to arrive at options for a science-based target setting method. However, these questions may need to be repeated if a company operates in more than one sector or region. In this case, a company should identify its top three to four sectors or sectors that cover a majority of its operations. The methods that apply to these sectors and regions can then be used as a benchmark to determine the final target. Ideally a company will arrive at one target that applies across the entire company for external reporting and communication, although separate internal targets may be developed by region or department for ease of tracking and execution.

A company can choose to arrange the order of questions in Table 3-2 to suit its own business objectives and priorities, but the following hierarchy is perferred due to the level of specificity of sector-based emissions scenarios and the ability to correlate of physical activity to emissions. Answering yes to these questions produces a selection of methods to choose from in the far right column.

Table 3-2 Decision questions for selecting potential SBT methods

#	Question	Answer	Method Options
1	Does your company operate in a sector identified in the SDA or 3% Solution (US-based only) method?	YES	SDA, 3% Solution
2	Is the sector homogeneous?		SDA
3	Is the sector heterogeneous?		CSA, CSO, GEVA
4	Does your company prefer to assign targets by developed and developing geography?		Absolute Contraction, C-FACT, CSI, CSO, GEVA
5a	Do you predict that your company will have higher than average growth compared to the sector or global average projections?		GEVA, CSI, CSO
5b	Do you predict that your company will have equal or lower than average growth compared to the sector or global average projections?		Absolute Contraction, C-FACT, 3% Solution (US-based)

It is recommended that the company completes a screening of "top" methods to evaluate the calculated targets under each scenario. Availability of input data, base year and other practical considerations may also influence the selection of a method. Selecting a method and determining a target may be an iterative process or a blended outcome, as described in Section 3.3. The box below shows how company X employed the criteria above to narrow down potential methods before fully modeling targets.

--------begin box-------------

Insert box with an example company Y answering the criteria questions above and arriving at 2 to 3 potential methods

--------end box -------------

The target's level of ambition and pathways may be similar in some cases, though generally some variation will be apparent. Companies are encouraged not to default to the "easiest" option when comparing targets. Ideally a company will choose the method and target that best drives emissions reductions. The target itself should be expressed in both intensity terms and absolute terms. By including both types of targets a company can ensure it is achieving real reductions in emissions while also allowing for flexibility in addressing the needs of stakeholders.

Whether or not a method provides for an absolute target in addition to an intensity target should be considered. There are advantages to choosing one or the other, however, as explained in detail in Section 4.1.1, having an absolute target that demonstrates real and absolute reductions is always preferred. An overview of the pros and cons of these two target types is presented in Table 3-3, below.

Table 3-3. The main advantages and disadvantages of absolute and intensity targets

	Absolute target	Intensity target
Advantages	Environmentally robust as it entails a commitment to reduce GHGs by a specified amount Transparently addresses potential stakeholder concerns about the need to manage absolute emissions	Reflects GHG performance improvements independent of organic growth or decline May increase the comparability of GHG performance amongst companies
Disadvantages	Base year recalculations for significant structural changes to the organization add complexity to tracking progress over time Does not allow comparisons of GHG intensity/efficiency to that of peers Target can be met when a company reduces production or output, but has not become more carbon efficient. May be difficult to achieve if the company grows unexpectedly and growth is linked to GHG emissions	No guarantee that GHG emissions to the atmosphere will be reduced Companies with diverse operations may find it difficult to define a single common business metric If a monetary variable is used for the business metric, it must be recalculated for changes in product prices and product mix, as well as inflation, adding complexity to the tracking process Companies with multiple products can meet an intensity target with portfolio management, by increasing the production of less intensive products and reducing the production of high-intensive products without real climate action.

3.3. Blending methods

From the exercise above a company may end up with more than one option that seems appropriate to its business. When a single method is not a clear choice, or if one method doesn't apply fully to the target boundary, there are also opportunities to blend these methods to define a target. For example, a company could choose C-FACT, an economic and geographic-based method, to apply to its operations in all developing countries and use the equally–applied linear pathway to its operations in all developed countries. Blending these two methods would allow for near-term economic growth in developing countries while requiring immediate emissions reductions for developed country operations.

Another option is to not blend methods but to compare the results and evaluate the level of ambition of the target against corporate objectives, priorities and budget.

The following sections (Sections 4.1 and 4.2) describe the practical considerations and process for setting a scope 1, 2 and 3 target. This process can be applied using one or more method separately in advance of determining the final and most appropriate target for a company, which may be based on a combination of methods.

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COMPANY Z, a xxx company, began incorporating climate science into its target setting around 2010. In response to stakeholder requests and its sustainability values, COMPANY Z integrated multiple science-based methodologies into its suite of GHG emissions reduction targets.

COMPANY Z's 2015 and 2012 intensity targets were created by adapting Autodesk's C-FACT methodology. Given COMPANY Z's goal to decouple emissions from revenue, C-FACT was appealing because it ensures long-term absolute reductions regardless of economic growth. C-FACT also calls for a consistent reduction in emissions intensity (e.g., 3% reduction in emissions intensity per year for 5 years). However, COMPANY Z's sustainability team found that the underlying assumption of economic growth over time leads the model to require the greatest absolute emissions reduction in the beginning of the target period. Given COMPANY Z's large contribution of scope 2 emissions, this would involve significant investment in renewables in the first years. COMPANY Z adjusted the trajectory of emissions reductions to allow for more even investment along the target period, which appealed to its energy efficiency improvement plans.

In response to stakeholders who called for an interim absolute target, COMPANY Z used WWF and CDP's 3% Solution to add an absolute 2020 target. Tailoring and combining methodologies allowed COMPANY Z to create a comprehensive strategy supported by all stakeholders.

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4. Determining a Science-based Target

This chapter presents the primary components for setting a scope 1, 2 and 3 target, which is a process a company can apply using more than one method before determining the final target. The process of determining a SBT will generally take the cooperation of multiple company stakeholders throughout this iterative process. Guidance for engaging these stakeholders is addressed in Chapter 5.

4.1. Modeling scope 1+2 targets

Developing a science-based scope 1 and 2 target is a multi-step process, requiring companies to decide whether to set an absolute and/or intensity-based target, establish the boundaries of the target, and choose a base year and target year. Recommended criteria for a science-based target are noted in the box at right. Once set, targets also may have to be adjusted in response to a range of internal and external factors.

When setting a target it is important for companies to keep in mind that targets should not be determined by their feasibility alone. Predicting what specific technologies will be available to reduce emissions in 2030 and beyond, for example, may not be realistic in 2015. However, companies should set SBTs now so that the trajectory of emissions reduction necessary to stay within a 2°C increase in global temperature is known. A company's reduction strategy and project portfolio can then continue to evolve as new technologies become available in the future.

Recommended Criteria for a Science-based Target

- **Boundary:** covers company-wide scope 1 and scope 2 emissions and all GHGs as stated in the GHG Protocol Corporate Standard.
- **Timeframe:** commitment period should cover a minimum of 5 years from the date of announcement of the target.
- **Level of ambition:** consistent with the level of decarbonization required to keep global temperature increase below 2°C compared to pre-industrial temperatures
- **Scope 3**: an ambitious scope 3 target is also recommended when scope 3 emissions cover a significant portion of a company's overall emissions.
- **Reporting:** recommended to disclose GHG emissions inventory on an annual basis.

This chapter provides guidance on each of the target-setting steps, building on the corporate GHG inventory approaches defined by the GHG Protocol.

4.1.1. Setting intensity and absolute reduction targets

Companies can set two broad types of GHG targets: absolute and intensity targets. An absolute target is defined in terms of an overall reduction in the amount of GHGs emitted to the atmosphere (e.g., reduce annual CO_2e emissions by 25% below 2000 levels by 2020). In turn, an intensity target is defined by a reduction in emissions relative to a specific business metric, such as the output or financial performance of the company (e.g., tonne CO2e per tonne product produced or unit revenue). Some SBT setting methods only provide for intensity targets to be calculated with respect to a specific metric (e.g., revenue) although setting an absolute target is highly recommended.

Importantly, intensity targets do not necessarily lead to reductions in absolute emissions. This is because increases in business output can cause absolute emissions to rise even if intensity falls (see Figure 4.1). It can also be difficult to come up with a single, meaningful intensity target that covers all of a company's operations, particularly when those operations span diverse sectors. On the other hand, absolute targets may have to be recalculated when companies undergo significant structural changes (see Section 4.4), adding complexity to the target tracking process. And absolute targets do not readily allow for comparisons of GHG intensity across companies. Table 3-3, above, summarizes the main advantages and disadvantages of absolute and intensity targets.

Figure 4.1. Absolute emissions do not necessarily change in the same direction as changes in emissions intensity. In this example, absolute emissions rise even though emissions intensity declines, because of an increase in production.

An intensity target is likely to make most sense in certain conditions, such as when applying the SDA within a homogenous sector. But, companies should always set absolute targets, in addition to any intensity target(s), to address potential concerns about the environmental integrity of reduction efforts.

