GSMA

Setting Climate Targets

A step by step guide for mobile network operators to set science based targets

Contents

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About this summary guide

An ICT sectoral target-setting approach was recently developed through a collaboration between the Global Enabling Sustainability Initiative (GeSI), the GSM Association (GSMA), the International Telecommunications Union (ITU), and the Science Based Targets initiative (SBTi). The methodology currently applies to mobile network operators, fixed network operators and data centre operators[1] exclusively, with the ICT sub-sector for equipment manufacturers to be added later in 2020.

The Guidance for ICT companies setting science-based targets[2] document provides detailed support for ICT companies looking to set a Science Based Target (SBT). This summary guide provides practical step-by-step instructions for a mobile network operator to apply the approach when setting a SBT. This Guide is intended to be comprehensive on its own, providing fundamental information on the full target-setting process, from measuring corporate greenhouse gas emissions (GHG) to developing targets and submitting them to SBTi for validation.

Readers who are already familiar with specific parts of the process can skip these and focus directly on relevant sections. References to the GHG Protocol and SBTi documents are provided throughout the guide for readers seeking for further information on any particular topic.

The guide is divided into four chapters plus annexes:

- The first chapter provides a general overview of the steps to setting SBTs;
- The second chapter explains in more detail how to apply these steps to an ICT company;
- The third chapter collates useful references, tools and case studies for measuring emission inventories and setting SBTs; and
- The fourth chapter presents answers to frequently asked questions.

FIGURE 1
What steps should Mobile Network Operators take on the journey to net zero? The GSMA suggests starting with these essentials

Source: GSMA

1. Note: trajectories for data centres may also be applied by companies in any sector operating their own data centres for the data centre component of their science-based target.
2. ITU, GSMA, GeSi, SBTi, 2020, Guidance for ICT companies setting science-based targets. The guidance document is published by the SBTi and is accessible via the SBTi website.

1. Summary

1.1 Introduction

As the impacts of climate change become increasingly visible around the world, urgent action is required to curb greenhouse gas (GHG) emissions and mitigate climate risks associated with rising global average temperatures.

Despite decarbonisation efforts from governments and other market players to date, carbon emissions are increasing and reached, yet again, an all-time high in 2019.[3] Even when taking into account current government policies to limit GHG emissions, global temperatures are projected to increase by around 3°C by 2100[4] from pre-industrial levels, well above the 1.5°C threshold required to avoid some of the most severe climate change impacts.

Corporates impact directly and/or indirectly the majority of GHG emissions and therefore have a key role to play in the transition to a zero carbon world. The Information and Communication Technology (ICT) sector alone is responsible for generating around 1.4% of global GHG emissions, with annual emissions in 2015 estimated at 730 $MtCO_2$-equivalent.[5] Annual emissions from the mobile sector are estimated at 220 $MtCO_2$-equivalent, or 0.4% of global emissions.[6]

Therefore, ICT companies, and mobile network operators (MNOs) in particular, have the potential and obligation to significantly contribute to global decarbonisation efforts.

Setting a corporate science-based target (SBT) is a robust approach to manage a company's emission reductions over a long-term timeframe, thereby ensuring that companies contribute their share to achieving global decarbonisation goals.

1.1.1 What is an SBT?

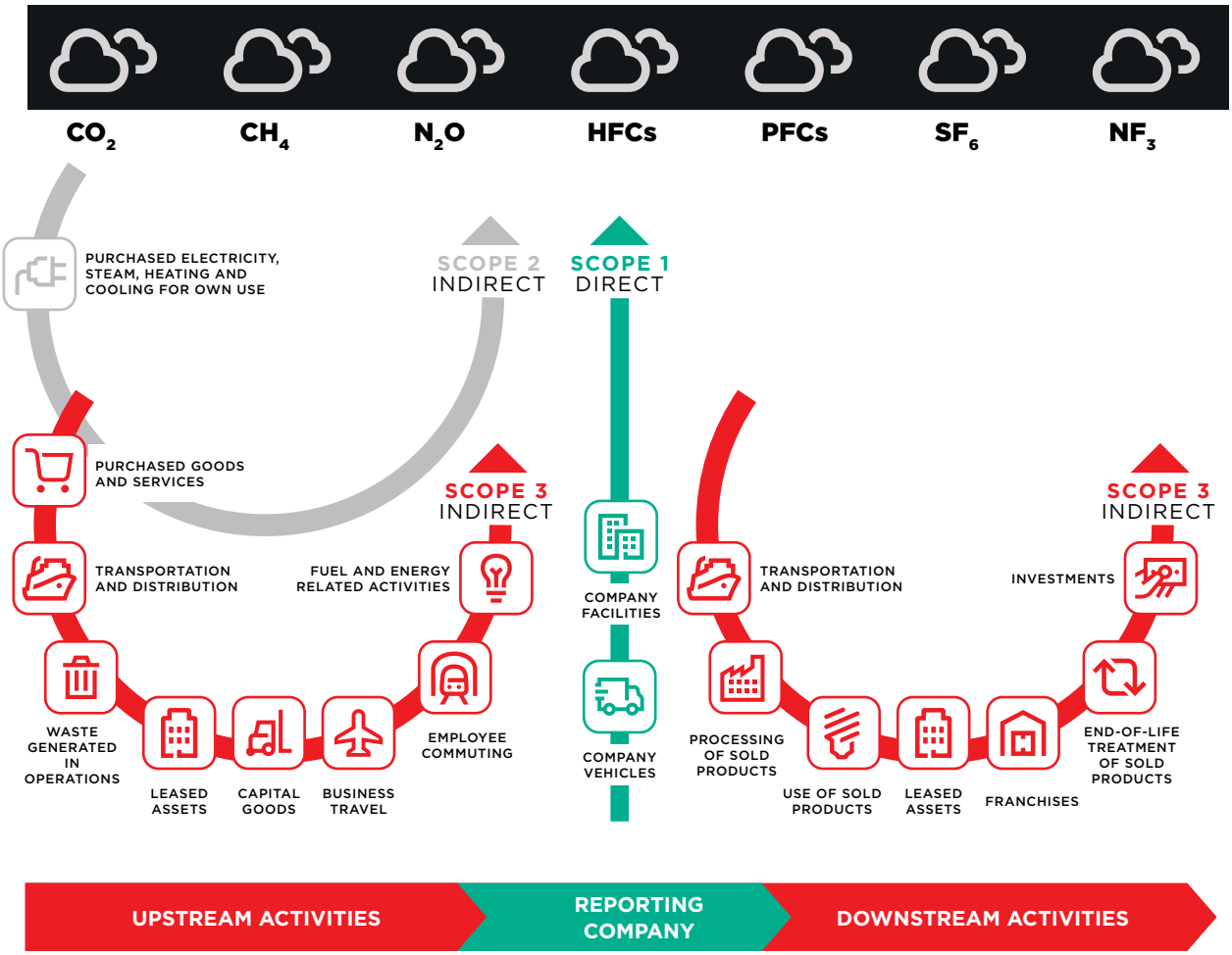
The Science Based Targets initiative defines science-based targets as "*GHG emissions reduction targets [that] are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement—to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.*"[7]

A science-based target approved by the SBTi needs to take into account a company's GHG emissions associated with direct and indirect operational emissions (scope 1 and 2 emissions), as well as significant value chain emissions (scope 3 emissions). The Greenhouse Gas Protocol provides the following definitions for scope 1, 2 and 3 emissions:[8]

- **Scope 1 emissions:** direct emissions from owned and controlled sources, including fuel combustion, company vehicles, and fugitive emissions.
- **Scope 2 emissions:** indirect emissions from generation of purchased electricity, steam, heating and cooling consumed by the reporting company.
- **Scope 3 emissions:** all other indirect emissions that occur in a company's value chain, including purchased goods and services, business travel, employee commuting, waste disposal, use of sold products, transportation and distribution (upstream and downstream), investments, leased assets and franchises.

3. Global Carbon Project, 2019, Global Carbon Budget 2019
4. Climate Action Tracker, 2019, Temperatures, Available at: https://climateactiontracker.org/global/temperatures/
5. Jens Malmodin and Dag Lundén, 2018, The Energy and Carbon Footprint of the Global ICT and E&M Sectors 2010–2015
6. GSMA and The Carbon Trust, 2019, The Enablement Effect: The impact of mobile communications technologies on carbon emission reductions
7. Science Based Targets Initiative, 2019, Science-Based Target Setting Manual Version 4.0
8. The Greenhouse Gas Protocol, 2013, Technical Guide for Calculating Scope 3 Emissions Version 1.0, Supplement to the Corporate Value Chain (Scope 3) Accounting & Reporting Standard

FIGURE 2
Overview of GHG Protocol scopes and emissions across the value chain.



