

Corporate ambition meets net zero mission

How companies setting science based targets
can help the UK get to net zero

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22 October 2021

This research was funded by the Sky Zero and WWF partnership, and delivered in collaboration with Natural Capital Partners

Glossary

Simple annual reduction	With simple annual reduction of x% we mean a reduction pathway characterised by an absolute emission reduction amount each year which is equivalent to x% of the base year's emissions (but will be an ever larger share of the preceding year's emissions in later years).
Base year emissions	Amount of emissions in the targeted scope in the year that is the reference year for an emissions reduction target. Since some targets do not cover 100% of emissions in a given scope, this amount of emissions may not be equal to the full emissions of the organisation in that year.
CDP	A not-for-profit charity that runs the foremost global disclosure system
CO₂e	Carbon dioxide equivalent – a measure of greenhouse gas emissions in which all greenhouse gases are converted to the equivalent amount of carbon dioxide with the same global warming.
Forbes Global 2000	Annual ranking of the world's largest public companies, based on a mix of the following metrics: sales, profit, assets and market value.
FTSE 100	The Financial Times Stock Exchange 100 Index comprises the 100 most highly capitalised companies on the London Stock Exchange.
Full base year emissions	Total emissions in the base year in the target scope, i.e. 100% of the emissions of the company in the target's reference year.
GHG	Greenhouse gas
NbS	Nature-based Solutions
Net zero	Net zero greenhouse gas emissions denotes a situation where the emission sources (positive emissions) and emission sinks (negative emissions) of a system are in balance, leading to net zero emissions overall.
SBT, SBTi	Science Based Targets, Science Based Targets Initiative
Scope 1, 2, 3	Different sources of emissions are grouped into three scopes as defined by the Greenhouse Gas Protocol. Scope 1 includes emissions from owned and controlled sources, including fuel combustion, company vehicles, and fugitive emissions; Scope 2 includes all emissions associated with the electricity, heating, cooling and steam that the company consumes, Scope 3 includes all other sources in the company's value chain, including upstream and downstream from its own operations.
Target year emissions	Residual emissions in the target year of a target, typically 2030 or 2050. These are the remaining emissions that have not been reduced yet.
TCFD	Task Force on Climate-Related Financial Disclosures

The climate emergency is upon us, with its dire consequences already being felt across the globe. Over the past few months alone, extreme weather events have left areas of Germany, Greece and Brazil devastated. These events demonstrate that climate change is real and it's happening now and – as the latest Intergovernmental Panel on Climate Change report showed – it is caused by society's economic choices. All the while, greenhouse gas emissions continue to grow, placing us on a trajectory for catastrophic temperature rises. It is clear that 'a low emissions revolution is needed'.

While science confirms that climate change is undeniable, it also tells us that it is not too late to do something about it. Limiting global warming to 1.5 degrees Celsius – the goal of the Paris Agreement – is possible if the world approximately halves its emissions by 2030 and reaches Net Zero globally by 2050. As we approach the 26th Conference of the Parties to the UN Framework Convention on Climate Change in Glasgow, it marks a historic opportunity for the international community to spearhead the change needed to raise the climate ambition necessary around the world to meet this goal.

In response to the Paris Agreement, Net Zero has gained global acceptance and has become the focal point for governments and companies, helping to guide their climate ambitions. However, making a commitment is not enough. These commitments must be accompanied with credible transition plans in line with climate science, and these plans need to be delivered. Delivery of ambitious science-based targets will require strong action from governments and leadership across all business sectors. A recent WWF report found that three quarters of the FTSE 100 have committed to a Net Zero target (of 2050 or before), but only 28 per cent have set Science Based Targets (SBTs).

The SBT Initiative (SBTi) defines targets in line with climate science, thereby enabling companies to demonstrate a robust level of ambition. Approximately two-thirds of the UK's territorial emissions came from activities directly under the control of companies in 2019. However, this report, funded by the Sky Zero and WWF partnership and produced in collaboration with CDP and Natural Capital Partners, finds that only a minority of companies in the UK are committed to the highest level of ambition across all 3 scopes, in the short term and long term, in line with 1.5 degrees Celsius. This report was only able to analyse scope 1 and 2 targets from companies due to the data available. If companies continue to set SBT targets (scope 1 & 2) at the current rate, they will only contribute 7%-21% of the total economy-wide reductions required for the Climate Change Committee's (CCC) Net Zero Balanced pathway by 2030.

This report shows how the impact of UK-based companies setting SBTs is crucial for the UK government to meet its Paris pledges. It estimates that if all companies were to immediately set and meet SBTi scope 1 and 2 targets they could achieve over half of the total economy-wide reductions required for the CCC's Net Zero Balanced pathway by 2030. However, for many companies, the majority of their greenhouse gas emissions lie outside their own operations. For example, the scope 3 emissions of the six companies in the case studies in this report amount to more than 12 times their Scope 1 and 2 emissions. Therefore, for the UK government to fulfil its climate pledges, it is imperative that all corporates are committed to SBTs, which includes action on their direct and indirect emissions, by 2023.

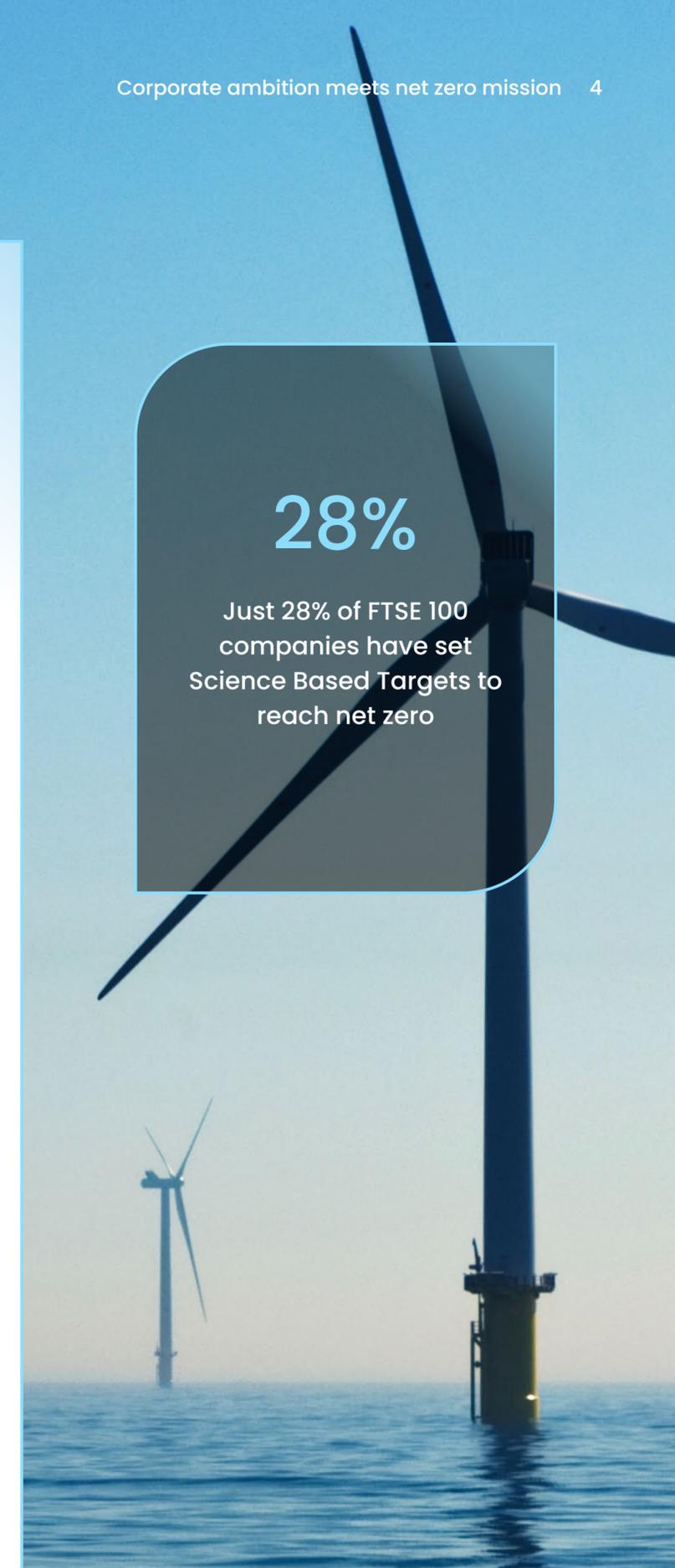
More concerted climate action from the private sector is therefore necessary to ensure the UK is on a pathway to Net Zero. But this report demonstrates that relying on voluntary measures for the private sector's contribution to the UK's decarbonisation goals is not enough. That is why we are urging the UK government to inspire and lead the world by committing to introduce legislation requiring all large, UK regulated companies to develop, disclose and implement transition plans that align with Net Zero and the 1.5°C goal of the Paris Agreement by 2023 at the latest.