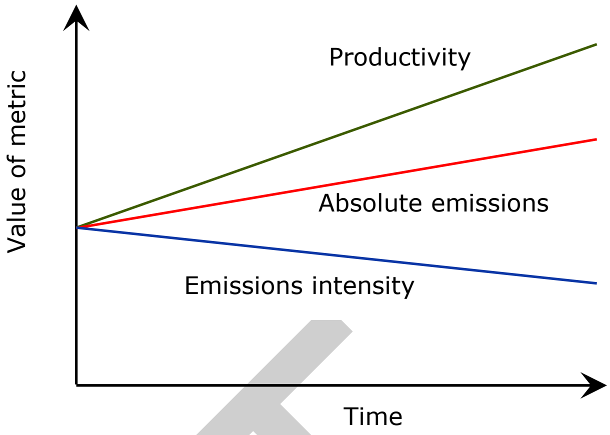

Figure 4.1 Relationship of productivity to emissions

4.1.2. Setting boundaries

Defining an inventory involves setting two kinds of boundaries: organizational boundaries, which define the business operations to include, and operational boundaries, which categorize individual emissions sources by scope[20]. Three approaches exist for setting organizational boundaries – operational control, financial control and equity share. Best practice is to select a single approach based on a range of company-specific considerations[21].

The boundaries of a company's scope 1 and scope 2 SBT and inventory should be identical. Key considerations when determining what is included within the boundary of the SBT are:

- Which GHGs? Inventories and SBT boundaries must include the emissions of seven individual GHGs or classes of GHGs covered by the UNFCCC/Kyoto Protocol: CO_2, methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexaflouride (SF_6), and nitrogen triflouride (NF_3).

- Which geographical operations? A SBT should cover the same geographical operations as the corporate GHG inventory. However, companies that participate in GHG trading programs should not use purchased allowances toward their targets. Companies should transparently disclose whether specific operations and sources have been excluded from their targets (see Chapter 6).

- Which industries? For companies with diverse industry operations, it may be useful to define separate intensity targets to track efficiency improvements. In addition, a single corporate-wide target should also be set.

- Which scopes? SBTs should always cover a company's overall scope 1 and 2 emissions within the boundary of the inventory. Also, both scopes 1 and 2 should be covered by the SBT, even if one scope total may seem insignificant or *de minimus* compared to the other. This is to ensure that the risks and opportunities of changing energy sources are captured by the SBT. Additionally, a company should set an ambitious scope 3 if its scope 3 emissions contribute a significant portion of the total company footprint (see Section 4.2 for detailed guidance).

  Some SBT setting methods are specific to scope 1 or do not explicitly state their applicability to scope 2 (e.g., GEVA considers only scope 1). In such cases, companies should expand their SBT to include scope 2 using the same or a similar method, if feasible (see Section 3.3 for guidance on blending methods).

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[20] "GHG Protocol: A Corporate Accounting and Reporting Standard. Revised Edition." http://www.ghgprotocol.org/standards/corporate-standard

[21] Ibid, p. 20.

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Scope 2 calculation approaches

Purchased energy can be generated from numerous types of renewable and non-renewable sources. Renewable energy is likely to be an instrumental part of corporate strategies to realize SBTs (Chapter 7). Two approaches exist for calculating the scope 2 emissions from purchases of renewable energy and other forms of energy (Table 4-1)[22]. The 'location-based' approach is designed to reflect the average emissions intensity of grids on which energy consumption occurs and mostly uses grid-average emission factors. In contrast, the 'market-based' approach is intended to help companies reflect the emissions impacts of differentiated electricity products that they have purposefully chosen. A company must use both approaches whenever it has operations in markets that provide these products. Otherwise, it uses the location-based approach. Each approach's results reflect different risks and opportunities associated with the emissions from electricity use and can inform different decisions and levers to reduce these emissions (see the GHG Protocol Scope 2 Guidance for further information[3]). Additionally, if a company chooses to use the market-based approach, it should assess all contractual instruments for conformance with the Scope 2 Quality Criteria as listed in Table 7.1 of the GHG Protocol Scope 2 Guidance.

Table 4-1. The two approaches for calculating scope 2 emissions

	Location-Based Approach	Market-Based Approach
Basis	Based on grid-average emission factors for defined geographic locations, including local, subnational, or national boundaries	Based on the GHG emissions profile of the generators from which the reporting company contractually purchases differentiated electricity products
Where approach applies:	To all electricity grids	To any operations in markets providing consumer choice of differentiated products or supplier-specific data
Most useful for showing:	GHG intensity of grids where operations occur, regardless of market type Aggregate GHG performance of energy-intensive sectors (e.g., comparing electric train transportation with diesel vehicle transit) Risks/opportunities aligned with local grid resources and emissions	Individual corporate procurement actions Opportunities to influence electricity suppliers and supply Risks/opportunities conveyed by contractual relationships
What the approach's results omit:	Emissions from differentiated products or supplier offerings	Average emissions in the location where electricity use occurs

For the purposes of setting SBTs, companies should choose only one approach's results when calculating the base year emissions and tracking performance against a SBT. Because the choice of approach may substantially affect the final value of the SBT, companies should state the scope 2 approach used when publicly reporting SBTs.

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4.1.3. Choosing base and goal years

Base years

A meaningful and consistent comparison of emissions over a GHG reduction commitment period requires that companies establish a base year - a period in history against which an organization's GHG fluxes are tracked over time.

[22] "GHG Protocol Scope 2 Guidance. An amendment to the GHG Protocol Corporate Standard." http://www.ghgprotocol.org/scope_2_guidance

Two criteria are paramount in selecting a base year. First, verifiable data on scope 1 and scope 2 emissions must exist for the base year. Second, the base year must be representative of a company's GHG profile. Sometimes, individual years may not serve as representative base years. In such cases, companies could average GHG data for multiple, consecutive years to form a more representative base period that smooths out unusual fluctuations in emissions. Additionally, to allow for comparability and ease of tracking emissions reductions over time, companies are encouraged, but not required, to set base years on years ending in either a 0 or 5 whenever feasible, especially if publicly announced.

Target years

The impacts of climate change will be felt over years to come. Setting long-term science-based targets encourages planning to manage these impacts. Nearer-term target setting can also be instrumental in identifying inefficiencies and opportunities for cost-savings.

Long-term targets (2030 and beyond) are beneficial because they encourage planning for managing the long-term risks and opportunities connected to climate change. These may include the creation of new services and markets, and the need for large capital investments that offer GHG benefits. However, long-term targets alone do not match the decision horizons of many companies and might encourage later phase-outs of less efficient equipment. Meanwhile, short-term targets can also be instrumental in identifying inefficiencies and opportunities for cost-savings.

Companies should set long-term targets as well as interim milestones that make these targets more practical and decision-relevant. Best practice is to set long-term targets through 2050, set interim milestones at five-year intervals (on years ending with a 0 or 5), and publicly commit to targets that are at least five years out.

Finally, in selecting base years and target years, companies should be aware that SBT setting methods vary in the earliest possible base year (often 2010) and the latest target year (often 2050). Where the latest possible target year is earlier than 2050 (2025 in the case of the CSO method and 2020 for 3% solution), companies should extrapolate the results through 2050.

4.2. Modeling a scope 3 target

While scope 1 and 2 emissions are important, scope 3 emissions often dominate the overall value chain emissions of companies. In these cases, special attention should be given to setting ambitious targets for scope 3 sources.

When companies set GHG emissions reduction goals, they generally start with their corporate scope 1 and 2 emissions. However, in many cases, a company's emissions impact is much greater outside the scope 1 and 2 boundary than it is within it. These other indirect emissions, termed scope 3, can contribute a significant portion of a company's complete value chain footprint. And while some methods currently available for setting SBTs were developed to only apply to a company's direct (scope 1) and indirect (scope 2) emissions, this does not mitigate the importance of setting ambitious targets for emissions both upstream and downstream from a company's central operations. In the case where extrapolation is difficult, a company could still choose to derive targets through an equal compression or value-added based approach (see Section 2.4).

In addition to the magnitude of scope 3 emissions relative to a company's corporate footprint, a company may choose to set a scope 3 target due to a number of business objectives including: demonstrating performance and leadership, managing risks and opportunities, and addressing the needs of stakeholders. For these reasons, many companies have begun to address their value chain footprint. For example, of the 371 Global Fortune 500 companies reporting to CDP in 2014, only 58 included a scope 3 target with their submission. However, about half of these only addressed one scope 3 category out of the 15 defined categories (see box).

Upstream scope 3 emissions
1. Purchased goods and services
2. Capital goods
3. Fuel- and energy-related activities (not included in scope 1 or scope 2)
4. Upstream transportation and distribution
5. Waste generated in operations
6. Business travel
7. Employee commuting
8. Upstream leased assets

Downstream scope 3 emissions
9. Downstream transportation and distribution
10. Processing of sold products
11. Use of sold products
12. End-of-life treatment of sold products
13. Downstream leased assets
14. Franchises
15. Investments

When setting science-based targets for scope 1 and 2 emissions, it is important for a company to evaluate if it should also set scope 3 targets, and if so, what categories should be addressed. Ultimately, a company also needs to assure that they are setting a target that is at the level of ambition commiserate with its core science-based target. This chapter gives guidance on who should set scope 3 targets, what information those targets should include, and how to adjust those targets over time.

NOTE: The categories of scope 3 emissions have been defined in the GHGP's Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011). A list of both upstream and downstream emission categories is reproduced here; see the Scope 3 Standard Chapter 5 for a full description of these emissions categories. The Scope 3 Standard should also be referenced for guidance on how to calculate and track specific emissions categories.