Source: Technical Guide for Calculating Scope 3 Emissions Version 1.0, Greenhouse Gas Protocol

1.1.2 Why set an SBT?

Setting a science-based target ensures that companies achieve their share of emissions reductions to contribute to sectoral and global decarbonisation targets. It also provides several benefits to businesses.

Companies setting science-based targets demonstrate that they are aware of the risks that climate change poses to their business and are taking action to ensure their business model is resilient. This is resilience both in terms of climate-related physical risks (e.g. disruption of operations/ damaging of assets) and transition risks (e.g. changes in policy and market demand and supply shifts).

In terms of physical risks, a large share of ICT infrastructure assets is vulnerable to extreme weather events and is therefore at risk of being directly impacted by climate change. On the transition risk side, shifts in customer preferences may drive the demand for lower carbon products. New policy and regulations may also be implemented to incentivise energy efficiency of ICT products and services.

Implementing a recognised science-based approach to calculate their emission reduction targets can enhance a business' credibility and reputation by demonstrating to stakeholders and investors that they are reducing their risk of exposure to stranded assets, taking advantage of novel opportunities to align to a low carbon economy.

Setting science-based targets incentivises innovation within companies and their supply chains, including the development of new technologies, product/ service offerings and approaches that will enhance an organisation's competitiveness and positioning as a leader in the sector.

For ICT companies, setting a science-based target represents an opportunity to identify emission hotspots across the business and actively contribute to the sector's decarbonisation. For instance, electricity consumption represents a key source of emissions for ICT corporates and MNOs in particular, both in terms of grid electricity consumption and on-site power generation. Switching to purchasing renewable electricity or using renewable sources for on-site power generation are examples of actions that could greatly reduce operational GHG emissions.

1.2 Steps for setting a SBT

Companies wishing to set SBTi approved science-based targets should follow these five key steps:

1.2.1 Measure Scope 1&2 emissions

A company must measure its direct emissions (scope 1) and emissions related to its energy use (scope 2). The emissions need to then be measured consistently on a regular basis (typically annually) to enable the company to track progress against the target. The GHG Protocol Corporate Standard defines what emissions should be included in each scope and covers the related accounting and reporting processes.[9]

1.2.2 Calculate Scope 1&2 target

A science-based target must include a company's scope 1 and scope 2 emissions, even if emissions from one of the two scopes are perceived to be of minor importance compared to the other. Overall, no less than 95% of a company's scope 1 and 2 emissions should be included in the inventory and target.

9. The GHG Protocol, 2004, A Corporate Accounting and Reporting Standard, Revised Edition

The SBTi has validated three methods for setting science-based targets to date:

- Absolute Emissions Contraction;
- Sectoral Decarbonisation Approach (SDA); and
- Economic Intensity Contraction.

Each method differs in terms of approach and sector applicability. The SBTi Manual[10] provides a detailed overview of each method. For ICT companies the recommended approach is to use the ICT sectoral target-setting approach, which is the approach that this Guide describes.

1.2.3 Measure Scope 3

Scope 3 emissions (i.e. indirect emissions other than electricity generation that occur in a company's value chain) make up the largest share of a company's total emissions in most sectors and should therefore be considered a critical part of a corporate's decarbonisation strategy. The Corporate Value Chain (Scope 3) Standard provides guidance on how scope 3 emissions should be accounted for in a corporate inventory.[11] The GSMA, GeSI and the ITU developed the Scope 3 Guidance for Telecommunications Operators[12] to harmonise methods for telecommunication operators to assess and report their Scope 3 GHG emissions.

1.2.4 Calculate Scope 3 target

The SBTi target validation criteria requires a company to set a target for scope 3 emissions whenever these account for over 40% of total emissions (sum of scope 1, 2 and 3 emissions). The scope 3 target should cover at least two thirds of scope 3 emissions.

1.2.5 Submitting targets to SBTi

Companies wishing to gain recognition for their efforts in setting ambitious decarbonisation targets can engage with the SBTi in two main ways:

- Prior to starting to develop an SBT, companies can signal their intention to setting a science-based emission reduction target by signing a commitment letter provided by the SBTi.
- Once a company has developed targets it can submit them to be validated by the SBTi.

Further details on the commitment and validation processes are outlined in Section 2.

10. SBTi, 2019, Science-Based Target Setting Manual, Version 4.0
11. The GHG Protocol, 2011, Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Supplement to the GHG Protocol Corporate Accounting and Reporting Standard
12. https://www.gsma.com/betterfuture/resources/scope-3-guidance

2. Detailed steps for setting a SBT for the ICT sector

The following sections provide a summary of the Guidance for ICT companies setting science-based targets document, setting out the key steps that ICT companies should follow to define an SBT aligned with the requirements of the SBTi approval criteria.

The ICT sectoral target-setting approach covers the following sub-sectors:

- Mobile telecoms network operators
- Fixed telecoms network operators; and
- Data centre operators

The ICT sectoral target-setting approach is available for ICT operators to implement from March 2020, and is the approach recommended by the SBTi for ICT operators from September 2020.

The ICT sectoral target-setting approach defines criteria for the development of scope 1 and 2 emission reduction targets. The method does not set any additional requirements for scope 3 emissions other than the standard SBTi Criteria.[13] As most MNOs have significant scope 3 emissions, general guidance on how to determine scope 3 targets is also provided in this Guide.

2.1 Measure scope 1 & 2 emissions

An ICT company seeking to set a science-based target must first develop an emissions inventory to measure its scope 1 and 2 emissions by applying the same boundary approach across all operations, as defined in the GHG Protocol Corporate Standard.

Key scope 1 and 2 elements for MNOs include:

- Network electricity (including the RAN, core network and switching sites)
- Network diesel; and
- Supporting activities, including office buildings (heating and lighting) and transport fleet.

13. SBTi, 2019, SBTi Criteria and Recommendations

It is recommended that companies combine emissions from all scope 1 and 2 activities in the GHG inventory, including supporting activities. This approach will ensure alignment to a 1.5°C pathway across all activities when setting the actual SBT. See the Guidance for ICT companies setting science-based targets for further details.

2.1.1 Purchased renewable energy

Scope 2 emissions from purchased renewable energy can be calculated using two distinct approaches:[14]

- A **location-based approach** reflects the average grid carbon intensity of a defined local or national region where the electricity consumption occurs. This methodology is mainly based on average grid emission factors.

- A **market-based approach** reflects the emissions from electricity purchased by a company. Calculations rely on data from the company's contractual instruments disclosing information on the sale and purchase of energy bundled with attributes on the energy generation or for unbundled energy attribute claims. Data provided in contractual instruments will vary according to the types of contracts available in specific markets to either purchase or make claims around the attributes of energy used. Common types of contractual instruments include:

  - Energy attribute certificates: Power Purchasing Agreements, Renewable Energy Certificates (RECs), Guarantees of Origin (GOs), Tradeable Instruments for Global Renewables (TIGRs), etc.;

  - Direct contracts for both low-carbon, renewable, or fossil fuel generation;

  - Supplier-specific emission rates; and

  - Residual mix emission factors representing the untracked or unclaimed energy and emissions if a company does not have other contractual information that meets the Scope 2 Quality Criteria, as defined in Chapter 7 of the GHG Protocol Scope 2 Guidance.

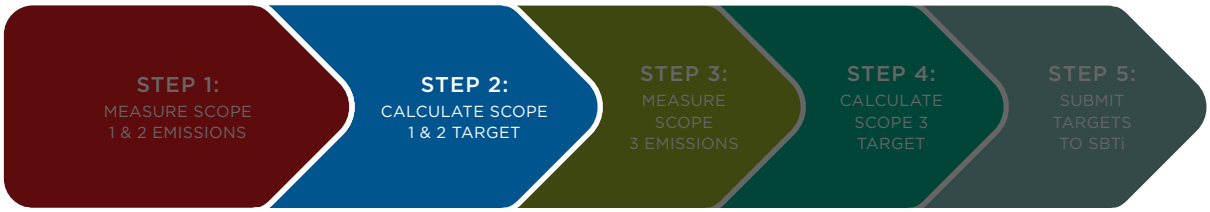
See section 3 for more on electricity procurement instruments.

Companies have to select either a location-based or a market-based approach to set a target and track performance. If a market-based approach is implemented, the company should check that the contractual instruments meet the Scope 2 Quality Criteria set out in Chapter 7 of the GHG Protocol Scope 2 Guidance.

For most MNOs using a market-based approach is the most appropriate, as this allows purchases of renewable electricity to contribute to the achievement of the target.

14. The Greenhouse Gas Protocol, 2015, GHG Protocol scope 2 Guidance, An amendment to the GHG Protocol Corporate Standard

2.2 Calculate scope 1 & 2 target



An ICT company wishing to establish a scope 1 and 2 SBT target should engage in the following process:

2.2.1 Define target boundary

The scope 1 and 2 target must cover the same GHG inventory boundary as the one applied to measure the company's baseline emissions.