We cannot reach Net Zero while we continue to destroy nature. As our COP26 Manifesto says, we need to make nature the climate hero. Ultimately, we need companies to be putting in place net zero, nature positive transition plans.

The case studies in this report show that most corporates are in early stages of plans for nature-based solutions, which highlights the importance of companies focussing on how they reduce their own emissions through targets aligned with the SBTi ambitions, alongside nature-based solutions. A companion report, part of the Sky Zero and WWF partnership, and led by Natural Capital Partners will explore how the UK private sector can demonstrate climate leadership through nature-based solutions, and how government can incentivise a greater flow of private sector finance. It will draw on the Boston Consulting Group and WWF Corporate Climate Mitigation Blueprint as a framework for financing nature-based solution as a complement to delivering Science-Based Targets.

28%

Just 28% of FTSE 100 companies have set Science Based Targets to reach net zero



The UK Government has set a number of climate targets including a legally binding 2050 net zero greenhouse gas emissions target in recognition of the effort needed to limit global heating to 1.5°C in line with the Paris Agreement. Achieving these targets will require stronger action from the government and also action from non-state actors including the private sector. The Science-Based Target Initiative (SBTi) defines emissions-reduction targets in line with the climate science enabling companies to demonstrate a robust level of ambition. However, so far companies representing only a minority of private sector emissions have signed up to targets at the highest ambition level in line with 1.5°C. The aims of this study are to estimate the impact on UK emissions if these companies meet their SBTi targets and what could be the impact if more companies were to set (and meet) such an ambitious target.

Typically, emissions from the supply chain of a company and from the use of their products are many times larger than the emissions under their direct control. To reach net zero globally, companies will also need to act on supply chain emissions. A second aim of the study is to illustrate the types of targets and actions taken on supply chains through a series of case studies of some of the largest companies in selected sectors.

To achieve net zero, companies need to do more than simply reducing their own emissions (both direct and supply chain emissions). Companies also have an opportunity to invest to unlock Nature-based Solutions (NbS) to combat climate change. The case studies also provide details of action in this area. A companion paper from Natural Capital Partners which will be published next year provides more details around the opportunities for NbS for UK companies.

Our analysis sets out to answer five questions:

- Q1 What is the expected emission reduction in the UK from companies **with SBTi targets** (both 1.5°C and 2°C aligned)?
- Q2 What is the expected emission reduction in the UK if **all large companies** set SBTi targets?
- Q3 What is the expected emission reduction in the UK if **all companies** set SBTi targets?
- Q4 What is the expected emission reduction in the UK if **SBTi target setting continues** apace?
- Q5 How will this expected emission reduction **contribute to the UK's decarbonisation** targets?

In addition, we assessed large company action on indirect emissions and the role of nature-based solutions. To answer questions Q1–Q5, we combined publicly available data with proprietary data at company level from CDP, obtained under license by WWF specifically for this project. In this analysis, we have focussed on the potential contribution made by companies and not attempted to assess overlaps with government policies such as decarbonisation of the electricity sector. Clearly there will be some overlap and mutually reinforcing action will be needed. Note that we have quantitatively evaluated the impact of SBT targets on scope 1 and 2 emissions to enable aggregation across companies. Reductions in scope 3 emissions could be additional to this impact depending on the overlap with other companies' targets.

Companies with SBTi targets would reduce UK emissions by 2.2MtCO₂e in 2030.

The universe of companies in the UK with SBTi targets (both 1.5°C and 2°C aligned) is relatively small (88 companies with 92 targets formed the basis of our analysis) and the overall proportion of corporate emissions which are covered by SBTi targets now is less than 3%.

The companies with SBTi targets include only a few of the largest greenhouse gas emitters. These large emitters though are covered by the emissions trading scheme which requires them to reduce emissions or buy permits. The reduction in emissions driven by the emissions trading scheme should be in line with the pathway required for the UK to reach its net-zero target.

27%

Companies with SBTi targets would reduce UK emissions by 2.2MtCO₂e in 2030 – a reduction of 27% compared to 2019.

In addition, while most SBTi targets in the UK are aligned with 1.5°C, some were set earlier in line with 2°C pathways and are therefore less ambitious. In the UK dataset of companies with existing SBTi targets, a small number of companies with large emissions and these less ambitious targets significantly reduce the overall percentage reduction from 2019 to 2030 compared to what would be expected from 1.5°C aligned targets.

In our analysis of the potential for emissions reductions from additional companies committing to SBTi targets, we assumed a linear reduction pathway with a simple annual reduction of around 3.8%.

If all large corporates in the UK immediately set and then met SBTi targets then this could reduce emissions by up to 11–17 MtCO₂e by 2030.

The universe of large UK corporates is defined in this report as the 100 companies on the FTSE 100 Index¹ plus the 77 Forbes Global 2000² listed companies which are headquartered in the UK. There is an overlap between these two groups of 54 companies. The resulted in a total universe of 123 large UK companies (**Figure 1**), of which 121 reported sufficient data to be included in the analysis.³

If this group of companies would commit to science-based targets (scope 1 and 2) from 2022 with the annual reduction rates typical for their sector, they could reduce emissions by 11–17 MtCO₂e below 2022 levels by 2030, an average reduction of 31%. When combined with the emission reductions from the group of companies with SBTi targets, the expected combined reduction is 13–18 MtCO₂e accounting for overlaps.

Had these companies set and implemented SBTs in 2019, they could have contributed as much as 16–23 MtCO₂e by 2030, or 43%, below 2019 levels, in line with the reductions required in the CCC’s decarbonisation pathways. This underscores the urgency for companies to set robust targets as soon as possible if we are to reach the UK’s decarbonisation goals.

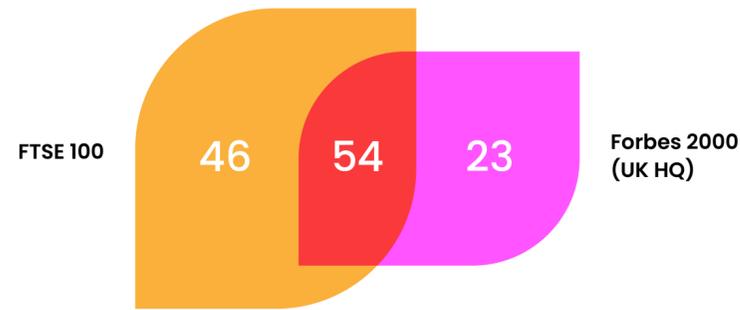


Figure 1 Source of the list of 123 large UK corporates as defined for this study

If all corporates in the UK immediately set and then met SBTi targets, then emission reductions in 2030 would be 100–115 MtCO₂e.

We estimated that around two-thirds of the UK’s territorial emissions, approximately 335–380 MtCO₂e, came from activities directly under the control of companies in 2019. If all companies in the UK were to set scope 1 and 2 emissions reduction targets in line with a linear pathway with a simple annual 3.8% reduction, starting in 2022, they could achieve emission reductions of 100–115 MtCO₂e by 2030, over half of the total economy-wide reductions required for the CCC’s Net Zero Balanced pathway.

If these reductions had started in 2019 already, reductions of ~140–160 MtCO₂e could have been achieved by 2030, a reduction which would have been in line with the CCC’s pathway. This emphasises that companies need to take urgent action on emissions.

¹ The FTSE 100 (Financial Times Stock Exchange 100 Index) comprises the 100 companies listed on the London Stock Exchange with the highest market capitalisation. The financial services sector is disproportionately represented in the FTSE 100, fielding around 20% of the listed companies.
² The Forbes Global 2000 list is an annual ranking of the 2000 largest public companies in the world. In this analysis we use the 2020 list to identify the largest companies based on data from the financial year 2019 (or 2019/20), the same year we estimate emissions for.
³ For two of the Financial Services companies from the FTSE 100 list we did not have consistent Sales information from Forbes, nor did their company reports include emissions reporting.

If the number of companies committing to SBTi targets continues at the same pace as recent years, emissions reductions in 2030 would be around 13–42 MtCO₂e, compared to 2019 levels.

The assumption that all companies in the UK set SBTi (scope 1 and 2) type targets from 2022 likely marks the upper limit of corporate contribution to a 1.5°C pathway. A more realistic scenario is a continued, gradual adoption of SBTi targets by UK corporates. In 2015, an estimated 1–2 MtCO₂e were covered by SBTi targets. By 2017 this had grown to over 4 MtCO₂e and 2019 over 8 MtCO₂e.⁴ If this exponential growth were to continue, an estimated 90 MtCO₂e could be under SBTi targets by 2030.