4.2.1. Who should set a scope 3 target

Aside from the broader business objectives noted above, companies that have proportionately large scope 3 footprints should set reduction targets for these emissions. To determine the relative contribution of value chain emissions, a company should conduct a materiality assessment or value chain mapping as described in Chapter 6 of the Scope 3 Standard. This step will help to estimate a company's scope 3 emissions in comparison to its scope 1 and 2 emissions. If scope 3 emissions contribute a significant portion of the total company footprint (e.g., a 40 percent threshold as required by the Call to Action initiative), a target should also be set for these emissions.

In addition, certain industry sectors tend to have relatively large scope 3 footprints compared to those companies' scope 1 and 2 emissions. These sectors and driving emissions categories include, but are not limited to:

- Automotive, use of sold products
- Consumer Packaged Goods, purchased goods and services
- Electronics, use of sold products

Companies in these sectors may not need to conduct a high level emissions assessment but can move to determining specifically which scope 3 categories should be addressed.

The guidance provided in the Scope 3 Standard (Chapter 6), assists a company in identifying the scope 3 activities that are included in its inventory and subsequent target setting. This value mapping exercise will point to both hot spots of reduction opportunities and areas of risk up and down the supply chain. Company X, a multinational Fortune 500 company conducted a scope 3 materiality assessment (or screening) and found that its scope 3 emissions contributed approximately 30% of its total footprint. Because it considered these emissions to be significant, it continued the assessment and identified three specific categories on which to focus their target setting activities (see box).

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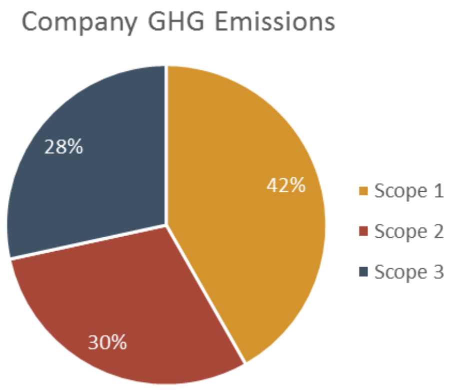
Determining relevant scope 3 categories



Category	Scope 3 Emissions (mmt CO2e)	% of Scope 3 Emissions
1. Purchased goods and services	773,731	8%
2. Capital goods	35,054	>1%
3. Fuel- and energy-related activities (upstream)	5,152,751	51%
4. Upstream transportation and distribution	125,000	1%
5. Waste generated in operations	10,667	>>1%
6. Business travel	41,526	>1%
7. Employee commuting	39,742	>1%
8. Upstream leased assets	32,170	>1%
9. Downstream transportation and distribution	221,217	2%
11. Use of sold products	2,150,739	21%
12. End-of-life treatment of sold products	116,379	1%
15. Investments	1,347,360	13%

An international industrial chemical and gas company worked with CDP to determine which scope 3 categories should be included in its GHG management strategy. First, the company conducted a screening inventory of its full value chain which showed that scope 3 emissions contributed almost 30% of its total footprint. Recognizing that this is a significant contributor of emissions, the company then investigated further to assess which of the 15 scope 3 categories contributed the majority of emissions. Three categories were not applicable for the company and were not included in the inventory (Categories 10, 13, and 14). Conducting the inventory for the remaining categories led the company to focus on three primary sources of emissions: upstream fuel and energy, use of sold products, and investments.

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While the GHG Protocol Corporate Standard and the Scope 3 Standard allow companies flexibility in choosing which, if any, scope 3 activities to include in the GHG inventory, according to both standards, companies should not exclude any activity that is expected to contribute significantly to the company's total scope 3 emissions (see Scope 3 Standard Section 7.1 for guidance on prioritizing emissions). Additionally any emissions categories that are excluded should be explained and communicated. General criteria for identifying relevant scope 3 categories are shown in Table 4-2 below.

Table 4-2 Criteria for identifying relevant scope 3 categories

Criteria[23]	Description
Size	They contribute significantly to the company's total anticipated scope 3 emissions
Influence	There are potential emissions reductions that could be undertaken or influenced by the company
Risk	They contribute to the company's risk exposure (e.g., climate change related risks such as financial, regulatory, supply chain, product and customer, litigation, and reputational risks)
Stakeholders	They are deemed critical by key stakeholders (e.g., customers, suppliers, investors, or civil society)
Outsourcing	They are outsourced activities previously performed in-house or activities outsourced by the reporting company that are typically performed in-house by other companies in the reporting company's sector
Sector guidance	They have been identified as significant by sector-specific guidance
Other	They meet any additional criteria for determining relevance developed by the company or industry sector

[23] Adapted from GHGP Scope 3 Standard, table 6.1

Once the categories for the scope 3 inventory have been chosen and the magnitude of emissions have been calculated, a company should then determine reduction targets for the relevant scope 3 activities.

4.2.2. Setting scope 3 targets

Guidance for setting scope 3 emissions targets can be found in Chapter 9 of the Scope 3 Standard. Many of the principles laid out in the standard also apply to setting targets that align with science-based scope 1 and 2 targets.

While science-based target setting methods are not as well suited to address scope 3 targets, it is still important to address scope 3 emissions since these emissions are significant for many companies. While scope 3 targets could be "science-based" in the sense that they follow a specific SBT method and emissions scenario, there are other approaches to setting credible scope 3 targets. If a company has significant scope emissions, ambitious scope 3 targets should be set generally in line with the scope 1 and 2 science-based targets. Specifically, a company should choose and disclose the corporate target boundary, which would generally fall into one of the following categories:

- A single target for total scope 1 + 2 + 3 emissions
- A single target for total scope 3 emissions
- Separate targets for individual scope 3 categories
- A combination of targets, for example a target for total scope 1 + 2 + 3 emissions as well as targets for individual scope 3 categories

A company may also choose to follow the same SBT method as used for the scope 1 + 2 target or may find that a different method works better when addressing scope 3 emissions. For example, a company may choose to set an equally applied linear pathway target for a scope 3 category (e.g., reduction in employee commuting) while its scope 1 and 2 target was determined using the SDA method. Scope 3 targets may also be set without using a SBT method but should still follow the general guidance below.

- Boundaries should include a description of the organizational boundary type, gases, geographical boundary and industries included
- The target should explicitly state which categories are addressed and give justification for those categories that are not included. Targets can vary by category.
- While absolute reduction targets are preferred, intensity targets may be appropriate for some categories. If feasible, the level of reduction should be on par with reductions necessary to keep to a 2 degree rise in global temperature. See box for a comparison of absolute and intensity targets for scope 3 emissions.
- The base year for scope 3 targets should match that for the scope 1 and 2 target, if possible. However, value chain data can be much more difficult to obtain, especially historic data, and therefore the base year may vary from the SBT year if necessary.
- Goal years should also match those set for scope 1 and 2 (Section 4.1.3). Similar goal years will simplify data tracking and communication around the target and progress toward the target.

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Insert examples of ambitious scope 3 targets and alternate approaches for setting them.

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Comparing scope 3 absolute and intensity targets[24]

Target type	Examples	Advantages	Disadvantages
Absolute target	• Reduce total scope 3 emissions by 10 percent from 2010 levels by 2015 • Reduce scope 3 emissions from the use of sold products by 20 percent from 2010 levels by 2015	• Designed to achieve a reduction in a specified quantify of GHGs emitted to the atmosphere • Environmentally robust and more credible to stakeholders as it entails a commitment to reduce total GHGs by a specified amount	• Does not allow comparisons of GHG intensity/efficiency • Reported reductions can result from declines in production/output rather than improvements in performance
Intensity target	• Reduce scope 3 emissions per unit of revenue by 25 percent from 2010 levels by 2015 • Improve the energy efficiency of sold products by 30 percent from 2010 levels by 2015	• Reflects GHG performance improvements independent of business growth or decline • May increase the comparability of GHG emissions among companies	• Less environmentally robust and less credible to stakeholders because absolute emissions may rise even if intensity decreases (e.g., because output increases more than GHG intensity decreases). If a monetary metric is used, such as dollar of revenue or sales, recalculation may be necessary for changes in product prices and inflation.

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4.3. Determining the final target

The various methods developed by the corporate sector and the scientific community will help companies align their targets to the level of ambition required to limit global warming to a 2°C increase. The task of choosing a method or mix of methods should be guided by the set of questions proposed in this chapter along with internal management discussions and compatibility with corporate strategy. Companies are encouraged to take some time to research and explore the different alternatives and should understand that in some cases choosing a method and setting a corporate target can be an iterative process. Setting a science-based GHG reduction target will influence the company´s future operations, projects and governance.

4.4. Adjusting targets

4.4.1. Adjusting scope 1 and 2 targets

To ensure consistent tracking of performance over time, the SBT should be recalculated to reflect significant changes that would otherwise compromise its relevance and consistency. These changes include changes in projections used with SBT-setting methodologies and changes in inventory processes (see examples in Table 4-3); the latter will also require recalculation of the base year inventory. Companies should check the validity of their projections annually.

To determine whether the cumulative impact of such changes warrants recalculations, companies should adopt a percentage significance threshold. The GHG Protocol does not specify a threshold value, although it is generally recommended to use a 5% value. Under a 5% threshold, changes would be

[24] Adapted from Scope 3 standard, table 9.3

considered significant if they affect the SBT by more than 5%. Once defined, a significance threshold should be applied consistently over time.

Some factors should never trigger recalculation of the SBT, including organic growth and decline (Table 4-3).