2.2.2 Select base year

According to SBTi guidance, the base year should be selected according to three factors:

- Availability of verifiable data;
- Representativeness the company's GHG profile; and
- Sufficient forward-looking ambition.

Companies are recommended to select the most recent year for which data is available as their baseline year.

Additionally, as 2015 has been selected as the baseline year for the ICT sub-sector trajectories, companies may want to monitor their annual emissions compared to 2015 if emission levels for 2015 are readily available. This is an optional, additional step to track alignment to the sub-sector trajectories.

2.2.3 Select target year

Companies must set targets covering a minimum 5-year period. The ICT sector decarbonisation trajectory has only been developed up to 2030 as attempting to extending it beyond this date is considered to be unreliable due to the fast-changing nature of digital technologies. For this reason, the ICT sectoral target-setting approach only covers targets up to 2030.

It should be highlighted that the SBTi criteria requires companies to review and, if necessary, revalidate their targets every 5 years since the original date of approval.

2.2.4 Allocate sub-sector emissions

Where an ICT company has operations covered by more than one sub-sector (for example a mobile operator may also run fixed networks, as well as data centres) it can split its emissions accordingly and then add the resulting sub-sector targets together to obtain a company-wide target.

Within each sub-sector, companies are likely to have some degree of "non-ICT" scope 1 and 2 operations (i.e. supporting activities, including lighting and heating of office buildings and

transport fleets). Non-ICT emissions can either be combined with ICT-related scope 1 and 2 emissions to define a single target or treated separately. It is recommended that companies combine all scope 1 and 2 emissions and set a single SBT. See the Guidance for ICT companies setting science-based targets document for further details.

2.2.5 Calculate target

The ICT sectoral target-setting approach is based on an absolute convergence approach aligned to a 1.5°C scenario. Due to the diverse nature of devices and applications covered by the ICT sector, a separate pathway has been developed for each of the main ICT sub-sectors: mobile network operators, fixed network operators and data centre operators (Figure 3). The overall GHG emissions percentage reductions for each sub-sector between 2020-2030 are presented in Table 1.

FIGURE 3
Sub-sector trajectories for ICT operators scope 1 & 2 emission reductions

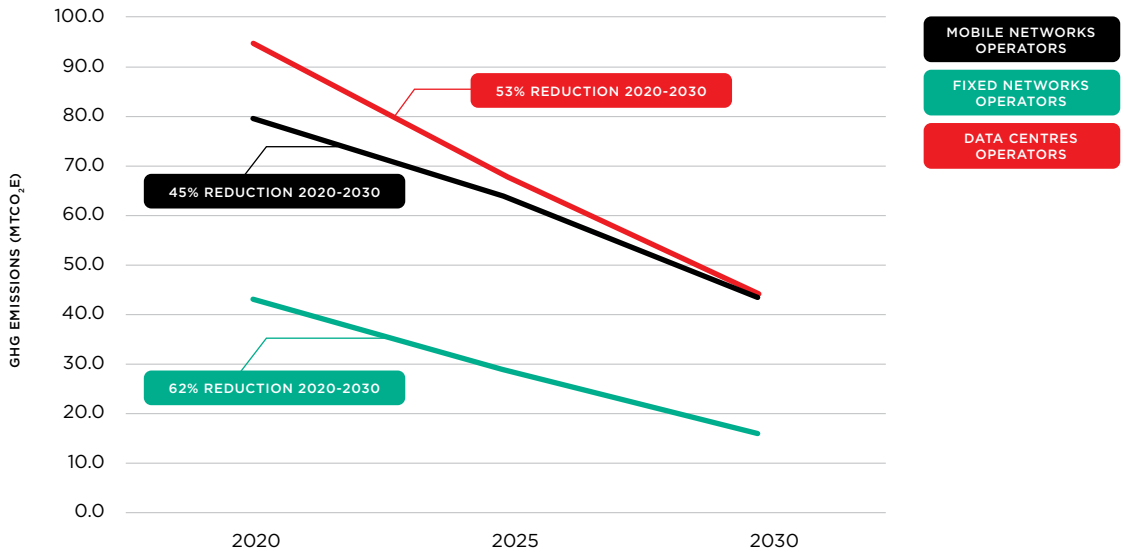


TABLE 1
Sub-sector GHG percentage reductions between 2020-2030

SUB-SECTOR	PERCENT GHG EMISSIONS REDUCTION 2020-2030
MOBILE NETWORK OPERATORS	45%
FIXED NETWORK OPERATORS	62%
DATA CENTRE OPERATORS	53%

The ratio of each sub-sector's emissions in the target year over its emissions in the base year is termed the Emission Reduction Factor (ERF). The sub-sector's ERFs have been derived from the sectoral trajectories for different base years and target years from 2018 to 2030 and are presented in Appendix A (tables 6 to 8).

Sub-sector targets are calculated by multiplying the combined scope 1 and 2 emissions in the base year for the sub-sector by the sub-sector's ERF in the target year. The overall SBT is obtained by summing the obtained sub-sector targets.

2.2.6 Worked example

Consider a company with both mobile and fixed line operations. The company selects 2019 as its baseline year and 2025 as its target year.

For both sub-sectors, the company decides to combine electricity related scope 1 and 2 emissions with those associated with support activities such as office buildings and / or a transport fleet. The combined scope 1 and 2 emissions from running the mobile operations were 250 ktonnes CO_2e in the baseline year. While scope 1 and 2 emissions from running the fixed operations were 150 ktonnes CO_2e.

Referencing the 2019 baseline and 2025 target years in the Emission Reduction Factor (ERF) tables, the ERFs for the mobile operations is found to be 0.794, and for the fixed operations 0.652. The ERFs correspond to a 21% and 35% percentage emission reduction over the 6 years, respectively.

The company's resulting science-based target (SBT) for 2025 is then given by:

SBT (2025)
=
0.794 X 250 KTONNES CO_2E
+
0.652 X 150 KTONNES CO_2E
=
296.3 KTONNES CO_2E

The combined reduction target is therefore equal to achieving a 26% emission reduction across scope 1 and 2 emissions by 2025 compared to a 2019 baseline.

2.2.7 Intensity metrics

Companies are allowed to present their target as an intensity target rather than an absolute metric if they wish to do so, as long as the absolute emission reduction is in line with the trajectories defined in ICT sectoral target-setting approach. In this case, companies are required to regularly monitor that the intensity metric remains aligned to the absolute trajectory.

For example, a fixed line telecommunications operator has scope 1 and 2 emissions in the base year of 2019 of 150 $ktCO_2e$, and has 5 million subscribers. This is equivalent to an intensity metric of 30 $kgCO_2e$ per subscriber.

For the target year of 2025, the absolute emissions target is 0.652 x 150 $ktCO_2e$ = 97.8 $ktCO_2e$. The forecast number of subscribers for 2025 is 6 million, then the intensity target for 2025 is 97.8 $ktCO_2e$ /6 million subscribers = 16 $kgCO_2e$ per subscriber.

2.3 Measure Scope 3 emissions

The first step to setting a scope 3 target is to identify the activities in the value chain that are responsible for the largest amount of emissions. The 15 categories of upstream and downstream emissions are defined in the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.[15]

The most significant scope 3 categories for an MNO are likely to be:

- Category 1 – Purchased Goods and Services; and
- Category 11 – Use of Sold Products.

A full list of scope 3 categories and the likeliness of their applicability for an ICT company is available in Appendix B.1 table 10.

Emissions from Purchased Goods and Services (PG&S) can be measured in several ways, including:

- The Environmentally Extended Input Output (EEIO) approach;
- A hybrid of the EEIO approach; or
- A Life Cycle Assessment (LCA)

For an MNO, the simplest approach is to use EEIO and this will give a reasonable estimate of the PG&S emissions. This can be refined by using LCA for some specific purchased products to give a more robust estimate. Typically, the LCA approach may be used for categories of products that contribute a significant proportion of the PG&S emissions, such as handsets.

Emissions related to Use of Sold Products can be calculated by taking into account the energy used by products sold to customers.

Further details on how to calculate emissions for categories 1 and 11 can be found in Appendix B.2.

The Scope 3 Guidance for Telecommunications Operators[16] gives a harmonised method for telecommunication operators to assess and report their Scope 3 GHG emissions.

Companies looking for support in measuring their scope 3 emissions can refer to the GHG Protocol's Scope 3 Evaluator[17] - a free tool providing a starting point for companies to develop a scope 3 emissions inventory.