With an assumption of linear pathway with simple annual reductions of 3.8% for the total group of companies (i.e., continued reductions for the current SBTi group in addition to reductions for the new SBTi joiners), then emissions could be reduced by 13–42 MtCO₂e below 2019 levels by 2030.

The CCC’s Balanced Net Zero Pathway for the UK requires reductions of around 200 MtCO₂e across the whole economy by 2030. To make a significant contribution to this target, corporates need to commit to SBTi targets in the next two or three years. Recent trends in companies signing up to targets show an exponential rate of growth.

The UK has now enshrined a net zero goal for 2050 in law and in 2020 the Climate Change Committee (CCC) presented the 6th Carbon Budget on the way to this goal. The budget was based on the ‘Balanced Net Zero Pathway’ presented by the CCC, shown in **Figure 2**.

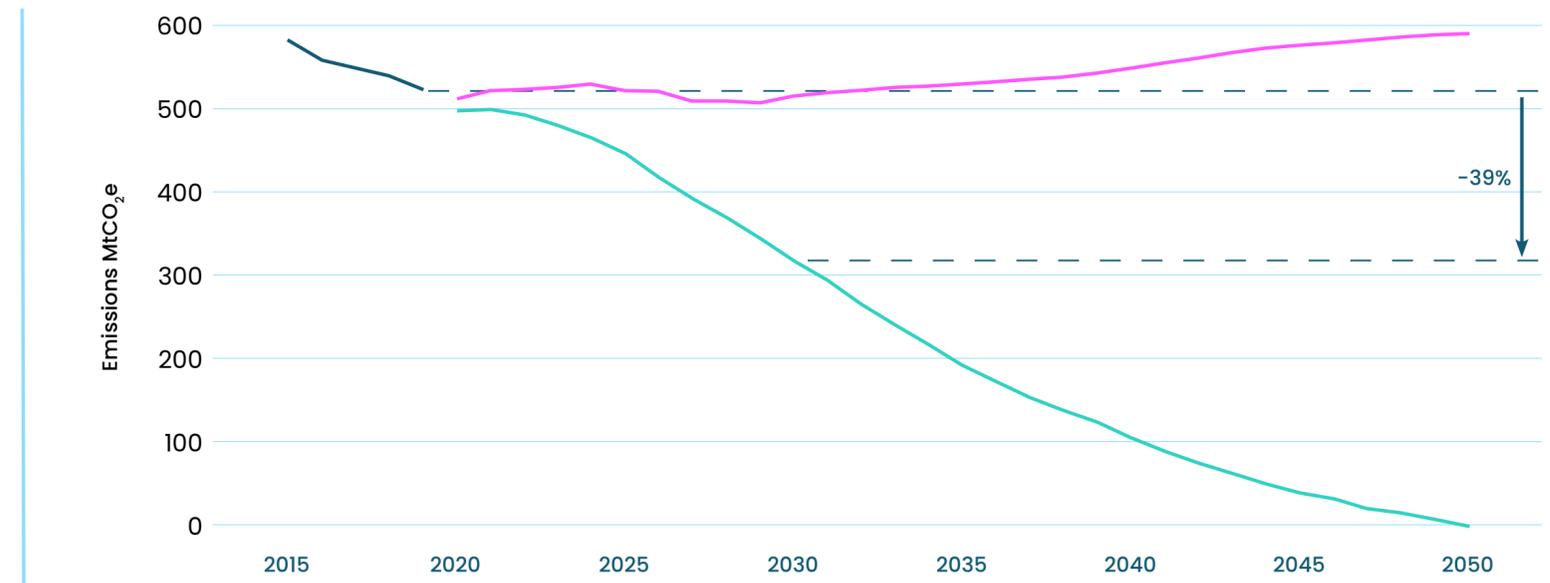


Figure 2 The CCC’s Balanced Net Zero Pathway for the UK

⁴ Based on estimated 2019 UK emissions of the companies covered by SBTi in these respective years.

In the Balance Net Zero Pathway, the entire UK economy needs to reduce emissions by around 200 MtCO₂e by 2030 on the path to net zero by 2050 from a 2019 emissions level of around 520 MtCO₂e (a 39% reduction).

In this context, the emission reductions from existing and additional SBTi (scope 1 and 2) company targets are a necessary but likely not sufficient contribution. Assuming a continued level of SBTi adoption and the targeted reduction path following the CCC's Net Zero pathway for corporate emissions, additional reductions of between 90–140 MtCO₂e may be needed (see **Figure 3**). This gap needs to be filled through additional emission reductions or removals, including through more corporates setting ambitious targets in line with SBTi and at a faster rate.

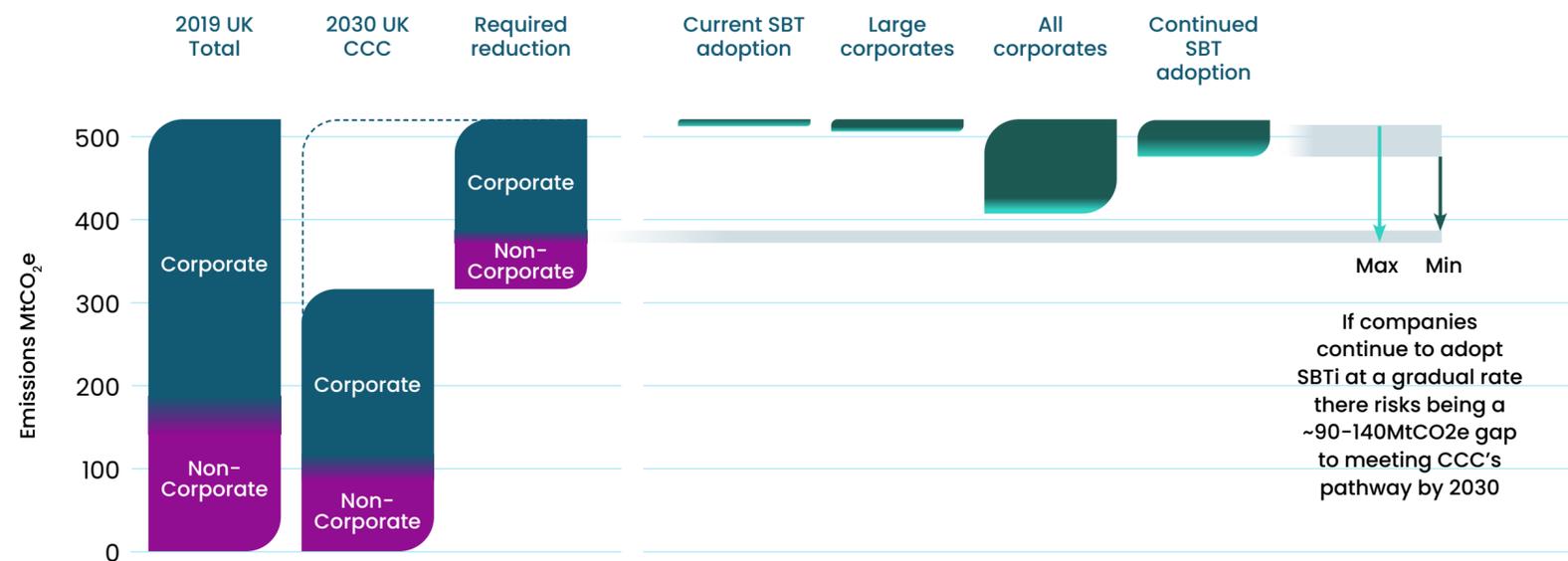


Figure 3 Possible contribution to the required emission reductions by 2030 of various universes of corporations setting SBTs (scope 1 and 2) in or after 2022

The left most column shows the same (historical) emissions as in Figure 2 with an approximate split into corporate and non-corporate emissions. 2nd from the left are UK emissions in 2030 in the CCC's Net Zero Pathway, again with an estimate of the share of emissions under corporate control. The third column shows the difference between these, i.e. the reductions required by 2030, again split by corporate/non-corporate. The four columns on the right show the results from our analysis of how much emission reduction can be achieved in the corporate sector under different scenarios: Current SBT adoption, 121 large FTSE/Forbes companies adopting SBTi in 2022, all corporates adopting SBTi in 2022, continued adoption of SBTi targets at the same rate as in recent years. The arrows on the right show that in the last scenario, of continued adoption, there will be a residual gap of 90–140 MtCO₂e in 2030 in the corporate emissions sector.

As well as action on direct emissions which could contribute to UK targets as discussed, typically a company's indirect emissions (in their supply chain and in the use of their products) are many times the direct emissions from that company. Action on those indirect emissions will therefore be necessary to multiply the contribution to fighting climate change.