Table 4-3. Changes that may trigger and never trigger recalculation of the SBT

Changes that may trigger recalculation of the SBT	
Changes in inventory processes that also require recalculation of the base year emissions	Structural changes that transfer the ownership or control of operations from one company to another (e.g., mergers, acquisitions and divestments), as long as those operations existed in the base year of the reporting company
	Changes in emissions calculation methodologies, such as the use of improved emission factors
	The discovery of errors in the inventory development process.
	Out-sourcing or in-sourcing of activities that result in emissions sources being shifted between scope 1 and scope 3
Changes in the projections used with SBT setting methodologies (e.g., sectoral or company-specific growth projections)	
Changes that never trigger recalculation of the SBT	
Organic growth or decline, defined as increases or decreases in production output, changes in product mix, or closures and openings of operating units that are owned or controlled by the reporting company.	
The acquisition (or insourcing) of an operation that did not exist in the target base year of the reporting company.	

4.4.2. Adjusting scope 3 targets

Just as with scope 1 and 2 targets, scope 3 targets may need to be adjusted over time. Guidance for recalculating base year emissions and resetting targets can be found in section 9.3 of the Scope 3 Standard. Specifically, companies are required to recalculate base year emissions if there are significant:

- Structural changes in the reporting organization, such as mergers, acquisitions, divestments, outsourcing, and insourcing
- Changes in calculation methodologies, improvements in data accuracy, or discovery of significant errors
- Changes in the categories or activities included in the scope 3 inventory.

5. Gaining Internal Buy-in

The decision to explore setting a science-based target generally comes from within a company and most commonly from either the sustainability team or is prompted by leadership in the C-suite. When support from leadership is not already evident, the team creating the science-based target will need to justify this goal and get internal buy-in from decision makers before instituting and publicly announcing a new climate target for the company. Additionally, in many cases, even with top management support, those proposing the target will need to get buy-in and acceptance from the business units and departments who are charged with meeting the reduction goals. It is also not uncommon for the challenge to set a target to come from the C-suite followed by the development of the target by the sustainability team before it is proposed, finalized and then approved again by leadership. One key concept to help insure success it to be aware of the broader corporate business goals and to align the SBT with those goals and strategy.

This chapter explores how to get company stakeholders on board through all stages of the target-setting process by using data, relationships and "business speak". This chapter also addresses how to navigate potential challenges and push-back that can come from multiple places within an organization regardless if the decision to set a science-based target is a top-down or bottom-up process.

-----------begin box-------------

Case study / box on importance of getting other departments to "own" the target, and how many companies adjust the target to what each department can achieve and aggregate to the external public target. Will pull from interviews

-----------end box----------------

5.1. Getting the company on board

During the process of determining a science-based target as shown in Chapters 3 and 4, the team must get internal support for this goal from leadership and department managers in order to access resources for developing, finalizing, announcing and ultimately achieving the target. However, defining the target and getting approval are not always a linear process and can involve feedback loops or some back-and-forth depending on the company culture. Generally though, presenting a climate change target to leadership and business units for final approval will either happen in person in limited time frame or potentially be circulated in written form. In either case (or sometimes in both), in order to confidently secure support it is important to keep several key concepts in mind:

Understand your audience

This will likely not be the first time a sustainability agenda is put in front of a company's top or mid-level management. Employees outside of sustainability roles don't typically have a background in climate science but they could be very familiar with the concepts of climate change and sustainability. Finding the right starting point for making the case for a science-based target will be critical to getting those in the room on board. For some audiences this may mean explaining in clear terms IPCC's findings and the necessity for companies to reduce emissions in order to stabilize the climate below a 2°C rise in global temperature. Other groups may be ready to jump into discussing the target itself. Regardless, the time available to make the case will likely be limited, so it's critical to know your audience.

Make the case with data but don't undervalue the importance of interpersonal skills

A recent survey of sustainability professionals[25] found that interpersonal skill was the most important factor in being a successful sustainability leader. Because achieving a science-based target will take the cooperation of multiple divisions within a company, it is important to develop relationships and build networks to assist in this endeavor. However, equally critical is the ability to make the case with data. Quantifying the value of the initiative will speak to the decision-makers and give tangible evidence of the benefits to setting the corporate target. Quantifiable benefits include cost savings, energy savings and an improved bottom line. Other important benefits of setting a SBT, such as driving innovation and demonstrating leadership, should also be brought into the discussion (see Section 1.2).

Communicate the target in "business terms"

The ability to communicate the concepts of climate science and science-based targets without using sustainability jargon is paramount to achieving the ultimate objective of setting the target and developing a program to achieve that target. Business executives evaluate corporate initiatives in terms of Internal Rate of Return (IRR), Return on Investment (ROI), and payback periods, etc. These same terms can be applied to making the case for a science-based target and have likely been employed as the team develops the target. Speaking in terms that resonate with decision-makers such as risk and opportunities, revenue and reputation will aid in getting buy-in for setting the target.

Don't forget the wider audience

While getting decision makers on board is critical to setting and achieving a target, targets should also be clearly communicated to all employees within an organization. Spending some effort on employee awareness raising and education can prove useful to engendering a supportive company culture and may inspire discovering or proposing solutions within groups of employees that were not directly involved in the target-setting exercise. Some companies have also stimulated buy-in by integrating climate and sustainability performance into annual reviews for employees at multiple levels. Combined, these efforts can help a company actualize meeting its science-based emissions targets.

Additional tips for talking about the specifics of the target and avoiding jargon can be found in Chapter 6.

----------- begin box -----------

COMPANY A, a xxx company, began tracking its emissions in early 2000s. As a logical next step, top management at the executive level challenged the sustainability team to set a GHG emissions reduction target. John Doe, Head of Sustainability Solutions, and the sustainability team realized they could quickly set an arbitrary target, e.g., 20% in 5 years, 25% in 10 years, etc., but decided to hold off until they developed a credible science-based methodology for setting a target. Doe worked with the team to develop ZZZ, a target-setting methodology that is tied to IPCC global warming temperature modeling and predictions (see Section 2.4)

Doe socialized the target with several key people within COMPANY A prior to presenting to the CEO for approval. Instead of granting an immediate green light, the CEO, a mathematician, was interested in discussing the details of how the methodology worked, the advantages and disadvantages of incorporating offsets, and how it could be applied to operations in developed and developing economies. Doe walked away from this detailed discussion feeling confident, but without a final approval.

A few days after this meeting, the VP of Labs, one of the key people Doe had already approached as an advisor to developing ZZZ expressed his excitement about the ground-breaking nature of ZZZ to COMPANY A's then CEO. Upon receiving external endorsement of the methodology, the CEO of COMPANY A signed off on ZZZ and the GHG emissions reduction target. Doe was successful in gaining support for the ambitious science-based target because of the team's preparedness, his understanding

[25] VOX 2012

of the technical details, and the foresight to socialize the concept with multiple members of the COMPANY A team.

----------- end box -----------

5.2. Addressing challenges and push-back

Before approving an aggressive emissions reduction target, a commitment that affects multiple divisions, resources and budgets within a company, leadership will likely raise some important questions.

- If our target is tied to our future growth rate, our growth in market share, etc., what are we required to disclose publicly? Do we need to be concerned with confidentiality?
    - Intensity targets set using a value added or sectoral approach will be tied to metrics such as market share, financial growth rates, or contribution to GDP. However, there is no requirement to publicly disclose the assumptions used to determine the company's target and all sensitive information can remain confidential while still announcing an ambitions science-based target.

- Our initial target is for 2020, in just 5 years, how are we going to get there?
    - Bottom up goals can be validated by putting together multiple carbon reduction projects and summing their emissions reduction potential. Many companies use typical business metrics to determine which carbon reduction projects are viable, including IRR, ROI, and payback periods. Combining these measurements with estimated carbon savings will help to build a project portfolio that makes reduction targets achievable. This group of projects can then be presented as part of the target-setting package. (Several low-carbon strategies are discussed in Chapter 7.)
    - Alternatively, some companies are satisfied to set a goal in line with science and then let the target be the motivator for discovering projects and fostering innovation. While this this is a less systematic approach, it can be just as successful in some company cultures.

------------begin BOX -----------

"At Sprint, a wireless communications company, a proposed reduction goal of 12 percent was bumped up to 15 percent by the CEO – which helped them to be more innovative in finding attractive opportunities."[26]

Augment with other stretch examples from interviews and focus on a company who didn't hit its target but was able to communicate its progress and successes anyway.

------------end BOX -----------

- Signing up for a target 30 years in the future seems unrealistic to manage. Can we just set a 2020 target?
    - The short answer is yes. However, the trajectory of the SBT must be in line with science that sufficiently reduces emissions through 2050. A company can use a SBT method to determine its target but may only choose to plan reduction projects in 5 or 10 year increments. While this approach may seem more feasible and financially justifiable,

[26] 3% solution page 19. Direct quote – we could re-contact Sprint to explore.

companies should be aware that a longer term, innovative vision may allow for discovery of novel approaches that might otherwise remain hidden.

-------------begin box--------------

Excerpts from interviews on long and short targets / pros and cons

------------end box ----------------

- What if we don't hit our announced target?
    - Although the plan for achieving a SBT may be carefully thought out, some companies may not achieve their target (or interim targets) due to unexpected circumstances (e.g., stronger than predicted organic growth, delay in getting renewable energy projects on line, xxx). In this case, transparency in communicating where the company is, what it has achieved, and where it fell short will help to retain the confidence of its stakeholders. Describing the plan for moving forward and how the target gap will be addressed is equally important.

These and other communication and reporting issues are discussed in more detail in Chapter 6.