15. The GHG Protocol, 2011, Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Supplement to the GHG Protocol Corporate Accounting and Reporting Standard
16. https://www.gsma.com/betterfuture/resources/scope-3-guidance/
17. The GHG Protocol, The Scope 3 Evaluator. Available at: https://ghgprotocol.org/scope-3-evaluator/

2.3.1 Worked example

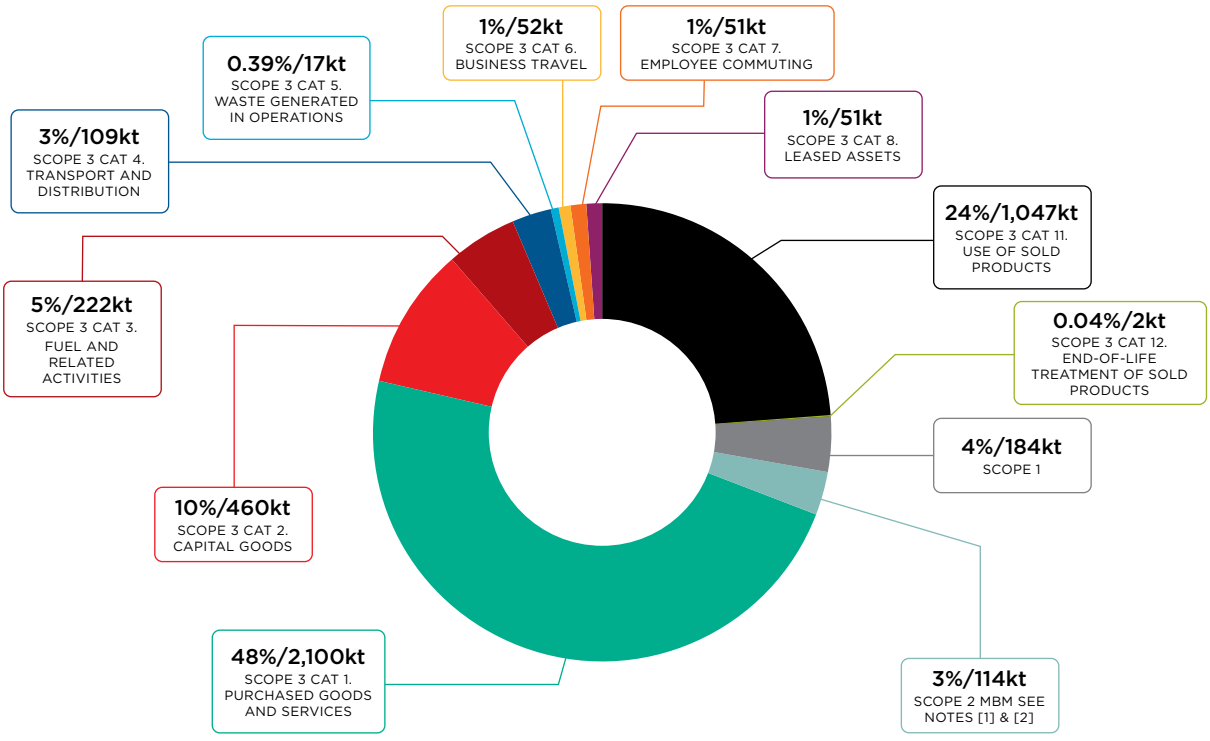
BT has been reporting its entire scope 3 value chain emissions for 7 years in compliance with the GHG Protocol's Scope 3 Standard. According to the company's 2018/2019 reporting,[18] scope 3 emissions accounted for 93% of total scope 1, 2 and 3 emissions. Three categories accounted for 88% of scope 3 emissions, namely:

- Category 1 – Purchased Goods and Services;
- Category 2 – Capital Goods; and
- Category 11 – Use of Sold Products.

Among the three categories, Purchased Goods and Services and Use of Sold Products represented the largest share of total emissions by far, accounting for 48% and 24% respectively (Figure 4).

A full description of the methodology implemented to calculate scope 3 emissions is available on BT's Digital Impact & Sustainability website.[19]

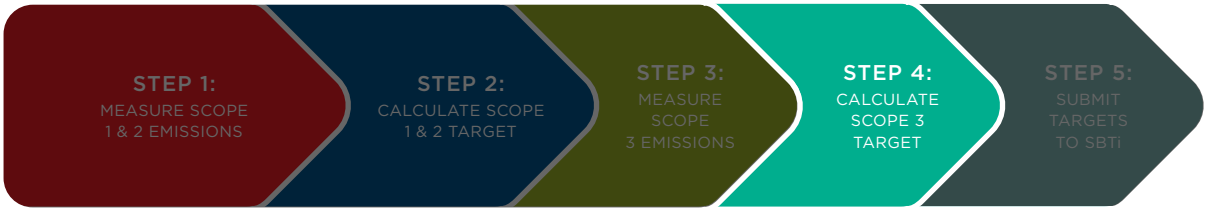
FIGURE 4
BT end-to-end carbon footprint ktonnes CO_2e



Source: BT's Greenhouse Gas Protocol Corporate Value Chain Scope 3 accounting and reporting, 2019

18. BT, 2019, BT's Greenhouse Gas Protocol Corporate Value Chain Scope 3 accounting and reporting
19. BT, Digital impact and sustainability website, available at: https://www.btplc.com/Digitalimpactandsustainability/Ourreport/index.htm/

2.4 Calculate Scope 3 target



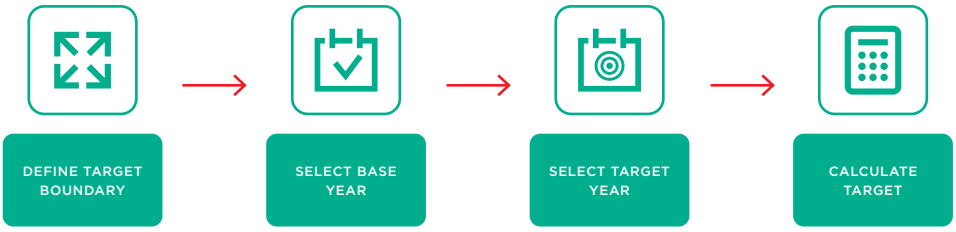
The SBTi Criteria require that a company set a scope 3 target when its scope 3 emissions make up 40% or more of its total scope 1, 2, and 3 emissions. The scope 3 target must cover at least two thirds of total scope 3 emissions. Most MNOs will have significant value chain (scope 3) emissions and will be required to set a scope 3 target.

Allocating responsibilities of scope 3 emissions presents several challenges as a company's inventory may overlap with those of other companies, suppliers and consumers. Additionally, scope 3 emissions are generally much harder for a company to influence compared to scope 1 and 2 emissions.

Despite these challenges, setting an ambitious scope 3 target generates collaboration opportunities between companies across a value chain for achieving significant emission reductions. ICT supply chains often overlap across ICT companies, with most suppliers being common to more than one market player. Collaborating with other ICT companies that share parts of the same supply chain can facilitate the achievement of scope 3 emission reduction goals.

Measuring and monitoring the performance of value chain emissions also enables companies to identify and manage supply-chain related risks and capitalise on opportunities to enhance the compatibility of their business model to a low carbon world.

The process for setting a scope 3 target is summarised below:



2.4.1 Define target boundary

Companies should use the scope 3 inventory to determine which categories should be covered by the boundary in order to meet the threshold of two thirds of scope 3 emissions. As highlighted in the BT scope 3 inventory example (section 2.3.1), Purchased Goods and Services and Use of Sold Products are likely to be the scope 3 categories accounting for the largest share of emissions.

In addition to meeting the scope 3 threshold, companies should also take into account some key considerations when assessing what their scope 3 target should cover, including:

- Determining the emissions impact of different supply chain activities and suppliers;
- Identifying where the company has the highest level of influence;
- Determining clear supply chain overlaps with other ICT companies; and
- Accounting for stakeholder priorities.

Decide on single or multiple targets

As part of setting a target boundary, companies should choose whether to set multiple category-specific targets or a single scope 3 target combining multiple scope 3 categories. For instance, an ICT company where Purchased Goods & Services and Use of Sold Products represent two-thirds of scope 3 emissions could decide to set:

- Two distinct targets for Purchased Goods & Services and Use of Sold Products; or
- A combined target for Purchased Goods & Services and Use of Sold Products.

Each choice has its advantages and disadvantages. Setting separate targets for relevant scope 3 categories allows customisation of the target to each category, provides a high level of transparency and incentivises the achievement of emission reductions within each category. However, this approach may add complexity in communicating the target to stakeholders as category-specific targets may be based on different approaches (e.g. absolute vs intensity) and be aligned to different ambition levels (e.g. below 2°C vs 1.5°C).

On the other hand, setting a combined target can ensure a more comprehensive management of value chain emissions and higher flexibility in how to implement GHG reductions across all the covered categories. However, this approach will provide less transparency on the targeted emission reductions for each scope 3 category.