Actions on indirect emissions can result in savings in many sectors and in many countries depending on the supply chain of a company and which products it makes. The difficulty in accounting for these indirect emissions in aggregate means that when looking at multiple companies, reductions in supply chain emissions are typically excluded. This is why these emissions have not been included in the analysis described above and instead are illustrated through the appended case studies.

Taking action on supply chain emissions can bring wider benefits by engaging a broader spectrum of stakeholders and bringing wider environmental and social benefits.

All the case studies demonstrate action on supply-chain emissions, although how much of those emissions are within scope of the target and the level of detail reported on those emissions differs between companies. Taken as a whole, the case studies illustrate the range of actions required, including the need to engage a wide range of other stakeholders e.g., consumers, suppliers, farmers, hauliers which increases the scope for positive climate outcomes. In addition, viewing the supply chain holistically can help identify actions which deliver both climate and other environmental and social benefits e.g., reducing packaging or tackling food waste.

Nature-based solutions are part of companies' portfolio of actions, but development of plans and implementation is often at an early stage.

All the companies are also implementing or planning to implement NbS as part of their portfolio. In some cases, this uses opportunities directly associated with their operations or supply chain or by using their products. In other cases, this involves looking for other opportunities. What is also clear from the case studies is that the plans for NbS are mostly in the early stages, with more detailed plans and wider implementation expected in the next few years. This further highlights the importance of companies focussing on how they can reduce their own emissions through targets aligned with SBTi ambitions alongside NbS.

1.1 Background

The UK Government has set a number of climate targets including a legally binding 2050 net zero greenhouse gas emissions target in recognition of the effort needed to limit global heating to 1.5°C in line with the Paris Agreement. However, as the Climate Change Committee 2021 progress report (Climate Change Committee 2021) concludes “it has been too slow to follow these with delivery”. Delivery of the targets will require strong action from the government and also from actors across all sectors, including the private sector. According to the annual report on global climate action from cities, regions and businesses, (Kuramochi et al, 2021) over 800 firms in 10 major emitting economies have already set post-2020 absolute emissions reduction targets (as reported to CDP).

The Science-Based Target (SBT) Initiative defines targets in line with the climate science enabling companies to demonstrate a robust level of ambition. However, companies representing only a minority of private sector emissions have committed to targets at the highest ambition level in line with 1.5°C. The aims of this study are to estimate the impact on UK emissions if companies meet their SBTi targets and what could be the impact if more companies were to set (and meet) such an ambitious target.

As well as reducing their own emissions (both direct and supply chain emissions), companies have an opportunity to invest to unlock nature-based solutions (NBS) for climate change. In this paper, we also provide some case studies of the climate action being taken by the largest companies in selected sectors.

1.2 Objective of this study

This report forms part of a larger project by WWF with the purpose of understanding

- the scale of contribution which corporates are making / could make to the UK effort to reach net zero
- what they can do further to reduce emissions or increase removals globally beyond their own emissions
- the potential contribution from nature-based solutions funded by corporates as part of their commitments under (or beyond) Science Based Targets (SBT) and
- the policy framework required to incentivise more companies to go above and beyond SBTs.

Our analysis presents answers to elements a) and b) above by answering the following questions:

A. Impact of existing SBTi targets on UK emissions

- Q1 What is the expected emission reduction in the UK from companies **with SBTi** targets (both 1.5°C and 2°C aligned)?

B. Potential impact of additional companies setting SBTi targets

- Q2 What is the expected emission reduction in the UK if all *large* corporates set SBTi targets?
- Q3 What is the expected emission reduction in the UK if all corporates set SBTi targets?
- Q4 What is the expected emission reduction in the UK if SBTi target setting continues apace?

C. Contribution to the UK's decarbonisation targets

- Q5 How will this expected emission reduction contribute to the UK's decarbonisation targets?

D. Large companies' contribution to Scope 3 emission reduction

Figure 4 shows this overall project setup structured into three tasks schematically.

800

Over 800 firms in 10 major emitting economies have already set post-2020 absolute emissions reduction targets



Figure 4 Overall project concept

To answer the questions above, we are combining publicly available data with proprietary data at company level from CDP, obtained under license by WWF specifically for this project. (CDP 2020b; 2020a) In this analysis, we have focused on the potential contribution made by companies and not attempted to assess overlaps with government policies such as decarbonisation of the electricity sector. Clearly there will be some overlap and mutually reinforcing action will be needed.

NB: We use the term 'Science-Based Targets = SBT' in this report to exclusively refer to targets which have been validated and approved by the Science-Based Targets Initiative (SBTi). All other targets are referred to as non-SBTi targets even though some of them may well be in line with, or even exceed, the necessary reductions for an emissions pathway that would achieve the Paris Agreement long-term temperature goal.

1.3 Structure of this report

Sections 2–5 lay out our answers to the questions above in turn, including spelling out the approach and sources used. Section 6 summarises the findings and considers implications for the overall project.

2. Impact of existing SBTi targets on UK emissions

2.1 Background

Whether or not the targets set by corporations with activities in the UK will make a material contribution to reaching the UK's decarbonisation goals depends on three factors:

- whether enough companies have set targets
- whether these targets are strong enough, and
- whether the targets are met.

This section addresses the question of target strength, with the next section focussing on the impact of increasing the number of companies setting targets. For target strength we use a sample of companies with targets which are considered best-in-class, namely science-based targets. Our analysis assumes that companies will meet the targets they set.

There are 119 UK-based companies with approved Science-Based Targets listed in the publicly available SBTi database (status 8 Oct 2021). Four fifths of these (99) have set 1.5°C compatible targets with the remaining 20% (20) having 2°C or well-below-2°C targets. Globally, almost 1,000 companies have set SBTs, with two-thirds of these 1.5°C targets. The SBTi are consistently updating their methodologies and ambition for corporate action. The remaining companies without 1.5°C targets are expected to gradually update their targets to the highest ambition as the pathways become more viable in their sectors.

Many companies operate internationally, but not all report their emissions at the country level. Because in this analysis we are interested in UK emissions only, but also want to cover the largest possible section of UK corporate emissions, we have chosen to define the sample group of companies for this first part of the analysis as **all those companies that report their UK emissions to CDP explicitly** whether or not they are headquartered in the UK.

2.2 Q1: What is the expected emission reduction in the UK from companies with SBTi targets?

In our analysis we only include companies which have set SBTs, under the assumption that these have been designed to effect Paris Agreement compatible emissions reductions. We then assess the combined emission reduction *within the UK* expected from these companies and compare this to the UK's decarbonisation pathway as laid out in the Climate Change Committee's Balanced Net Zero Pathway scenario.⁵

2.2.1 Approach

We followed this overall approach to estimate the expected UK emission reductions of companies with SBTs active in the UK using the CDP Targets dataset:

1. We filtered the CDP targets dataset to those **companies** which had **reported emissions in the UK at least once since 2015** and which have a **science-based target covering Scopes 1 and/or 2**.

Note that some companies had one target covering both scopes, some only covered one scope and some had different targets for the two different scopes. We treated each of the targets as independent.

2. From the Scope 1 and 2 emissions reported by the company for the UK and globally, in the most recently available inventory year which contained an emissions split by country⁶, we calculated a UK share of global company emissions and assumed that this had not changed significantly since the inventory year. We calculated this share by dividing the company's reported UK emission in the given scope by the company's reported global emissions in that scope. This resulted in a **'time-independent' assumption on the UK share of emissions by scope** for each company.

This was necessary because few companies report country level emissions by scope every year

3. For each company target, the CDP database contains emissions in the base (and target) years and an emission reduction amount based on the base year emissions and percentage reduction target. For those targets where the base year emissions did not cover 100% of the emissions in the stated scope, we calculated the **full base year emissions**.⁷

119

There are 119 UK-based companies with approved Science-Based Targets listed in the publicly available SBTi database

⁵ We do not estimate the additionality of the reductions by the SBTi companies to the UK emissions under current policy / UK ETS rules, but rather consider the SBTi and other corporate targets to be one of the tools to achieve UK reduction objectives. This can be considered a conservative estimate.

⁶ Around 60% of the companies had provided country-level emissions in the most recent inventory years (2019/2020), with another third providing this detail in their submissions from 2015/16/17. Less than 10% had their country detail taken from submissions before 2015.

⁷ NB: Because of limited backwards reporting these values do not necessarily take into account boundary or reporting methodology changes, but may present numbers from the time the target was set. At aggregate level and within the uncertainties of this analysis, these changes are expected to be small.