6. Communicating the Target and Progress toward It

After getting buy-in from management to set the target, effectively communicating targets and progress toward them allows the company to showcase its efforts and garner support from those who can help achieve them. Proper communications guide internal management decisions, increase buy-in from employees, and enhance corporate reputation. Furthermore, they send positive messages to the business community and policymakers. Once a target is set, communicating it fully, clearly, and accurately is very important.

6.1. Audiences

Communications should be tailored to the audience, keeping their interests and motivations as well as ways they are able to contribute to the target in mind. It is important to first define your audience before determining what and how to communicate the science-based target to them.

Internal audiences include almost every department in your company from facilities operations to procurement. In particular, management, employee "Green Teams," communications departments, and departments directly involved in substantial emissions reduction activities should be informed of the GHG emissions reduction target as well as progress made toward it. It is also important that the teams responsible for the activities and projects to reduce GHG emissions have had some role in validating the feasibility of their portion of the goal and are not just informed of the target after it has been announced (see Chapter 5, Gaining Internal Buy-in). In general, employees need to understand the vision of the company they work for to ensure their programs are aligned with company goals.

Externally, customers, suppliers, competitors, partners, and investors may all have an interest in a company's GHG emissions reduction efforts. Companies should first identify the interest the external party has in their effort then be sure to emphasize aspects of target setting that are relevant to them. It is also important to keep in mind that some information used in target setting may be considered confidential (e.g., projected activity) and that messaging may need to be tailored to protect sensitive information. However, this should not prevent a company from effectively communicating its science-based target to external

6.2. What to communicate

It is essential to disclose all pertinent aspects of the target so that the audience can fully understand its context, implications, and nuances. The Greenhouse Gas Protocol provides the following accounting and reporting principles in its Corporate Accounting and Reporting Standard[27] that should be used when conducting the inventory, describing the target, and communicating and reporting progress:

- **Relevance:** Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users – both internal and external to the company.
- **Completeness:** Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.
- **Consistency:** Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.

[27] http://www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf

- **Transparency:** Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
- **Accuracy:** Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

Specific suggestions for describing the target and reporting progress toward the target are given below. It is important to keep in mind that some audiences and reporting platforms may not require or allow for the same level of detail as others. In the case where more streamlined information is communicated, a company can always choose to provide additional detail upon request.

<u>**Describing the Target**</u>

Describing the target should include information about the initial inventory as well as details for the target and the expected emission reduction to be achieved. A company may choose to include additional qualitative information to help explain the context of the target.

Base Line Inventory Information

- Base year (specify calendar or fiscal years)
- How the boundaries are defined
    - For example geographic, financial, or operational control
- Emissions scope(s)
    - Describe scopes that aren't included in the target (e.g.,. if scope 3 is excluded because it does not account for a significant portion of total emissions) and any future plans to include them
- Base year emissions for each scope, sector, business unit, and geographic location (as relevant)
- Base year activities for each sector, business unit, and geographic location

Science-based Target Information

- Target year (Specify calendar or fiscal years)
- Emissions scope(s)
    - Describe scopes that aren't included in the target (e.g., if scope 3 is excluded because it does not account for a significant portion of total emissions) and any future plans to include them
- Percentage of the company's total scope emissions covered by the target
- Whether targets are measured on an absolute and/or intensity basis
    - It is best to express targets in both an absolute AND intensity basis
- Percent reductions and target year expected emissions and activities
- Intermediate targets
    - This information helps both the company in its short- and long-term planning as well as allows the company to exhibit progress before the target year
- Method used in target setting
    - If desired, include where more information can be found so that the audience understands how the target was calculated
- Any other information used in calculation of your target, as required by the method
    - Be sure to flag what information may be considered sensitive in external communications

Base Line Inventory Information
Base year
Boundary definition
Scopes and categories covered
Emissions by scope
Activity level (production, sales, etc.)

Science-based Target Information
Target year
Scopes, categories and % emissions covered
% or total reduction in emissions from base year
Absolute and/or intensity units
Intermediate targets
SBT method used

Many companies have set targets related to GHG emissions management that are not expressed in terms of CO2e. These goals may include achieving a certain percentage of renewable energy in a company's overall electricity purchases (e.g., 30% solar energy by 2020) or a goal for energy efficiency (using 15% less kwh per volume of product sold), for example. Some companies may prefer to communicate their targets externally in a simplified manner by citing renewable energy goals (e.g., operations are powered by 30% renewable energy by 2020) instead of in SBT terms (e.g., reducing scope 2 emissions by 14.2%). Flexibility in expressing targets is necessary but companies should still be transparent in disclosing how these targets were determined. Companies are also encouraged to announce a combined scope 1 and 2 target though tracking against the target should disclose both scope 1 and 2 inventories separately.

Additional Qualitative Information

- Motivations for setting the target and the benefits to all stakeholders
  - A storytelling aspect can be compelling and can incite others to contribute to the target or follow suit by setting a science-based target at their own organizations
- Information about how the target fits into broader company objectives
  - For example connections to strategic plans, financial plans, and changes to operations
- Planned activities and reduction projects that will allow the company to achieve the target
- Links to awards, press coverage, and other notable communications materials

Describing Progress toward Targets

As targets are years or even decades in the future, showing progress in the interim will allow stakeholders visibility into a company's progress and efforts before the target year. Information to include when describing progress toward a science-based target is found below.

Information

- Performance should be accompanied by a description by the target itself, as noted above
- Emissions changes from the base year to the current year (yearly breakdowns are preferable)
  - Variability between years is expected so it is important to display trend lines over multiple years
- Emissions changes in the past calendar or fiscal year (best for annual reports)
- Reasons for substantial emissions variations
  - For example emissions reduction activities, disposal of subsidiaries, divestment, mergers, acquisitions, changes in the methodology, changes in boundaries, changes in physical operation conditions
- If progress is not on track or deviates away from the target pathway a company should explain why and the strategy for addressing these deficits in the future
- If latest data deviate from what has been previously reported (e.g. corrected base year emissions), it is important to update previous information and clearly note changes
- Note whether the target has been changed, and if so, what changes were made and when
- Information on successful projects that have helped to reduce emissions
- Novel or innovative efforts or partnerships that can differentiate a company and highlight it as a leader

Communicating in Understandable terms

In addition to ensuring that sufficient detail is included when communicating a science based target, a company must also present these factors, terms and units in a way that is understandable to the audience. Using GHG emissions reduction targets jargon may not be easily understood by many. For example, to the lay person with a limited environmental or financial background, the intensity metric mtCO2e/value added may have no meaning, or at best is confusing. Both of those units (or any absolute or intensity metrics) should be defined either in a glossary or within the text. Using "real life" examples or comparisons such as "this reduction equals taking 4,000 passenger vehicles off the road annually" can be helpful for both external and internal audiences.

Likewise, those groups with more extensive background knowledge may also need clarification. The term value added can be defined as gross profit, operating profit, EBITDA minus all personnel costs, or revenue minus the cost of purchased goods and services depending on local accounting terminology. Using terms that are synonymous with sustainability jargon can help address this issue. For example, "direct emissions" can be used in place of or in alongside the term scope 1 emissions. Moreover, infographics allow a lot of information to be presented clearly and succinctly. Additional ways to communicate SBT information are explored further in the following section.

6.3. Communication formats and examples

There are several ways to communicate science-based target information. The format chosen should take into consideration the audience, media in which the information is being published, and what information is being displayed. Several formats can also be used in combination. This section illustrates multiple ways to present the same information.

Text

A text description below is an example of Company A's target description in its 2015 annual report. It includes basic and additional recommended information as described above.

Background Information

Company A is dedicated to minimizing its impact on the environment. In line with the company's strategic goal of making environmental performance a cornerstone of operations, it has set a science-based target to align its emissions reductions efforts with what is required by climate science. The company is very pleased to display its climate leadership by setting a science-based greenhouse gas emissions target. Company A's commitment to reducing its fair share of emissions have been noted in several prominent media outlets including Bloomberg and the Economist.

Base Year Data

In 2010, Company A's scope 1 base year emissions were 126,400,000 tCO2e (t = metric tonnes). Company A produced 70,560,000 t crude steel resulting in a scope 1 (direct emissions) base year intensity of 1.79 tCO2e/t crude steel. For scope 2 (indirect emissions), it emitted 13,600,000 tCO2e while consuming 31,493,191 megawatt hours (MWh) of electricity, resulting in a scope 2 base year intensity of 0.19 tCO2e/t crude steel.

Science-Based Emissions Targets

Using the data above Company A used the Sectoral Decarbonization Approach (SDA), to set a target covering its entire scope 1 and 2 emissions inventory for calendar years 2012-2020. Emissions boundaries fit within the Iron and Steel sector based on operational control. By the end of 2020 the scope 1 emissions intensity will be reduced 7% by the target year resulting in an intensity of 1.67 tCO2e/t crude steel in the target year. Absolute emissions will increase 6% resulting in 133,555,125 tCO2e. The scope 2 emissions intensity will be reduced 14% resulting in 1.98 tCO2e/t crude steel and absolute emissions will decrease 3% resulting in 13,215,418 tCO2e. In order to measure intermediate progress towards this goal, the company aims to achieve half of its emissions reductions by the end of 2016. Most reductions will be achieved by switching from coal to natural gas to produce the steel as well as from blast furnace improvements in its plants in India and China.[28]

[28] The only information not included above used in calculating the target using the SDA is a 1.6% annual activity growth rate. A company would likely not disclose this information externally due to sensitivity issues.