Companies are encouraged to set a single scope 3 target when it is possible to apply the same target approach for all scope 3 categories included in the boundary. Emission reductions should then be allocated between categories to achieve the overarching goal. When scope 3 categories require different target setting methodologies to be applied, companies should set separate scope 3 targets to reflect this. See section 2.4.4 for more on scope 3 target setting approaches.

2.4.2 Select base year

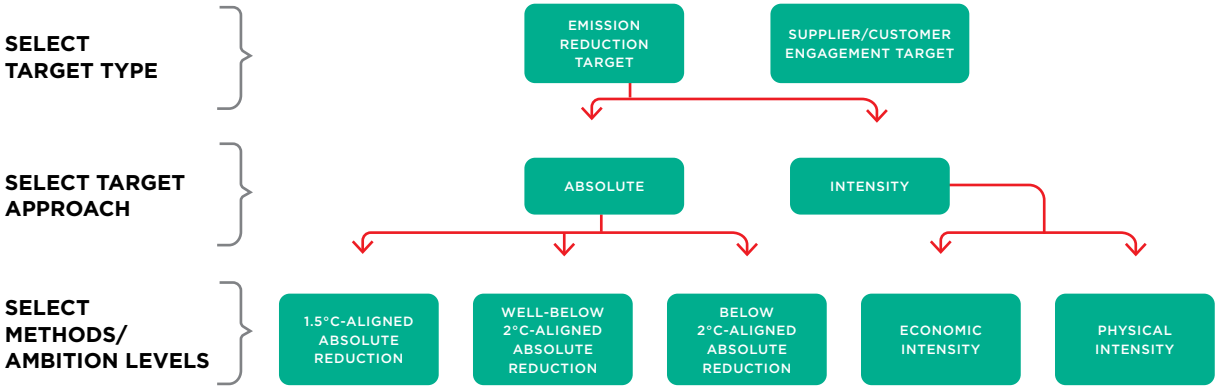
Considerations for selecting a scope 3 base year are the same as for scope 1 and 2 targets (see section 2.2.2). Although companies are allowed to choose a different base year for scope 3 compared to the one selected for the scope 1 and 2, they are recommended to select the same base year for all targets to maintain consistency across scopes.

2.4.3 Select target year

Scope 3 targets should cover a minimum of 5 years and a maximum of 15 years from the date the target is submitted for approval to the SBTi. Unlike scope 1 and 2 targets, scope 3 targets can be set beyond 2030 as the ICT sector decarbonisation trajectory only applies to scopes 1 and 2. As mentioned for the base year, companies are encouraged to keep the scope 3 target year consistent with the scope 1 and 2 target year for consistency.

2.4.4 Calculate target

There are a number of approaches available for an ICT company to calculate its scope 3 target. The diagram below summarises the decision-making process for selecting the appropriate approach. Detailed guidance for calculating scope 3 targets is available in the Science-Based Target Setting Manual.[20]



Emission reduction targets

ICT companies can decide to set an **emission reduction target** for scope 3 emissions. The target would define an emissions percentage reduction to be achieved by the target year, from the baseline year.

Scope 3 emission reduction targets can be determined by applying a GHG contraction rate to either an absolute or an intensity metric. Intensity metrics can be further divided into physical metrics (e.g. tonnes GHG per data traffic or number of subscribers) or economic metrics (e.g. tonnes GHG per unit value-added).

Minimum ambition criteria required for absolute and intensity approaches to be accepted by the SBTi are summarized in table 2.

TABLE 2
Ambition criteria requirements for emission reduction targets

TARGET APPROACH	AMBITION CRITERIA
ABSOLUTE	Targets must align to at least a below 2°C scenario, equivalent to 1.23% reduction per year. More ambitious targets aligned to well-below 2°C and 1.5°C pathways must achieve 2.5% and 4.2% annual emission reductions, respectively.
PHYSICAL INTENSITY	Targets must either be aligned with the relevant SDA sector pathway[21]; or targets must not result in absolute emissions growth and lead to linear annual intensity improvements equivalent to a minimum of 2% per year.
ECONOMIC INTENSITY	Targets must result in at least 7% year-on-year reduction of emissions per unit value added.

20. SBTi, 2019, Science-Based Target Setting Manual, Version 4.0
21. The relevant SDA pathway refers to the sector representing the source of emissions. For instance, for purchases of steel or cement use the SDA for the steel sector or cement sector should be implemented.

Supplier/Customer engagement targets

Alternatively, a scope 3 target can be framed as a **supplier or customer engagement target**. In this case, an ICT company encourages its suppliers and/or customers to adopt science based targets in line with the SBTi criteria (but the supplier/customer targets do not necessarily have to be approved by the SBTi).

The supplier or customer engagement target will apply to a subset of the company's suppliers/customers. The inclusion of suppliers and customers in this subset can be defined by assessing suppliers/customers based on a range of factors, including spend volume, emissions impact, operational risk or other factors that identify specific suppliers/customers as critical for achieving emission reductions. The selection of suppliers and customers to be included must ensure that the overall scope 3 target meets the two thirds threshold of all scope 3 emissions.

To ensure that the engagement target results in timely emission reductions, the suppliers and/or customers must set their science-based targets within 5 years from when the company submitted its target to the SBTi.

Suggested approach

For most MNOs the most suitable options for setting a scope 3 target are likely to be:

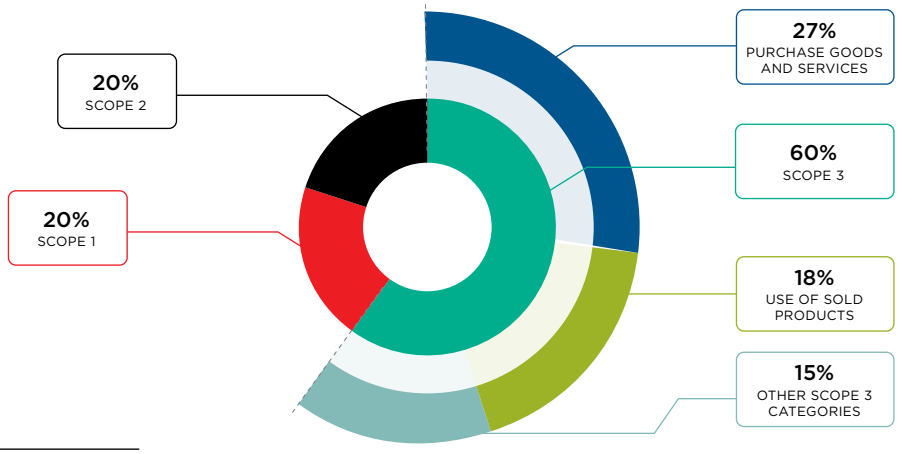
- An absolute target (for both categories 1 and 11), or
- A combination of an absolute target or supplier engagement target for category 1 together with an absolute target or a customer engagement target for category 11

Categories 1 and 11 will mainly include ICT equipment and products. As such, companies are encouraged to consider the ICT sub-sector trajectories developed for the ICT sectoral target-setting approach and Recommendation ITU-T L.1470 '*GHG emissions trajectories for the ICT sector compatible with the UNFCCC Paris Agreement*[22] as references to define a scope 3 ambition level in line with a 1.5°C pathway.

2.5 Worked example

Consider a company with scope 3 emissions making up 60% of its total scope 1, 2 and 3 emissions (Figure 5). Purchase Goods and Services account for 45% of the company's scope 3 emissions, Use of Sold Products account for 30% and the remaining 25% is spread across several scope 3 categories.

FIGURE 5
Example of company emissions breakdown by scope



22. ITU-T, 2020, Recommendation ITU-T L.1470 (01/2020) GHG emissions trajectories for the ICT sector compatible with the UNFCCC Paris Agreement

The company decides to set two separate scope 3 targets covering Purchased Goods and Services (PG&S) and Use of Sold Products, respectively, as these categories represent over two thirds of its total scope 3 emissions.

The baseline year for scope 3 emissions is 2019, representing the latest year of available data. The target year is set at 2030, to match the target year for scopes 1&2.

For PG&S, the company selects a supplier engagement target. In order to meet the two thirds threshold, 80% of suppliers (by spend) are required to set an SBT target.