4. We then used the UK emissions share from Step 2 to estimate the **UK emissions** for the full stated scope in the base year per company and target.⁸
5. We then assumed a linear path of the emission reductions from base to target year, resulting in estimated full scope emissions for 2019, 2025 and 2030. Where a target year was before 2025/2030, we did not assume additional reductions beyond those reported in the target.
6. Where a company reported targets which overlapped in time and scope, e.g., where a 2030 and a 2050 target had been set for the same scope, we prioritised the target with the lowest resulting emissions in 2030.
7. Finally, we summed across companies and targets. Note that in principle one should do this twice as follows:
 - Once for all targets but excluding any companies in the energy generation sectors to avoid double counting Scope 2 emissions, and
 - Once only for targets covering Scope 1 but for all companies.

However, in our dataset only the first option was used as the dataset contained very few targets defined for Scope 1 only. In other words, most targets were reported for Scope 1 and 2 combined, necessitating the exclusion of energy generation companies.⁹

2.2.2 Results

Of the total number of 553 active targets of companies with emissions in the UK in the filtered dataset (see Appendix A.1), 203 were SBTi targets. Just over half of these SBTi targets (110) covered Scopes 1 and 2 and formed the basis for our analysis (see **Figure 5**). The share of Scope 1 and 2 targets in the full target group of 553 targets, containing both SBTi and non-SBTi targets, was a little higher at around two-thirds (367). In total 271 companies were responsible for the 367 Scope 1 and 2 targets, 90 of these companies had at least one SBTi target.



Figure 5 Characterisation of the CDP Targets dataset before aggregation

⁸ Where a company had only reported UK emissions in Scope 1 or 2, but their target covered both scopes together, we assumed that the UK share in the missing scope was equal to the reported scope share.

⁹ This may mean that we are slightly underestimating the impact of the current SBTi targets, by excluding the energy generation companies. Given that there is some overlap between the Scope 2 emissions of the non-energy generation companies and Scope 1 of the energy generators, and given that the base year emissions were around 8.1 MtCO₂e and 2.9 MtCO₂e, respectively, this underestimate may be up to a third.

The final set of 110 SBTi targets only contained five targets which covered Scope 1 only. While it is instructional to look at the reductions in that group, our focus was on the larger set. That full set contained two targets of power generation companies (heat generation did not appear) which were excluded from any aggregations to avoid double counting of Scope 2 emissions, leaving a total of 108 targets to be considered. We then removed 16 overlapping targets as described above. Thus, the final aggregation included 92 company targets.

Figure 6 shows the estimated annual aggregated UK emissions and reductions for this set of SBTi targets. In aggregate, and under an assumption of a linear reduction trajectory, we expect a combined emission reduction of around 1.6(-2.2) MtCO₂e by 2025 and 2.2(-3) MtCO₂e¹⁰ by 2030, from a 2019 base year estimate of ~8(-11) MtCO₂e. This corresponds to reductions of 20% and 27%, respectively.

We do not know exactly which emissions trajectory the companies are planning to meet their targets. However, as the dotted trendlines in Figure 6 indicate, in aggregate the reductions to not appear to be on a path to net-zero by 2050¹¹. This could mean that although the expected reductions in Scope 1 and 2 from this group of companies is significant, it is not likely to lead to a trajectory of net zero by mid-century, unless followed up by much more stringent targets in the near future.

A more detailed look at the data shows that there is a large variation in the target strength between the companies. The results below are significantly influenced by 2 very large companies with modest emission reduction targets. Removing these two companies from the sample increases the expected reduction to 2030 to 35% below 2019 levels. For more detail, see also Appendix A.4 .

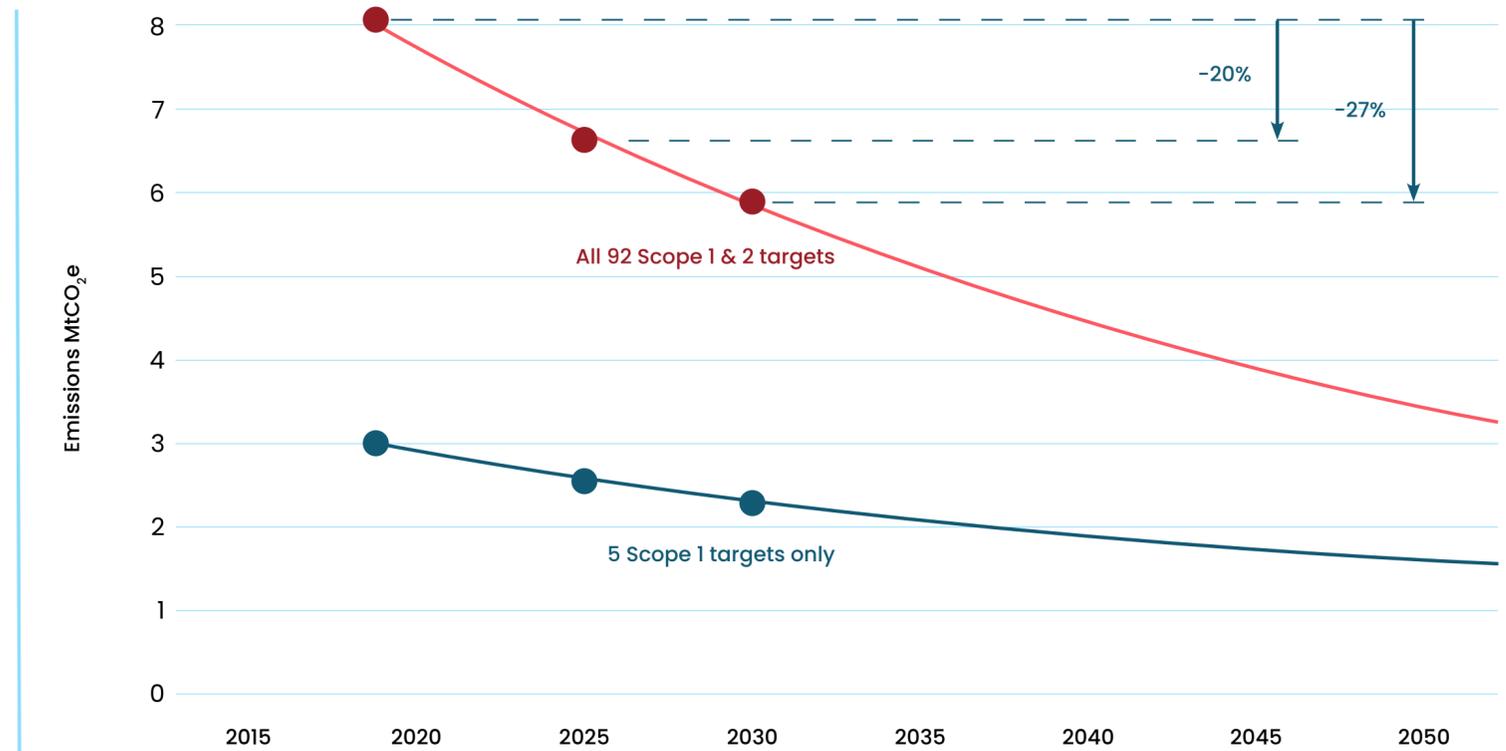


Figure 6 Estimated UK emissions in 2025/2030 vs 2019 for companies with SBTi targets

We also calculated the expected reductions for the full group of 367 targets. These resulted in reductions of over 40% by 2030 below 2019 levels. This is higher than for the SBTi companies over the same period, which is unexpected as science-based targets are considered as ambitious targets. However, the difference is explained by the smaller sample size for the SBTi companies and the impact of outliers as outlined above. See also Appendix A.4 for a discussion on these.

¹⁰ The upper bound values stem from an estimate of the uncertainty that results from the exclusion of the 5 targets from power generation companies due to the merged Scope 1 and 2 emissions data. As explained in Footnote 9, this may lead to our analysis underestimating the impact by up to a third.
¹¹ Note that we assume a linear path from base to target year at the individual target level, but this does not result in a linear path overall as each target differs in size as well as base year emissions, base year and target year.

3. Potential impact of additional companies setting SBTi targets

3.1 Background

As we have discussed in the previous sections, only a small share of UK corporate emissions is currently covered by SBTi approved targets. Dissemination of best practices in target setting among corporate decision-makers is therefore critical to achieve the fast reductions necessary to 2030. Adoption of an SBTi by the UK's largest corporations is a necessary and urgent contribution.

In this section we assess what emissions savings could be achieved by 2030 in three scenarios of additional SBTi target adoption:

- A scenario where the largest UK companies adopt an SBTi (Section 3.2)
- A scenario where all corporates in the UK set an SBTi in 2022 (Section 3.3)
- A scenario where not all corporates set an SBTi but where SBTi adoption continues at its current speed (Section 3.4)

We present each of these scenarios in turn.