Since scope 3 emissions do not constitute a significant portion of total emissions (~10%), a science-based target has not been set. However, the company hopes to develop an aggressive target in the near future when more data are available.

Progress toward Targets

The company has been making steady progress and is currently on track to meet its interim and long-term targets. In 2015, absolute scope 1 emissions have increased 1% and scope 2 emissions decreased 0.3%. Scope 1 emissions intensity has decreased 0.9% and scope 2 emissions intensity has decreased 2.3% respectively. Since the 2012 base year, absolute scope 1 emissions have increased 3.2% and scope 2 emissions have decreased 1.1%. Scope 1 emissions intensity has decreased 6% and scope 2 emissions intensity has decreased 9%.

Figures

Figures greatly aid in displaying the magnitude of emission reductions. For example, consider displaying historical emissions in a bar or line graph. Tables should accompany graphs so that precise numbers are given. Infographics help to display complex information in a simple and easy to understand format. Consider the level of detail the audience requires and their technical knowledge.

To illustrate, much of the information in the text section above can be more concisely communicated using figures as shown below. Note how the graphs are accompanied by a table.

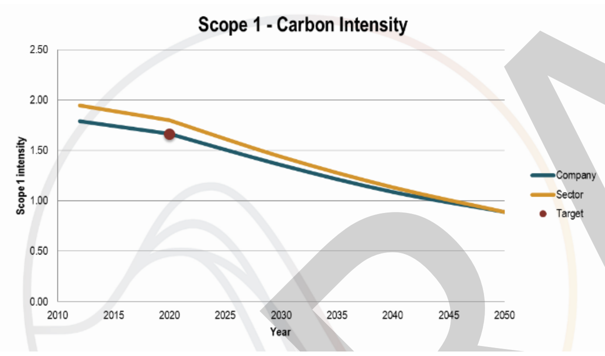

Figure 6.1 Scope 1 science-based intensity target for Company A

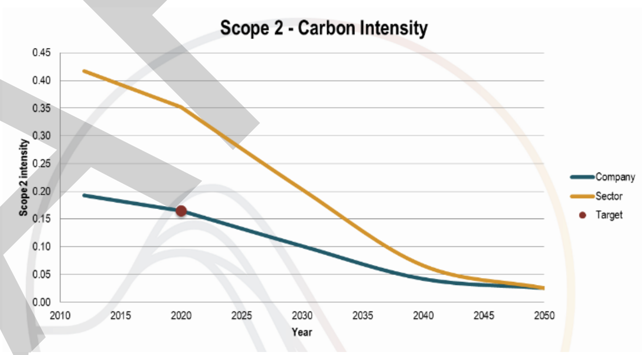

Figure 6.2 Scope 2 science-based intensity target for company A

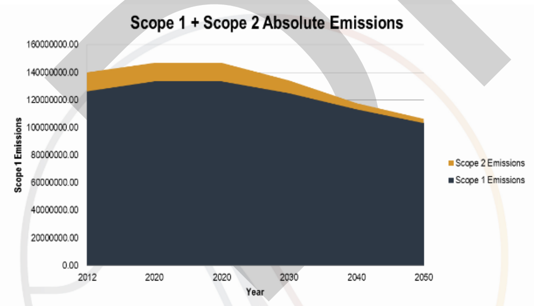

Figure 6.3 Scope 1 and 2 science-based absolute targets for Company A

Table 6-1 Science-based emissions targets for Company A

	Base year 2012	Target year 2020	Variation
Scope 1 emissions (tCO2e)	126,400,000.00	133,555,125.64	6%
Scope 2 emissions (tCO2e)	13,600,000.00	13,215,418.72	-3%
Scope 1+2 emissions(tCO2e)	140,000,000.00	146,770,544.36	5%

	Base year 2012	Target year 2020	Variation
Scope 1 carbon intensity	1.79	1.67	-7%
Scope 2 carbon intensity	0.19	0.16	-14%

In addition, good examples of how to illustrate the need for science-based targets and progress toward them can be seen in the respective figures below from Mars (Figure 6.4) and Citigroup (Figure 6.5).

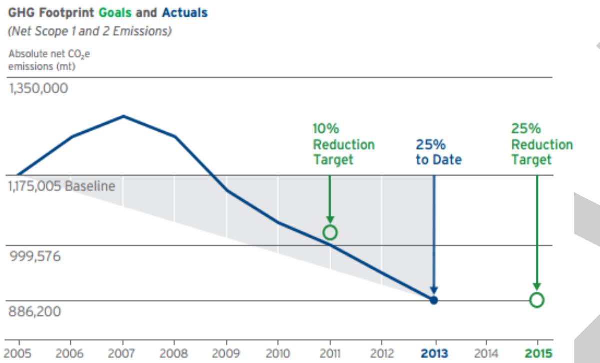

Figure 6.5 Citigroup infographic on progress toward their emissions reduction target (note: target shown is not science-based) Source: Citigroup page 44.

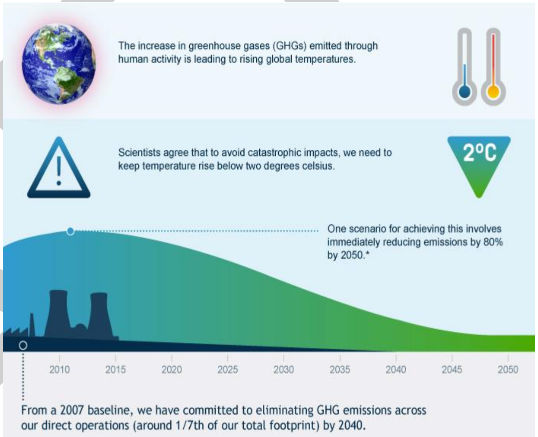

Figure 6.4 Mars infographic on the importance of setting a science-based target. Source: Mars website

Eneco combines multiple impacts from the production of electricity into one infographic that relates its progress over time to a planet impact scale (see Figure 6.6). Its website (here) also shows Eneco's GHG emissions reductions in comparison to the SBT emissions scenario's pathway.

Figure 6.6 Eneco's electricity footprint.

6.4. Where to disclose

The first step in identifying where to disclose the target is ensuring that the information is easy to find. A science-based target is ambitious and can differentiate a company as a leader. Websites are a simple and direct way to reach large numbers of internal and external stakeholders. Many companies have a designated webpage that covers environmental, social, and other sustainability-related targets and efforts. Company reports (e.g., sustainability reports, CSR reports, annual reports, and strategic plans) are also good platforms to periodically report on progress and combine this information within the context of other activities of the company. The Global Reporting Initiative (GRI) provides a widely used framework for reporting environmental, as well as social and economic, performance and impacts; science-based targets and reduction efforts can be included in this reporting though they may not be highlighted to the same degree a separate webpage or company report would.[29] CDP's Climate Change Questionnaire is also a well-known public resource for reaching large external audiences. CDP provides a platform to disclose climate leadership to investors, purchasers, and governments.

For internal communications, the earlier and more effectively the importance of reaching targets is introduced to an employee, the more likely the company is to get buy-in for target efforts. Consider integrating ways to describe and work toward the target into employee orientation and training/handbooks. Periodic announcements and company/departmental meetings are also a potential avenue for communicating progress. Likewise, written media such as company newsletters, blogs, and social media are good places to highlight achievements and areas for improvement.

29 https://www.globalreporting.org/reporting/G3andG3-1/Pages/default.aspx

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Third party review

While there is no standard against which to assure SBTs, the emissions inventory itself can be verified. Additionally, a company can have a third party review the process and data it used to calculate the target and ensure it is aligned with the chosen SBT method. Companies can include a mention of its third-party review in its public communications. References to public financial reports or databases with information used to calculate the target can also be included.

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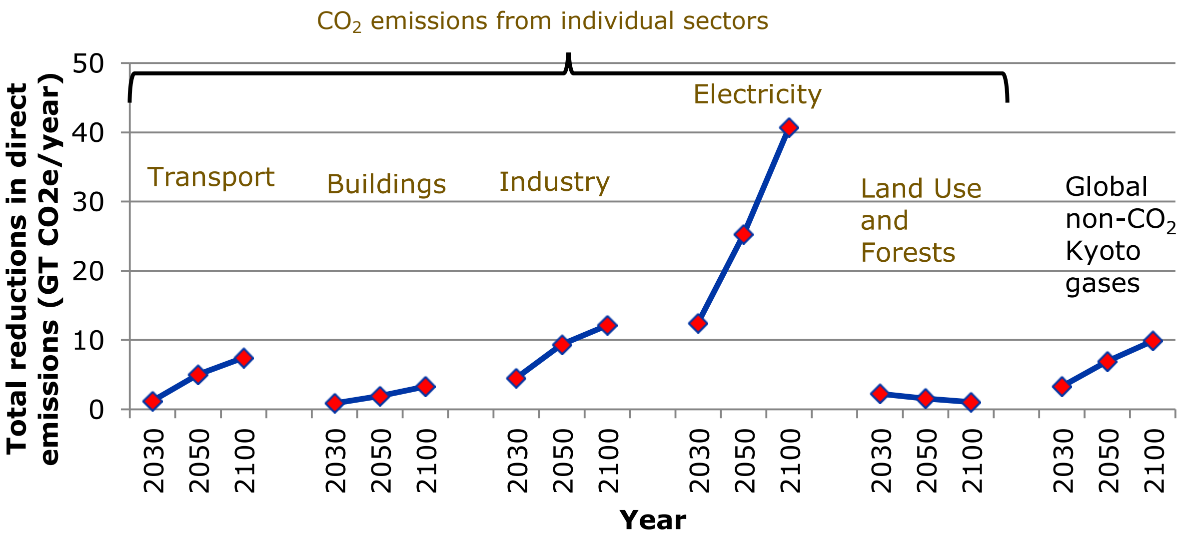
7. Implementing the Target: Strategies to achieve an ambitious target

A range of measures abate GHG emissions, including increasing energy efficiency, decarbonizing energy sources, sequestering carbon, and offsetting any residual emissions. Successful strategies for achieving ambitious targets will necessarily rely on a portfolio of such measures. The optimal mix of measures will depend on a company's goals, starting position, the cost of various alternatives, and external market conditions, such as the presence of government incentives. This chapter summarizes those reduction strategy measures currently in use and some of the financing mechanisms that have emerged to specifically support their implementation. Box 7-1 at the end of this chapter lists resources that provide additional information and implementation guidance.