For Use of Sold Products, the company decides to set an emissions reduction target and to apply an absolute contraction approach aligned to a 1.5°C pathway (4.2% annual emission reduction). The emission reduction target for 2030 compared to 2019 levels is defined by multiplying the required annual emission reduction percentage by the number of years to the target:

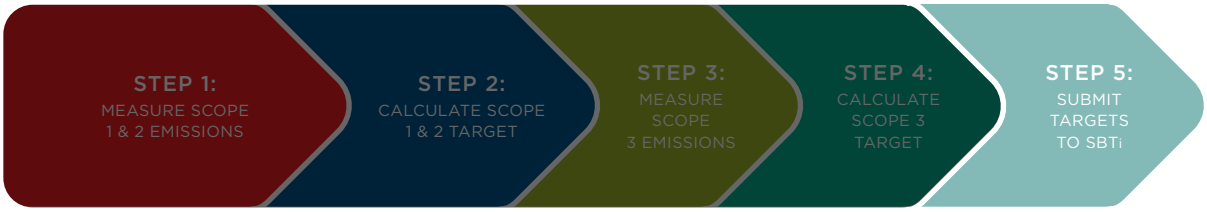
4.2%×(2030-2019)
=
46%

Table 3 summarises the derived scope 3 targets for PG&S and Use of Sold Products. It is worth underlining that the two targets meet the required two thirds threshold, even though only 80% of suppliers are covered by the PG&S target. More specifically, 36% of scope 3 emissions are covered by the PG&S target and 30% by the Use of Sold Products target, giving a total of 66%.

TABLE 3
Summary of scope 3 targets for worked example

CATEGORY	SHARE OF SCOPE 3 EMISSIONS	TARGET TYPE	TARGET	SHARE OF EMISSIONS COVERED BY TARGET
PURCHASED GOODS AND SERVICES	45%	Supplier engagement	80% of suppliers by spend to set SBTs	36%
USE OF SOLD PRODUCTS	30%	Emissions reduction	46% emission reductions by 2030 compared to 2019 levels	30%

2.6 Submitting targets to SBTi



ICT companies will be able submit their targets based on the ICT sectoral target-setting approach to the SBTi for approval starting from March 1st 2020. The submission process and links to the required documentation are outlined below.

As the ICT sectoral target-setting approach is not mandatory, ICT companies may still use the general Absolute Contraction Approach for scope 1 and 2 target setting. However, the ICT sectoral target-setting approach is the recommended approach as it is based on ICT-specific trajectories.

1) Commit to setting a science-based target

Companies can decide to sign and submit a letter of commitment indicating their intention to set a SBT to commitments@sciencebasedtargets.org. In case the company already has an emissions reduction target in place, then the letter serves as a confirmation of interest in having the target independently verified against the criteria developed by the SBTi.

2) Define a target

Once a commitment letter has been submitted, the company has 24 months to develop an SBT aligned with the qualifying criteria defined in the latest SBTi Criteria and Recommendations document.[23]

3) Submit the target for validation

Once a company has defined a target, it has to complete the latest version of the Target Submission Form and email a Word version of the form to targets@sciencebasedtargets.org. To establish the likelihood of a target being validated as science-based and to receive detailed feedback on the implemented approaches, companies may submit a target or a partial target (e.g. only scope 3 target) for a "preliminary valuation". Otherwise, a company can directly submit a target for "official validation", which would cover the full targets only (scope 1, 2 and 3).

Guidance on specific questions of the form is included in pages 14-24 of the latest version of the form, as of February 2020.

4) Announce the target

After having received approval of the target, the company will be contacted by a member of the SBTi communications team to coordinate the public announcement of the target.

23. Latest version as of January 2020: SBTi, 2019, SBTi Criteria and Recommendations, TWG-INF-002, Version 4.0

TABLE 4
List of documents required for submission to the SBTi and link to latest document version as of January 2020

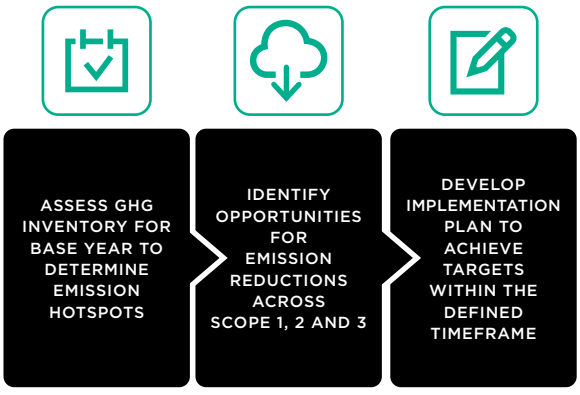
DOCUMENTATION FOR SUBMISSION	KEY INFORMATION REQUIRED	LINK
LETTER OF COMMITMENT	• Company name • Website • Country of headquarter • Sector(s) of operation, • Social media links • Primary/communications contact information	https://sciencebasedtargets.org/wp-content/uploads/2016/12/SBT-Commitment-Letter.pdf
TARGET SUBMISSION FORM & GUIDANCE	• General company information • General information on SBTs of the company and its subsidiaries (if applicable) • GHG inventory scope and approach • GHG inventory data for base year and most recent year • Proposed targets wording, figures and methods/ tools of calculation • Scope 3 target scope and categories covered • Supporting documentation, including background information, discrepancies between submitted data and publicly available data and other information/comments	https://sciencebasedtargets.org/wp-content/uploads/2018/11/SBTi-Target-Submission-Form.docx

See the SBTi step-by-step guide webpage[24] for further details.

2.7 Developing a strategy to achieve the target

2.7.1 How to develop a carbon strategy

Once emissions hotspots have been identified across scope 1, 2 and 3 operations, a company should identify opportunities for emission reductions and plan how to implement solutions throughout the target's timeframe in order to achieve the defined emission reduction goals. A suggested process for developing an SBT strategy[25] is summarised by the diagram below.



24. https://sciencebasedtargets.org/step-by-step-guide/
25. https://www.gsma.com/betterfuture/resources/achieving-climate-targets/

2.7.2 Potential opportunities for reduction

In order for the ICT sector to decarbonise at a pace aligned to a 1.5°C trajectory up to 2030, ICT companies should ensure that their climate strategies include the simultaneous implementation of actions across the following key fields:

- Continued implementation of energy efficiency plans;
- Switch to renewable / low carbon electricity generation and supply;
- Encouragement of carbon consciousness among end-users; and
- Engagement with suppliers across the value chain.

Examples of potential actions for each of the listed fields are outlined below.

Continued implementation of energy efficiency plans

Energy efficiency solutions should be a focal part of an ICT company's decarbonisation strategy to support the creation of emission savings across the business operations and activities. For instance, an MNO should prioritise energy efficiency improvements of network equipment and technologies as these are likely to be the most significant portion of scope 1 and 2 emissions.

At the same time, MNOs should identify opportunities to increase emissions savings for other emissions, such as implementing energy efficient interventions to corporate buildings or upgrading the company transport fleet to more efficient or low carbon vehicles.

Switch to renewable / low carbon electricity generation and supply

For many ICT companies, and those involved in mobile operators in particular, on-site generation plays an important role in their scope 1 emissions. Diesel generators are a typical source used for power generation. Switching from fossil-fuel based onsite-generation to renewables (e.g. solar PV) can provide a significant reduction in a company's direct operational emissions.

Electricity consumption from the grid is also a key part of a mobile network operator's emissions (scope 2). As such, starting to purchase renewable energy would significantly reduce the company's overall emissions. There are several instruments that companies can use for renewable energy procurement, including:

- **Green tariffs:** a share or all of the purchased electricity is matched by purchases of renewable electricity by the supplier on behalf of the contracting party.
- **Energy Attributes Certificates (EACs):** Contractual instruments certifying the origins of generated electricity.
- **Power Purchase Agreements:** long-term contract between a company and an independent power producer or utility in which the company agrees to purchase a set amount of renewable electricity or output from a specific asset.

See the "Resources & Tools" section for further details.

Encouragement of carbon consciousness among end-users

Investing in activities that incentivise consumer awareness of the carbon footprint of ICT products can help speed up the pace of implementing decarbonisation solutions across the sector. Higher carbon consciousness among consumers strengthens the case for decarbonising the whole value chain. This provides additional support to companies trying to engage with their suppliers to reduce value chain emissions.

Engagement with suppliers across the value chain

Supply chain emissions often represent one of the largest impact areas for an ICT company. A strategy for long-term engagement with suppliers should be a key component of the overarching decarbonisation plan. Capitalising on collaboration opportunities with other ICT companies sharing the same suppliers can greatly enhance the effectiveness of the supplier engagement.