3.2 Q2: What is the expected UK emission reduction if all large companies set SBTi targets?

To understand the possible size of a contribution from all large corporations with operations in the UK to this reduction of 200 MtCO₂e, we need to estimate

- The total size of UK emissions in 2019 of large corporates
- The annual emission reduction we expect from UK companies who set SBTs, given the ambition level of the companies in our SBTi group (split by sector)

We have chosen to define the universe of large UK corporates as the 100 companies on the FTSE 100 Index plus companies headquartered in the UK which appear in the Forbes Global 2000 list.

The FTSE 100 (Financial Times Stock Exchange 100 Index) comprises the 100 companies listed on the London Stock Exchange with the highest market capitalisation. The financial services sector is disproportionately represented in the FTSE 100, fielding around 20% of the listed companies. The contribution of this sector to the UK's economic output (in terms of Gross Value Added, GVA) was 6.3% in 2019. (Hutton and Shalchi 2021)

The Forbes Global 2000 list is an annual ranking of the 2000 largest public companies in the world. The ranking is based on four metrics: sales, profits, assets and market value. (Murphy 2018) In this analysis we use the 2020 list to identify the largest companies based on data from the financial year 2019 (or 2019/20), the same year we estimate emissions for.

3.2.1 Approach

Estimating the UK corporate emission amount from large companies in 2022 and 2019

To assess the **size of 2019 UK emissions of the large corporate group**, we took the following steps:

1. As described above, we defined the full universe of large corporates as
 - a. companies included in the FTSE 100 list, plus
 - b. companies included in the Forbes Global 2000 list if headquartered in the UK
2. For each of these companies we took a different approach to estimating emissions based on the data we could find on them:
 - a. **Group A** contains companies that reported UK emissions for ~2019 to CDP through CDP's standard climate questionnaire. These were used as long as the reporting period had at least 7 months in 2019.
 - b. **Group B** contained companies which did not report country level emissions for 2019, but for which we estimated 2019 UK emissions based on their targeted reductions, i.e., companies within the group of 274 from Section 2.2.2.
 - c. **Group C** contains companies that reported global emissions for ~2019 to CDP through CDP's standard climate questionnaire, but not UK emissions.
 - i) Where possible, we tried to find UK reported emissions from their company reports.
 - ii) Where this was not available, we estimated their UK emissions by making an assumption of their UK share of total emissions, either based on the UK share of another emissions scope, UK sales/revenue vs global sales/revenue, or based on their stated country coverage and those countries' relative GDP.
 - d. **Group D** contains companies that do not report to CDP at all but where
 - i) we found UK emissions in company reports or
 - ii) we found global emissions which we scaled to the UK based on company metrics, where available, or GDP per country where not
 - e. **Group E** contains companies that do not report to CDP and where we were unable to find company emissions at all.
 - i) Here we used a sectoral emissions intensity (per unit of USD sales) to estimate global emissions and then scaled to UK emissions using GDP per country

Estimating the average annual emission reduction for SBTi targets for these large companies

To estimate the expected annual emission reduction we may expect if these large companies were to set SBTs from 2022, we calculated the arithmetic mean of the annual reduction percentages across the 92 SBTi targets for each individual CDP industry sector. Where a sector had fewer than 4 companies in the SBTi group, we used the average value of 3.8%. We found that annual reduction values range from 2.1% for the Infrastructure industry group to 7% in the Apparel group. The annual reductions per industry group were used to calculate expected 2030 emission levels per large company if they set and implemented an SBTi from 2022.

Note that we used the arithmetic mean across all companies to avoid skewing the assumptions towards large companies in our sample with relatively modest targets. See Appendix A.4 for further discussion.

3.2.2 Results

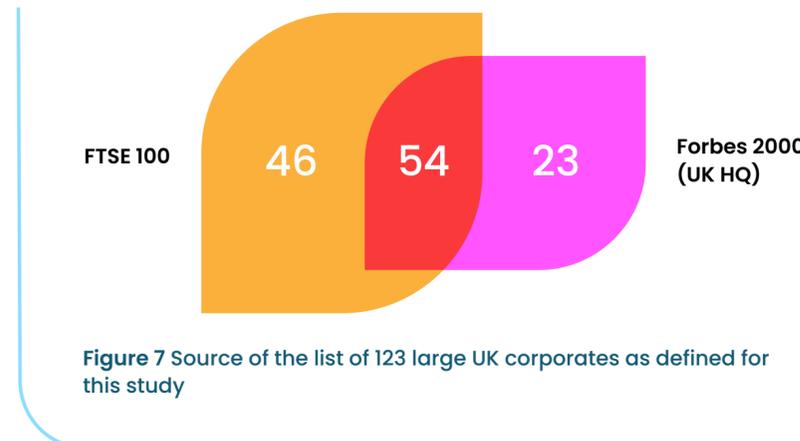
The Forbes 2000 list contains 77 companies with UK headquarters. 54 of these were also part of the FTSE 100 list. The resulted in a total universe of 123 large UK companies (Figure 7). The full list is shown in Appendix B.

Around half the companies (58) reported UK emissions directly through CDP for both Scope 1 and 2. For the other half, we employed the techniques described above to infer 2019 UK emissions with varying degrees of uncertainty as described below.

Group A: 58 companies which reported UK country detail in both, Scope 1 and 2, for 2019 and we attached a low uncertainty to this ($\pm 5\%$). For the 5 companies which only reported UK level emissions for Scope 1, but not for Scope 2, we tried to estimate Scope 2 as best we could. For example, if Global Scope 1 and 2 emissions were reported, but only UK emissions for Scope 2, we used the share of the UK in global Scope 1 emissions to estimate UK Scope 2 emissions from the global level. This approach was taken for two companies, one Services company and one infrastructure company and recorded with an uncertainty of $\pm 25\%$.

Group B: There was only one company (Industry: Biotech, Healthcare & Pharma) in our sample for which we had no UK country level data in the CDP emissions dataset but we did have our estimated data on UK emissions from the CDP targets data set, i.e., while the company did not report UK level emissions detail in 2019, they had done so in a previous year and allowed us to estimate their UK emissions from that prior year share and their global 2019 emissions report. We attached a very high uncertainty ($\pm 70\%$) to this estimate.

Group C: For four companies, we found UK 2019 emissions in their own reports, or information which allowed us to infer these values, e.g., from number of employees per country. Depending on how robust the information in the reports was, we used a very low (0%) or higher ($\pm 40\%$) uncertainty. For all companies where this was not possible, but which had reported global emissions and a country coverage to CDP, we estimated their UK emissions by splitting their global emissions over the countries



in their reporting, using each country's 2019 GDP as a proxy. We attached a differentiated uncertainty to this based on industry, ranging from $\pm 50\%$ for the Services industry to $\pm 10\%$ for the Materials sector.

Group D: This group consists of companies which do not report to CDP but for which we were able to find emissions either at global or at UK level in their own company reports. If UK emissions were not given directly, we estimated 2019 UK emissions from UK emissions share in other years from the company's own reporting, or from global emissions split by revenue, energy use, customers or employees by region and their regional coverage. The resulting uncertainty estimates ranged from 0% to $\pm 40\%$.

Group E: For companies which do not report to CDP and where we could not find any robust information allowing us to infer UK emissions, we estimated emissions based on 2019 sales from FORBES and on the emissions intensity per unit of sales from companies in the same sector from the preceding groups. Again, we attached a differentiated uncertainty to this based on industry, but since all 10 companies in this group came from the Materials, Manufacturing, Services and Transportation sectors, we recorded all their estimates with $\pm 50\%$ uncertainty.

The group label in Figure 8 shows the technique employed for Scope 1 if it differed for the two scopes; this only happened in 8 companies.

	A	B	C	D	E	F
Data availability	CDP UK data	CDP Targets	CDP global	Non-CDP data	Sales only	No data at all
Global			CDP 2019 global data	Company reports		
UK	CDP 2019 country data	Estimate from targets	Company reports or scale from global emissions	Company reports or scale from global emissions	Estimate from sectoral emissions intensity	Excluded
Number of companies	63	1	28	21	8	2

Figure 8 Approach to estimating UK emissions based on data availability for companies

We found 2019 UK emissions of 37 MtCO₂e to 53 MtCO₂e¹² for the group of 121 companies, or around 7%–10% of total UK emissions. As outlined in Section 3.2.1, this level is expected to decrease and then rebound until 2022, to a level <0.1% above the 2019 level.