7.1. Reduction measures

At a global level, low-cost abatement opportunities exist in every sector, although opportunities and reduction requirements are higher for certain sectors (e.g., electricity production) than others (Figure 7.1; IPCC, 2014a). Existing technologies are sufficient to meet interim, global targets (e.g., through 2030). However, innovative, large-scale transformations in energy chains and land management will be required to ultimately achieve long-term targets and, by extension, many corporate SBTs (IPCC, 2014b).



Notes: This figure excludes emissions reductions from the upstream energy supply sector. All data points are based on the median of scenarios presented in IPCC (2014a). The values for the Electricity sector reflect the use of biofuels and Carbon Capture and Storage, while the values for the Land Use and Forests sector represent the summed impacts of emissions and removals (e.g., from afforestation and reforestation).

Figure 7.1 The annual reductions in GHG emissions from 2010 levels that are required to reduce atmospheric CO_2e concentrations to 450 ppm by 2100

Existing abatement technologies and approaches include:

Energy efficiency

Energy efficiency represents a huge and largely untapped resource - under existing policies, two-thirds of the economically viable energy efficiency potential available between now and 2035 will remain unrealized (IEA, 2014). Although they offer relatively high rates of return and low risk, energy efficiency projects can require large capital costs with long time-horizons. Innovations in financing can play an important role in raising the needed capital (see Section 7.2).

Energy efficiency can be improved through numerous and diverse changes in technology, energy management systems, and behavior. For example, technological changes can include increasing the fuel economy of motor vehicles, combining the production of heat and power, and upgrading buildings with energy-efficient lighting and heating, ventilation and air-conditioning (HVAC) systems. In turn, managerial and behavioral changes can include monitoring energy use and identifying and stopping refrigerant leaks.

----------begin box----------

Energy Efficiency

Raytheon, a technology and innovation company specializing in defense, homeland security, and other government markets worldwide, saved over US$100 million while reducing its energy use by 19 percent between 2002 and 2012. They enhanced the energy efficiency of their buildings by upgrading HVAC systems, switching to high-efficiency and motion-sensitive lighting, installing variable speed drives for motors, pumps and fans, and investing in state-of-the-art automated building energy management systems.

The Volvo Group, a global manufacturer of vehicles and engines, operates truck manufacturing plants in the US that initially partnered with an energy services provider to pursue energy and GHG reduction goals. Through performance based contracts, the plants first focused on “low-hanging fruit” such as fixing compressed air leaks and lowering building temperature. The company then made capital investments in energy saving technologies such as upgrading to more efficient lighting and HVAC equipment, installing infrared radiant heating to improve heat transfer, installing large fans to improve air flow, and installing building automation systems.

Source: WWF and CDP (2013).

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Low-carbon energy

Fuel switching replaces inefficient fuels with cleaner and economical alternatives, such as substituting natural gas for coal or biofuels for diesel. Complemented by modern equipment upgrades, fuel switching is a simple approach to reducing energy consumption and costs for end-users.

Fuel switching increasingly involves the use of renewable energy. Depending on the jurisdiction concerned, companies can now obtain renewable energy via onsite projects, Power Purchasing Agreements (PPAs), utility green power purchasing programs, and Renewable Energy Certificates (RECs) or equivalent certificates (Table 7-1). The GHG Protocol has developed specific requirements regarding how these options can be used to meet scope 2 targets. See Section 4.1.2 and the GHG Protocol Scope 2 Guidance for further details.

Table 7-1. Examples of renewable energy products that can be applied to scope 2 targets.

Type of product	Definition
Power Purchasing Agreement (PPA)	A type of contract that allows a consumer, typically a large industrial or commercial entity, to form an agreement with a specific energy generating unit. The contract itself specifies the commercial terms including delivery, price, payment, etc. In many markets, these contracts secure a long-term stream of revenue for an energy project.

Type of product	Definition
Renewable Energy Certificate (REC)	A type of energy attribute certificate, used in the U.S. and Australia. In the U.S., a REC is defined as representing the property rights to the generation, environmental, social, and other non-power attributes of renewable electricity generation. Similar to RECs, the EU offers European GO (guarantees of origin)under the Association of Issuing Bodies.
Green power product/ green tariff	A consumer option offered by an energy supplier distinct from the "standard" offering. These are often renewables or other low-carbon energy sources, supported by energy attribute certificates or other contracts.

------------Begin BOX-------------

Low-carbon energy

Walmart, a global retailer, is pursuing its goal of being powered by 100 percent renewable energy through on-site renewable energy projects, power purchasing agreements with offsite wind farms, and participation in utilities' green power purchasing programs. The company is testing a range of on-site installations, including solar panels on store rooftops, micro-wind turbines on parking lots, biodiesel generators, and fuel cells. Source: WWF and CDP (2013).

-----------End Box----------------

Biological carbon sequestration

The emissions or removals of biogenic CO_2 are excluded from the scopes of a corporate GHG inventory. However, carbon sequestration in soils and biomass is an important abatement strategy, at least for companies in the land-based sectors. Options for sequestering carbon in the forestry sector include reducing deforestation, afforestation/ reforestation, forest management, and forest restoration. In turn, carbon sequestration offers most (about 90 percent) of the global potential for reducing emissions from the agricultural sector (Smith et al., 2007), through a combination of improvements in the management of cropland and grazing land, and the restoration of degraded soils. Biological carbon sequestration can be used toward emissions reduction targets, by "netting" emissions within the scopes.

A key consideration is that biological carbon sequestration is not permanent - sequestered carbon can always be emitted back to the atmosphere following changes in land management practices or natural disturbances. Companies in land-based sectors should therefore account for any reversals in carbon storage when tracking performance against a target.

Other scope 3 reduction measures

Many of the above measures can be used towards scope 3 targets. For example, companies can manufacture more energy-efficient appliances that lower their customers' emissions. However, scope 3 categories are diverse (see Section 4.2) and ambitious scope 3 targets may require additional reduction measures. For example, reductions in business travel may require the increased use of video-conferencing, and reductions in waste management emissions may require reductions in resource use and/or waste diversion.

Achieving ambitious scope 3 targets may also require companies to work directly with their value chain partners to develop new products and implement new operational practices. Examples include establishing supplier performance standards and encouraging suppliers to shift their energy mix toward renewable energy.

----------begin box-----------

Scope 3

GlaxoSmithKline (GSK) researches and develops a broad range of pharmaceuticals, vaccines, and consumer products. It has committed to having a carbon-neutral value chain by 2050. Reducing emissions from its supply chain is a key part of this commitment – purchased goods alone make up 40 percent of GSK's value chain GHG emissions. To realize this reduction GSK has launched supplier platforms to help its suppliers understand and measure their environmental impacts and understand ways to reduce their energy efficiency. It is also using GHG data as a criterion in procurement decisions.

------------end box--------------

Technological change

New technologies are required to substantially lower the costs of global emissions reductions. This is particularly true for the decarbonization of energy supply systems - many scientific models indicate low-carbon energy supplies will need to increase at least five-fold over the next 40 years to meet a global two-degree target (IPCC, 2014b). This value assumes the wide-scale deployment of biofuels and Carbon Capture and Storage (CCS) systems; to date, the latter have not attracted much tangible investment because of a wide range of technical, cost, and institutional barriers. In addition, models suggest that sectors currently using liquid fuel (e.g., transportation) are particularly costly to decarbonize and may be among the last sectors to be decarbonized for deep CO2e emissions reductions (IPCC, 2014b).

Despite the technological challenges inherent in meeting long-term targets, companies should not plan reductions using only near-term goals as a road map. Companies should also direct effort toward developing the technologies and institutional capacity that will enable deep emissions cuts in the future. The way in which companies begin implementing GHG reduction strategies may well turn out to be quite different from the approach that proves best in the long run. Still, thinking through long-term options now creates opportunities to make early and midcourse corrections, increasing the overall likelihood of meeting SBTs.

Offsets

Using offsets are not recommended to reach GHG emissions targets. In many cases companies will pay a premium for the offsets and in most cases these funds could be put to better use by investing in internal or value chain reduction projects. Although it is preferred that companies meet all of a target through reductions that occur along their value chains, doing so may not always be possible. In such cases, a company may choose to use offsets that are generated from sources external to the target boundary. In principle, many different types of projects can generate carbon offsets, including methane destruction at landfill sites, HFC destruction at industrial facilities, fuel switching for power production or transportation, energy efficiency projects, and biological carbon sequestration. Importantly, any offsets used should be based on credible and widely-accepted standards for the quantification, validation and sale of offset credits and are only utilized once all other levers available within the system boundary have been applied."