3. References and tools

TABLE 5
Key reference documents and tools for ICT companies looking to set SBTs

DOCUMENT TYPE	NAME	DESCRIPTION	LINK
EMISSIONS INVENTORY	A Corporate Accounting and Reporting Standard, Revised Edition, March 2014	Document setting out the standards for GHG accounting. It provides guidance on how to implement GHG accounting systems and setting targets. Case studies are also included.	https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf
	Corporate Value Chain (Scope 3) Accounting and Reporting Standard, September 2011	Document defining the requirements and guidance for companies to calculate their scope 3 emissions. Includes a categorisation of scope 3 emissions in 15 categories.	http://ghgprotocol.org/standards/scope-3-standard
	GHG Protocol Scope 2 Guidance, An amendment to the GHG Protocol Corporate Standard, 2015	Guidance functions as an amendment to the Corporate Standard, providing updated requirements for scope 2 accounting and reporting.	https://ghgprotocol.org/sites/default/files/standards/Scope%202%20Guidance_Final_Sept26.pdf
	The GHG Protocol Calculation Tools	Collection of tools enabling companies and cities to develop GHG inventories and track progress towards their climate goals.	https://ghgprotocol.org/calculation-tools
	Scope 3 Evaluator	Free, web-based tool from Greenhouse Gas Protocol and Quantis to support companies in measuring, reporting and reducing value chain scope 3.	https://ghgprotocol.org/scope-3-evaluator
TARGET SETTING	ITU-T, 2020, Recommendation ITU-T L.1470 (01/2020) GHG emissions trajectories for the ICT sector compatible with the UNFCCC Paris Agreement	Recommendation providing detailed GHG emission trajectories for the ICT sector at a sectoral and sub-sectoral level up to 2030. The document also defines a 2050 ambition.	https://www.itu.int/rec/T-REC-L.1470/en
	Guidance for ICT companies setting science-based targets: Mobile Networks Operators, Fixed Networks Operators and Data Centers Operators	Guidance supporting ICT companies (mobile operators, fixed operators and data centers operators only) in setting SBTs. The document was jointly developed by the ITU, GeSI, GSMA and SBTi.	Published by the SBTi, available on the SBTi website. Also available on the GSMA website at: https://www.gsma.com/betterfuture/climate-company-guidance
	Science-Based Target Setting Manual, Version 4.0, April 2019	Manual providing detailed guidance and recommendations for setting SBTs.	https://sciencebasedtargets.org/wp-content/uploads/2017/04/SBTi-manual.pdf
	Foundations of Science-based Target Setting, Version 1.0, April 2019	Document describing the SBTi's framework for developing target-setting methods and evaluating emission scenarios associated with the methods.	https://sciencebasedtargets.org/wp-content/uploads/2019/04/foundations-of-SBT-setting.pdf
	Criteria and Recommendations, Version 4.0, April 2019	Document setting out the criteria requirements for SBTs to be recognised by the SBTi.	https://sciencebasedtargets.org/wp-content/uploads/2019/03/SBTi-criteria.pdf
	Sectoral Decarbonisation Approach (SDA): A method for setting corporate emission reduction targets in line with climate science, Version 1, May 2015	Guidance document to implementing a Sectoral Decarbonisation Approach for setting SBTs. The ICT SDA approach is not covered in this document.	https://sciencebasedtargets.org/wp-content/uploads/2015/05/Sectoral-Decarbonization-Approach-Report.pdf

DOCUMENT TYPE	NAME	DESCRIPTION	LINK
TARGET SETTING	Target Validation Protocol, Version 1.0, April 2019	Protocol providing support to the interpretation of the SBTi Criteria and understanding how these are assessed by the validation team.	https://sciencebasedtargets.org/wp-content/uploads/2019/04/target-validation-protocol.pdf
	SBTi Call to Action Guidelines, Version 1.5, April 2019	Document outlining the process a company should follow to get its targets approved by the SBTi.	https://sciencebasedtargets.org/wp-content/uploads/2018/10/C2A-guidelines.pdf
	Science-based Target Setting Tool	Integrated target-setting tool for companies looking to set SBTs. Includes the Absolute Contraction Approach and the Sectoral Decarbonisation Approach with updated temperature pathways. A sheet to calculate SBTi aligned scope 3 targets is also included.	https://sciencebasedtargets.org/wp-content/uploads/2018/11/SBTi-tool.xlsx
RENEWABLE ENERGY PROCUREMENT	Energy Attribute Certificates definition - Corporate Sourcing of Renewables: Market and Industry Trends – REmade Index 2018, Glossary	An Energy Attribute Certificate is a contractual instrument that represents information about the origin of the energy generated. Different energy attribute certificates exist specific markets, e.g. guarantees of origin (GOs) in Europe, renewable energy certificates (RECs) in the United States and international certificates such as I-RECs. Unbundled EACs can be purchased separately from the generated electricity.	https://irena.org/-/media/Files/IRENA/Agency/Publication/2018/May/IRENA_Corporate_sourcing_2018.pdf
	Green procurement definition - Corporate Sourcing of Renewables: Market and Industry Trends – REmade Index 2018, Glossary	Green procurement allows a corporate buyer to purchase renewable electricity through either green premium products or a tailored renewable energy contract, such as the green tariff programme offered by some utilities.	https://irena.org/-/media/Files/IRENA/Agency/Publication/2018/May/IRENA_Corporate_sourcing_2018.pdf
	Power Purchase Agreements definition - Corporate Sourcing of Renewables: Market and Industry Trends – REmade Index 2018, Glossary	A Power Purchase Agreement is an arrangement under which a company enters into a long-term contract with an independent power producer or a utility and commits to purchasing a specific amount of renewable electricity or the output from a specific asset (sleeved or virtual), at an agreed price.	https://irena.org/-/media/Files/IRENA/Agency/Publication/2018/May/IRENA_Corporate_sourcing_2018.pdf

DOCUMENT TYPE	NAME	DESCRIPTION	LINK
GSMA DOCUMENTS	Climate Action Roadmap Initiative	GSMA-led initiative to develop a mobile industry climate action roadmap in line with the Paris Agreement. The initiative includes the disclosure of the companies' climate impacts, energy and GHG emissions via the CDP global disclosure system.	https://www.gsma.com/newsroom/press-release/worlds-leading-mobile-operators-to-disclose-climate-impacts-as-part-of-new-gsma-led-climate-action-roadmap/
	MNO Energy Consumption Benchmark initiative	Benchmarking tool allowing operators to compare energy consumption within their networks and understand their positioning compared to industry average.	https://www.gsma.com/futurenetworks/digest/gsma-beta-labs-launches-energy-benchmarking-tool-to-help-operators-monitor-their-energy-consumptions/
	Climate Action Toolkit	Online resource for operators to understand their climate risks and set carbon reduction targets.	https://www.gsma.com/betterfuture/climate-action-toolkit
CASE STUDIES	SBT case studies	SBTi webpage collecting case studies of companies, highlighting the benefits of setting SBTs and the innovations that have been implemented to achieve the commitments.	https://sciencebasedtargets.org/case-studies-2/
	Mobile Creating a Better Future, Reducing Industry Emissions	Examples of the solutions mobile operators are implementing to achieve emission reductions.	https://www.gsma.com/betterfuture/emissions-mitigation

4. FAQs

Why does the ICT approach not follow the standard SDA methodology?

The standard SDA methodology uses pathways from the IEA ETP (Energy Technology Perspectives). The ICT Sector, being a relatively small sector in energy use, does not have a separate pathway in the IEA ETP. Thus, it was necessary to develop a specific pathway for the ICT Sector. In line with current best practice, it was decided to adopt a 1.5°C scenario.

How were the ICT methodologies and pathways derived?

An ICT sector collaboration between the Global Enabling Sustainability Initiative (GeSI), the GSM Association (GSMA), the International Telecommunications Union (ITU), and the Science Based Targets initiative (SBTi) developed the underlying methodologies and pathways. The work has been performed within an open working group populated by the involved organisations and in discussion with their wider membership.

Recommendation ITU-T L.1470 *'GHG emissions trajectories for the ICT sector compatible with the UNFCCC Paris Agreement'* forms the basis of the ICT sectoral target-setting approach methodology and was developed jointly by the involved organisations.

Why has the ICT sector been sub-divided into sub-sectors?

The different sub-sectors that have been defined have different opportunities to decarbonise based on the energy use and technologies. For example, for all operator sectors electricity consumption is the most significant contribution to Scope 1&2 emissions, while for the ICT manufacturing sub-sector this is different. For the mobile telecoms operator sub-sector, there is reliance on diesel for off-grid base stations, and there is predicted to be increases in overall electricity consumption associated with the introduction of 5G. Thus, to reflect such differences it is important to define different trajectories for the different sub-sectors.

What are the ICT sub-sector trajectories aligned to?

The trajectories are compatible with a 1.5°C pathway and are consistent with three normative scenarios:

- IPCC 1.5°C P2 scenario requiring a halving of emissions between 2015 and 2030 (IPCC special report on 1.5°C, 2018);
- SBTi 1.5°C trajectory demanding 42% reduction over 10 years; and
- A 1.5°C scenario, carbon budget approach based on the ICT sector maintaining a fixed share of overall electricity usage (based on IEA ETP).