If this group of companies would commit to science-based targets from 2022 with the annual reduction rates typical for their sector, they could contribute between 11–17 MtCO₂e to the overall required reduction target of 200 MtCO₂e in the CCC's pathway, an average reduction of 31% below 2022 levels. If these companies had set and implemented SBTs in 2019, they could have contributed as much as 16–23 MtCO₂e by 2030, an average reduction of 43% below 2019 levels.

These reductions of 11–17 MtCO₂e are not fully additional to the 2 MtCO₂e reductions from the 90 companies with SBTs above. This is because eleven of the 121 large corporates are also part of the list of 90 companies with SBTs. When accounting for this overlap, the combined emission reduction is estimated at 13–18 MtCO₂e.

¹² This final uncertainty range includes the uncertainties by Group (A-E) above, as well as uncertainties across scopes (summing only Scope 1 across all companies vs summing Scopes 1 and 2 across companies that are not energy generation companies).

3.3 Q3: What is the expected emission reduction in the UK if all companies set SBTi targets?

What emission reduction compared to 2019 levels could we achieve if the entire corporate sector in the UK were to set a science-based target early in 2022? To answer this question, we need two pieces of information:

- What is the expected emission level for the corporate sector in 2022 in the UK?
- What is the (average annual) emission reduction we expect from UK companies who set SBTs?

3.3.1 Approach

Estimating the UK corporate emission level in 2022 and 2019

According to the UK's National Atmospheric Emissions Inventory (UK Department for Business Energy and Industrial Strategy (BEIS) 2021), the UK totalled just over 500 MtCO₂e in 2019. By mapping each of the underlying ~1,600 categories to corporate, private and public sectors, we estimated that around two-thirds of these emissions, approximately 335–380 MtCO₂e are from activities directly under the control of companies in 2019.

To estimate the 2022 emissions from the corporate sector under 'business as usual', we used the baseline emissions pathway from the 6th Carbon Budget report. In that pathway, economy-wide emissions are roughly stable from 2019 to 2022 with a minimal <0.1% growth (dipping in 2020 and rebounding in 2021/2022). We therefore estimate emissions in the corporate sector in 2022 at 335–380 MtCO₂e.

Estimating the average annual emission reduction for SBTi targets

What is a likely (simple) annual reduction percentage for future SBTi targets? The average annual emission reduction in the SBTi target group is around 3.8%. This would imply a reduction of ~42% between 2019 and 2030, in line with the CCC's Balanced Net Zero Pathway. When starting from 2022, we may still expect around to reach around 30% reduction by 2030 below 2022 levels.

Note that we used the arithmetic mean across all companies to avoid skewing the assumptions towards large companies in our sample with relatively modest targets. See Appendix A.4 for further discussion.

3.3.2 Results

Using the assumptions above, we conclude that if all companies in the UK were to set emission reduction targets with simple annual reductions of around 3.8%, in line with typical reductions seen in SBTi companies, starting in 2022, this would achieve emission reductions of contribute 100–115 MtCO₂e to the total reduction effort of 200 MtCO₂e. If these reductions had started in 2019 already, reductions of ~140–160 MtCO₂e could have been achieved by 2030, in line with the CCC's Balanced Net Zero pathway. To achieve these reductions when starting in 2022, simple annual reductions of 5.2% are necessary, underscoring the need for early action.

3.4 Q4: What is the expected UK emission reduction if SBTi target adoption continues?

In the previous section we estimated the possible emission reduction if all companies in the UK were to set SBTi type targets from 2022. A more realistic scenario (unless action is taken to increase the numbers of companies adopting targets in line with SBTi) is a continued, gradual adoption of SBTi targets by UK corporates. Here, we assess what a likely emission reduction in 2030 could be under such SBTi adoption rates.

3.4.1 Approach

To estimate the likely number of companies, or rather amount of corporate emissions, which may be subject to SBTi targets, we modelled an upper and a lower bound of SBTi target adoption, based on the (short) period of data from the last ~4 years since the launch of the SBTi initiative in 2015. This resulted in an estimate of the amount of emissions covered by SBTi targets for each year between 2022 and 2029.

We then assumed the same simple annual reduction as above (~3.8%) for each additional group of companies setting SBTi targets between now and 2030, leading to higher reductions in 2030 for the early actors.

3.4.2 Results

In 2015, an estimated 1–2 MtCO₂e were covered by SBTi targets. By 2017 this had grown to over 4 MtCO₂e and 2019 over 8 MtCO₂e.¹³ If this exponential growth were to continue, an estimated 90 MtCO₂e¹³ could be under SBTi targets by 2030.

With an assumption of simple annual reductions of 3.8% for the total group of companies (i.e. continued reductions for the current SBTi group in addition to reductions for the new SBTi joiners) this could reduce emissions by 13–42 MtCO₂e below 2022 levels by 2030. See Appendix A.2 for more details.

4. Contribution to the UK's decarbonisation targets

4.1 Q5: How will this expected reduction contribute to the UK's decarbonisation targets?

The UK has now enshrined a net zero goal for 2050 in law (UK Department for Business 2019) and in 2020 the Climate Change Committee propose the 6th Carbon Budget on the way to this goal (Climate Change Committee 2020). The budget was based on the 'Balanced Net Zero Pathway' presented by the CCC, shown in **Figure 9**.

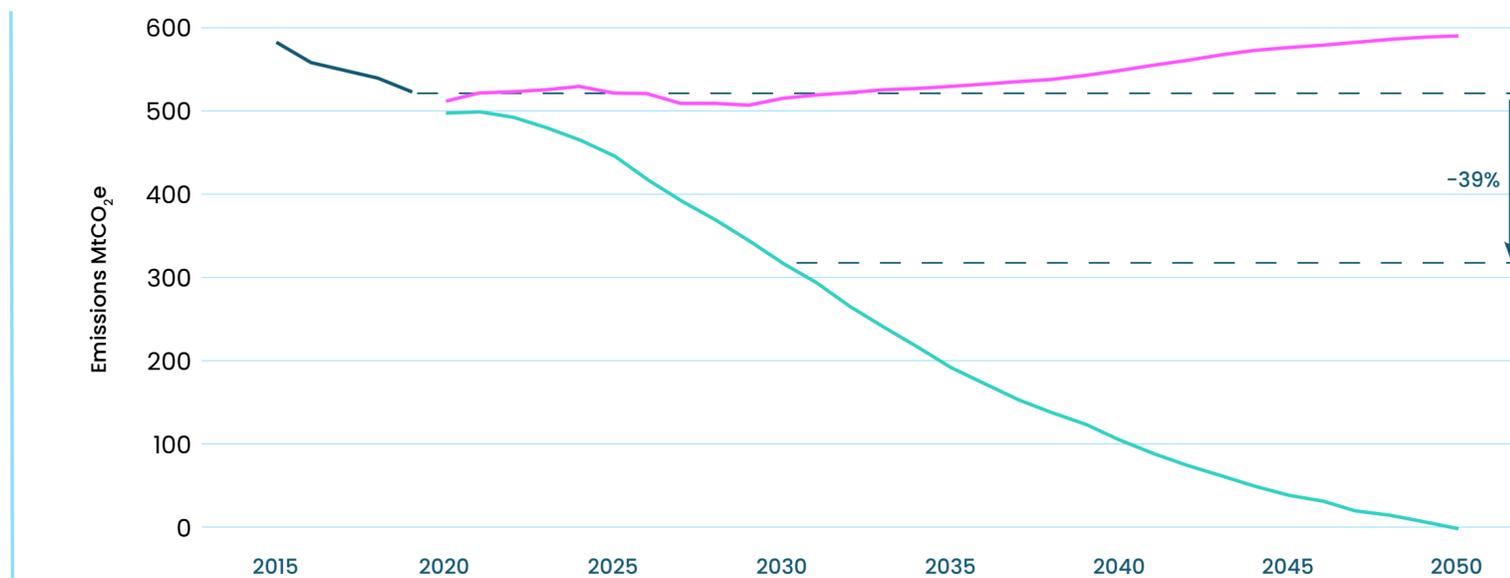


Figure 9 The CCC's Balanced Net Zero Pathway for the UK

In this pathway, from a 2019 emissions level of around 520 MtCO₂e, the entire UK economy needs to reduce emissions by around 200 MtCO₂e by 2030 on the path to net zero by 2050. This represents a 40% decrease in emissions within a decade (see **Figure 9**). This reduction will not be split evenly over sectors, with some sectors expected to reduce more and some less. However, given the sectoral makeup of the CCC pathway, it is expected that reductions in the areas of the economy under corporate influence will need to be of a similar size, on average, compared to the total reductions, i.e. around 40% within a decade.