7.2. Financing reduction strategies

Capital is scarce in many companies and competition for it is intense. Because companies often establish high hurdle rates for internal investment decisions, a common approach to securing internal capital is to bundle projects into a portfolio that combines investments that offer high returns with those that offer lower rates of return or longer time horizons (WWF and CDP, 2013). In this way, companies can still achieve a very attractive overall return rate on the portfolio. Another common approach is to incorporate energy efficiency investments into ongoing operational improvement programs, thus using existing capital allocations.

Companies are also increasingly establishing internal carbon pricing mechanisms as a means of generating internal capital and fostering low-carbon innovation. These mechanisms involve the adoption of a (company-assumed) carbon price and take three main forms:

(1) Shadow price: The carbon price is used to inform investment decisions at the project selection stage.

(2) Carbon tax: A tax is levied on GHG emissions and the resulting revenue can be pooled together into a fund to invest in projects.

(3) Emissions trading program: Companies establish an emissions cap and different business operations/units trade allowances to stay under the cap. The cap can be lowered over time.

A key consideration is setting a carbon price that is high enough to materially affect investment decisions and drive down GHG emissions.

Should companies not be able to access sufficient internal capital, a variety of external sources exist. Some emerging or common options for financing low-carbon projects include:

- Green bonds: Fixed income, liquid financial instruments that are used to raise funds dedicated to climate-mitigation, adaptation, and other environment-friendly projects[30]. Corporate green bond issues are growing rapidly, partly because of the growing number of institutional investors with mandates to increase investment in instruments that support low-carbon growth.

- On-bill financing: Loans made to a utility customer - such as a commercial or industrial building owner to pay for energy efficiency improvements.

- Energy Service Companies (ESCOs): ESCOs serve as project developers, integrating the project's design, financing, installation and operational elements, and often arranging project financing.

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Internal carbon prices

Microsoft, a global technology company, implemented an internal carbon fee to create a fund to support its progress toward a goal of becoming carbon neutral across its global data centers, offices, software development labs, and company air travel. The fund provided an incentive for Microsoft's business groups to find lower-carbon alternatives. Results include $10 million in annual energy savings, emissions reductions of 7.5 million metric tons CO2e, and 10.2 billion kilowatt-hours worth of new renewable energy investments.[31]

-----------end box----------------

In summary, numerous measures exist to abate GHG emissions and an increasing array of financing mechanisms is emerging to support their implementation. Experience shows that many measures are economically feasible and can be used to meet interim targets. Longer-term progress toward SBTs will require companies to develop innovative technologies that make deeper emissions cuts more cost-effective.

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30 http://www.worldbank.org/en/topic/climatechange/brief/green-bonds-climate-finance

31 http://download.microsoft.com/download/0/A/B/0AB2FDD7-BDD9-4E23-AF6B-9417A8691CF5/Microsoft%20Carbon%20Fee%20Impact.pdf

Box 7-1: Additional resources

The following is a list of selected resources that provide further background and guidance on implementing the strategies discussed in this chapter.

Reduction strategies

- *US EPA ENERGY STAR Guidelines for Energy Management*. http://www.energystar.gov/buildings/tools-and-resources/energy-star-guidelines-energy-management
- Climate Friendly Buildings and Offices: A Practical Guide. http://www.greeningtheblue.org/sites/default/files/climate-friendly-buildings-final_0.pdf
- *Guide to Purchasing Green Power Renewable Electricity, Renewable Energy Certificates, and On-Site Renewable Generation*. http://epa.gov/greenpower/documents/purchasing_guide_for_web.pdf
- *Future Friendly Farming: Seven Agricultural Practices to Sustain People and the Environment.* http://www.nwf.org/~/media/PDFs/Wildlife/FutureFriendlyFarmingReport.pdf
- *Managing Supply Chain Greenhouse Gas Emissions: Lessons Learned for the Road Ahead*. US Environmental Protection Agency http://www.epa.gov/climateleadership/documents/managing_supplychain_ghg.pdf
- Carbon Offset Research and Education. http://www.co2offsetresearch.org/

Financing strategies

- Climate Bonds Initiative. http://www.climatebonds.net/
- Carbon Pricing Leadership Coalition http://www.worldbank.org/en/programs/pricing-carbon#2
- Preparing for Carbon Pricing Case Studies from Company Experience: Royal Dutch Shell, Rio Tinto, and Pacific Gas and Electric Company https://www.thepmr.org/system/files/documents/PMR%20Technical%20Note%209_Case%20Studies.pdf

8. Glossary (TO BE UPDATED)

2DS. The two degrees scenario is the focus of the ETP 2014. It describes an energy system consistent with an emissions trajectory that would give a 50 percent chance of limiting average global temperature increase to 2°C.

Absolute emission target. The level of absolute emissions that has to be achieved in a certain year.

Absolute emission reduction target. The magnitude of change of the absolute emissions in a certain year compared to a base year, expressed in percentages.

Activity. The main economic activity of a company for which the activity indicator is used.

AR. Assessment report, published materials by the IPCC composed of the full scientific and technical assessment of climate change, generally one for each Working Group.

BAU. Business As Usual, the unchanged development of the situation without any interference, for example through policy.

Carbon intensity reduction target. The magnitude of change of the carbon intensity in a certain year compared to a base year, expressed in percentages.

Carbon intensity target. The level of carbon intensity that has to be achieved in a certain year.

CCS. Carbon capture and storage, the process of capturing CO_2 (usually from large point sources), transporting it to a storage site and depositing it, usually in a geological formation, so it does not enter the atmosphere.

CH_4. Methane.

CO_2. Carbon dioxide.

CO_2e. CO_2 equivalent is a unit used to express the global warming potential of (a mix of) greenhouse gases as a single figure, namely the equivalent amount or concentration of carbon dioxide.

ETP. Energy Technology Perspectives is published by IEA. The ETP provides scenarios that set out pathways to a sustainable energy future in which optimal technology choices are driven by costs, energy security, and environmental factors.

GDP. Gross Domestic Product.

GEVA. Greenhouse gas emissions per value added.

GHG. Greenhouse gas, a gas that absorbs and emits radiation in the atmosphere, contributing to the greenhouse effect. GHGs include (among others) water vapor, carbon dioxide, methane, nitrous oxide, ozone, and CFCs.

Global Warming Potential. Global warming potential, or GWP, is a relative measure of how much heat a greenhouse gas traps in the atmosphere. It relates this heat to the amount of heat trapped by a similar mass of carbon dioxide.

Heterogeneous sectors. Sectors that can't be described using a single physical indicator. For example, the chemical sector is heterogeneous because it produces a diverse array of chemicals that each have unique characteristics and traits and are difficult to compare to one another.

Homogeneous sectors. Sectors that can be described using a single physical indicator.

IEA. International Energy Agency.

IPCC. Intergovernmental Panel on Climate Change.

KPI. Key performance indicator.

kWh. Kilowatt hour.

MWh. Megawatt hour.

NGO. Nongovernmental organization.

Ppm. Parts per million.

Ppmv. Parts per million by volume.

RCP. Representative concentration pathway, one of the four GHG concentration trajectories used in the IPCC 5th Assessment Report (AR5). These trajectories are used for climate modeling and research.

Revenue passenger kilometer (rpk). The distance paying customers travel in kilometers.

Sector. A subdivision of businesses and activities in the global economy used in this report to give companies GHG emission targets.

SRES. Special Report on Emissions Scenarios, a report published by the IPCC in 2000 containing greenhouse gas emissions scenarios that have been used to make projections of possible future climate change.

UNEP. United Nations Environment Programme.

UNFCCC. United Nations Framework Convention on Climate Change.

Value-added. Depending on accounting terminology, this is defined as gross profit, operating profit, revenue minus the cost of purchased goods and services, or EBITDA plus all personnel costs

WEO. World Energy Outlook, published by IEA, is a comprehensive and authoritative analysis of medium- and longer-term energy trends with energy projections until 2040, providing insights into their meaning for energy security, the economy, and the environment.

Note: Throughout this document all tons are metric tons, all dollars are U.S. dollars.

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CDP

CDP is an international not-for-profit organization providing the only global system for companies and cities to measure, disclose, manage, and share vital environmental information. These insights enable investors, companies, and governments to mitigate risks from the use of energy and natural resources, and to identify opportunities from taking a responsible approach to the environment. (https://www.cdp.net)

UN Global Compact:

The UN Global Compact believes it's possible to create a sustainable and inclusive global economy that delivers lasting benefits to people, communities and markets. To make this happen, the UN Global Compact supports companies to: do business responsibly by aligning their strategies and operations with Ten Principles on human rights, labor, environment and anti-corruption; and take strategic actions to advance broader societal goals, such as the forthcoming UN Sustainable Development Goals, with an emphasis on collaboration and innovation. (www.unglobalcompact.org)

World Resources Institute (WRI)

WRI focuses on the intersection of the environment and socioeconomic development. We go beyond research to put ideas into action, working globally with governments, business, and civil society to build transformative solutions that protect the earth and improve people's lives. (www.wri.org)

WWF

WWF is one of the world's largest and most experienced independent conservation organizations, with over 5 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption. (http://wwf.panda.org)