Why are the reduction percentages for the ICT operator sub-sectors greater than the standard SBTi 1.5°C rate of 4.2% per year?

The trajectories have been developed based on predicted energy consumption for the sub-sectors, and then applying emission factors based on the power sector decarbonising in line with a 1.5°C scenario. While ICT operators have significant opportunities to decarbonise by switching to renewable electricity, emission reductions for ICT manufacturing processes are harder to achieve as these activities are less impacted from shifts in electricity generation/procurement. Thus, keeping the overall sector aligned with 1.5°C requires the ICT operators to decarbonise more rapidly than a 1.5°C standard trajectory.

Why has 2030 been chosen as the maximum allowable target date?

Recognising the fast-changing nature of the ICT sector it is sensible to define the sub-sector trajectories for no more than 10 years ahead, and to both frequently review the overall methodology and for companies to frequently review their individual targets.

Are geographical differences taken into account by the trajectories?

In line with other SDA pathways, no consideration is given for different geographical operations. It is recognised that there are significant differences geographically for ICT operators – specifically different electricity grid factors, and different availability of renewable electricity markets with robust certificates. However, the trajectories are currently based on global average data – e.g. average grid carbon intensity.

It may be possible to address this issue in a future revision of the ICT sectoral target-setting approach, although that would need to follow any generic development of methodology by the SBTi.

Are differentiations based on individual company situation included in the ICT sectoral target-setting approach?

Currently, considerations based on an individual company's situation are not included in the ICT sectoral target-setting approach. However, areas for future potential improvement of the methodology may include:

- Considerations of rapidly growing companies; and
- Considerations for companies that have already made ambitious decarbonisation efforts.

Why is an absolute approach used for the ICT sectoral target-setting approach instead of an intensity approach?

Considerable time was spent investigating potential activity metrics, however no metrics could be defined that adequately captured the production output of the ICT sector. Additionally, and significantly, for the standard SDA methodology, where the convergence point in 2050 is zero (which is what has been adopted for the 1.5°C pathway for the ICT sector), the intensity approach tends to an absolute approach. Consequently, the SBT target becomes quite insensitive to levels of activity.

A complete technical explanation as to why an absolute approach has been implemented is available in the Guidance for ICT companies setting science-based targets document.

Is the ICT methodology compulsory?

The ICT sectoral target-setting approach will not be made compulsory by the SBTi and no differentiation will be made between ICT companies submitting targets for validation based on the ICT sectoral target-setting approach or the absolute contraction approach.

However, ICT companies wishing to set SBTs are recommended to apply the ICT sectoral target-setting approach for their scope 1 and 2 emissions as the methodology is based on an ICT-specific sectoral carbon budget and decarbonisation trajectory.

Will the ICT sectoral target-setting approach be included into the SDA tool?

At this time, it is not expected that the SBTi SDA tool will include the ICT sectoral target-setting approach. The Guidance for ICT companies setting science-based targets and this summary guide document include a table of emission reduction factors that can easily be applied without the need of a tool (see Appendix A, tables 6-8).

Appendix A

Scope 1&2 emission reduction factors

TABLE 6
Mobile Network Emission Reduction Factors

		TARGET YEAR							
		2023	2024	2025	2026	2027	2028	2029	2030
BASE YEAR	2018	0.863	0.824	0.786	0.736	0.686	0.636	0.587	0.537
	2019		0.833	0.794	0.744	0.694	0.643	0.593	0.543
	2020			0.803	0.752	0.701	0.650	0.599	0.548
	2021				0.783	0.730	0.677	0.624	0.571
	2022					0.761	0.706	0.651	0.595
	2023						0.737	0.680	0.622
	2024							0.712	0.651
	2025								0.683

TABLE 7
Fixed Networks Emission Reduction Factors

		TARGET YEAR							
		2023	2024	2025	2026	2027	2028	2029	2030
BASE YEAR	2018	0.764	0.701	0.638	0.582	0.526	0.470	0.415	0.359
	2019		0.717	0.652	0.595	0.538	0.481	0.424	0.367
	2020			0.668	0.609	0.551	0.493	0.434	0.376
	2021				0.653	0.590	0.528	0.465	0.403
	2022					0.636	0.568	0.501	0.434
	2023						0.615	0.543	0.470
	2024							0.592	0.512
	2025								0.563

TABLE 8
Data Centres Emission Reduction Factors

		TARGET YEAR							
		2023	2024	2025	2026	2027	2028	2029	2030
BASE YEAR	2018	0.809	0.755	0.700	0.651	0.603	0.554	0.505	0.456
	2019		0.765	0.710	0.660	0.611	0.561	0.512	0.463
	2020			0.720	0.669	0.619	0.569	0.519	0.469
	2021				0.709	0.656	0.603	0.550	0.497
	2022					0.698	0.641	0.585	0.528
	2023						0.684	0.624	0.564
	2024							0.669	0.605
	2025								0.652

Scope 1&2 GHG percentage reductions per sub-sector

TABLE 9
Sub-sector GHG percentage reductions between 2020-2030

SUB-SECTOR	PERCENT GHG EMISSIONS REDUCTION 2020-2030
MOBILE NETWORK OPERATORS	45%
FIXED NETWORK OPERATORS	62%
DATA CENTRE OPERATORS	53%

Appendix B

B.1 Scope 3 category descriptions

TABLE 10
Scope 3 categories and likely impact on MNO emissions

REF	CATEGORY	DESCRIPTION OF CATEGORY	LIKELY GHG IMPACT FOR AN MNO
1	Purchased goods and services	Extraction, production and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2-8.	High
2	Capital goods	Extraction, production and transportation of capital goods purchased or acquired by the reporting company in the reporting year.	Medium
3	Fuel- and energy-related activities	Extraction, production and transportation of fuels and energy purchased and acquired by the reporting company in the reporting year, not already accounted for in Scope 1 or scope 2, including: • Upstream emissions of purchased fuels • Upstream emissions of electricity • Transmission and distribution losses • Generation of purchased electricity that is sold to end users	Medium
4	Upstream transportation and distribution	Transportation and distribution of products purchased by the reporting company in the reporting year between tier 1 suppliers and our own operations.	Low
5	Waste generated in operations	Disposal and treatment of waste generated.	Low
6	Business travel	Transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the reporting company).	Low
7	Employee commuting	Transportation of employees between their homes and worksites during the reporting year.	Low
8	Upstream leased assets	Operation of assets leased by the reporting company and not included in Scope 1 and 2.	Low
9	Downstream transportation and distribution	Transport and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer.	Low
10	Processing of sold products	Processing of intermediate products sold in the reporting year by downstream companies (e.g., manufacturers).	Low
11	Use of sold products	End use of goods and services sold by the reporting company in the reporting year.	High
12	End-of-life treatment of sold products	Waste disposal and treatment of products sold by the reporting company at the end of their life.	Low

REF	CATEGORY	DESCRIPTION OF CATEGORY	LIKELY GHG IMPACT FOR AN MNO
13	Downstream leased assets	Operation of assets owned by the reporting company and leased to other entities in the reporting year, and not included in Scope 1 and 2.	Low
14	Franchises	Operation of franchises in the reporting year, not included in Scope 1 or 2.	Low
15	Investments	Operation of investments (including equity and debt investments and project finance) not included in Scope 1 or 2.	Low (except where the company has significant investments or Joint Ventures)

For more information see the Scope 3 Guidance for Telecommunications Operators.[26]

B.2 Calculating scope 3 emissions for categories 1 and 11

B.2.1 Category 1: Purchased Goods and Services

Emissions can be calculated using the Environmentally Extended Input Output (EEIO) approach, by allocating procurement categories to the relevant EEIO factors, and multiplying spend by the EEIO emission factor.

The methodological basis of EEIO emission factors is the use of input-output models to understand the GDP value of different sectors of the economy, and to associate that with the GHG emissions incurred by those sectors. At its simplest, the total GHG emissions of the sector is divided by the total GDP value generated by the sector to produce an emission factor of x kg CO_2e/€ value. This represents the average CO_2e emissions per € spent for each sector of the economy.

The EEIO methodology can be refined to a hybrid approach by calculating the emissions from some specific purchased products using a life cycle assessment (LCA) approach. Handsets typically represent a significant proportion of the emissions in the purchased goods and services category for an MNO, thus using an LCA approach rather than an EEIO approach to calculate these emissions is a more rigorous method.

B.2.2 Category 11: Use of Sold Products

Emissions can be calculated by multiplying the number of products sold by the energy usage for that product category over its lifetime and by the electricity emission factor for the country of use. The product categories for an MNO may typically include: handsets, gateways, broadband routers and connectivity, M2M devices, TV and set-top-boxes, netbooks, notebooks and tablets.

26. https://www.gsma.com/betterfuture/resources/scope-3-guidance/

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