Emission reductions are not spread evenly over the different sectors, reflecting the ease which these reductions can be made in each sector. Figure 10 shows the sectoral split of the current (2019) UK emissions and their split in 2030 in the decarbonisation pathway, as well as the % reductions for each. It is clear that the industrial sector, already regulated under the emissions trading scheme, is expected to contribute substantially to the reduction, as well as surface transport, given the rapid maturation of alternative engine and fuel technologies. By contrast, reductions from the built environment and agriculture are more modest reflecting the slow stock turnover for the former and the hard-to-abate residual emissions from non-energy emissions in the latter.

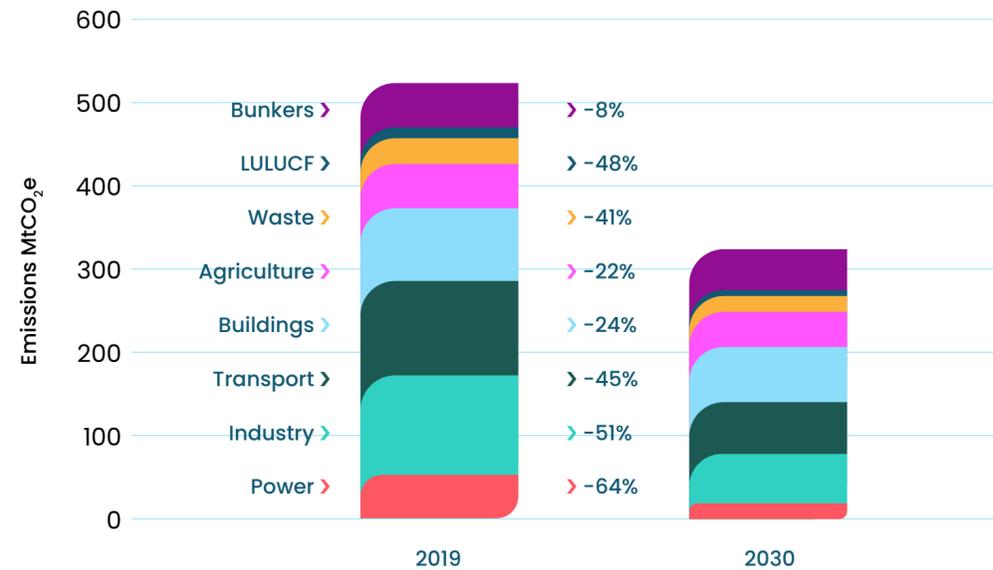


Figure 10 2019 and 2030 emissions per sector in the CCC's Balanced Net Zero Pathway for the UK

We have analysed four possible universes of corporates who could contribute to achieving this goal by setting SBTs:

- The group of current companies with SBTi targets
- A group of 121 of the largest companies in the UK, assuming they each set and implement an SBTi from 2022 if they have not done so yet¹⁴
- The entire universe of companies in the UK, assuming they each set and implement an SBTi from 2022
- The possible emission reductions from a gradually expanding universe of companies with SBTs, predicated on an extrapolation of the historical growth of SBTi adoption in the corporate sector in the UK

¹⁴ Eleven of the 121 companies already had set an SBTi target but these represented less than 4% of the large companies' combined emissions so their impact was not visible in the final numbers within the rounding precision.

Table 1 shows the summary of the reductions we have estimated for each of these scenarios in comparison to the full emission reduction stipulated in the CCC's Balanced Net Zero pathway by 2030. It also shows the residual emissions in 2030 under these scenarios.

	Estimated emissions (MtCO ₂ e)			Absolute emission reduction (MtCO ₂ e)	Relative emission reduction (%)
	2019	2022	2030	2030 vs 2019	2030 vs 2019
CCC baseline: UK total	522	523	515	-8	-2%
CCC Net Zero path: UK total	522	492	316	-176	-36%
CCC Net Zero path: Corporate	335-380	315-360	200-230	-135- -150	~-39%
Current SBTi adoption	~8.1	~8.1	~5.9	~-2.2	~-27%
Large corporates	37-53	37-53	26-37	-11- -17	~-31%
All corporates	335-380	335-380	234-265	-101- -115	~-30%
Cont'd SBTi adoption	44-140	44-140	31-98	-13- -42	~-30%

Table 1 Possible contribution to the required emission reductions by 2030 of various universes of corporations setting SBTs in or after 2022. Top two lines are taken from (Climate Change Committee 2020), bottom lines show result of our analysis.

5. Large companies' contribution to Scope 3 emission reductions

5.1 Introduction to the case studies

For many companies, emissions from the supply chain of a company and from the use of their products (Scope 3 emissions) are many times larger than the emissions under their direct control (Scope 1 and 2). To reach net zero globally, companies need to act on all three scopes and SBTi targets aligned with 1.5°C include targets for Scope 1 & 2 and separately for Scope 3 if they are significant in size.

Emissions reductions arising from actions on Scope 3 could be accounted for in many sectors and in many countries, for example improving the energy efficiency of an electronic product will result in household emissions savings wherever they are used; efficient motors produced by one company, can lead to emissions savings in another company. This accounting issue means that when looking at multiple companies in aggregate, reductions in supply chain emissions are typically excluded. This is why these emissions have not been included in the analysis described in the preceding sections which looks at emissions aggregated over several companies.

In this section, we illustrate the types of targets and actions taken on the supply chain at individual company level through a series of case studies. For these case studies, we have selected the largest companies by revenue in six selected sectors. In the case studies, we discuss several aspects including whether they use financing mechanisms linked to climate action, whether they report according to the recommendations of the Taskforce on Climate-related Financial Disclosure (TCFD)¹⁵ and any links between climate targets and remuneration. We also highlight how these companies are incorporating Nature-based Solutions into their portfolio of actions and how they contribute to UK targets beyond reducing emissions.

5.2 Discussion

All the case studies demonstrate action on Scope 3 emissions, although how much of those emissions are within scope of the target and the level of detail on the Scope 3 emissions differs between companies. Taken as a whole, the case studies illustrate the range of actions that are needed to cover all Scope 3 emissions. One advantage that tackling Scope 3 emissions brings is the need to engage a wide range of other stakeholders e.g. consumers, suppliers, farmers, hauliers which increases the scope for positive climate outcomes. In addition, viewing the supply chain holistically can help identify actions which deliver both climate and other environmental and social benefits. Examples of wider benefits include energy security, air quality improvements, traffic reduction, water usage impacts, reducing material use in packaging and tackling food waste.

All the companies are also implementing or planning to implement NbS as part of their portfolio. In some cases, these solutions are implemented within their operations or their supply chain or in the use-phase of their products. In other cases, this involves looking for opportunities outside of the company's sphere of influence. What is also clear from the case studies is that the plans for NbS are mostly in the early stages, with more detailed plans and wider implementation coming in the next few years. This further highlights the importance of companies focussing on how they can reduce their own emissions through targets aligned with SBTi ambitions alongside NbS.

In terms of contribution to UK targets, this takes a number of forms including advocacy, development of infrastructure and pilot projects.

¹⁵ The TCFD developed a framework to help companies more effectively disclose climate-related risks and opportunities to provide financial markets with the information they need on the impacts of climate change. Reporting against the TCFD recommendations is therefore regarded as good practice.

6.1 Summary of research question and results

The objective of the study was to assess the impact of current corporate action, specifically the impact of corporations setting science-based targets recognised by the SBTi, as well as understanding the potential of additional action. We have not in this analysis attempted to estimate overlap with government policies.

We posed five questions to assess these impacts and answered them in turn. In addition to these we assessed large company action on indirect emissions and the role of nature-based solutions.

Q1 What is the expected emission reduction in the UK from companies with SBTi targets?

A: Around 27% in 2030 below a 2019 baseline or ~2.2 MtCO₂e from a total of ~8.1 MtCO₂e in 2019

Q2 What is the expected emission reduction in the UK if all large corporates set SBTi targets?

A: 121 of the largest UK companies¹⁶ could reduce emissions by 11–17 MtCO₂e by 2030 below a 2019 baseline. Most of this is additional to the ~2 MtCO₂e from the SBTi companies above.

Q3 What is the expected emission reduction in the UK if all corporates set SBTi targets?

A: If all companies in the UK were to set and implement SBTs from 2022 onwards, they could save around 100–115 MtCO₂e by 2030, or 30%. Had they set these targets already in 2019, they would have achieved the emission reduction required in the CCC pathway for the whole corporate sector, i.e. around 40%.

Q4 What is the expected emission reduction in the UK if SBTi target setting continues apace?

A: If SBTs (or similarly ambitious targets) are adopted by UK companies at the same pace as in recent years, the share of UK corporate emissions under SBTs could grow from currently ~2% to 10%–40%, saving up to 42 MtCO₂e by 2030, or 30%.

Q5 How will this expected emission reduction contribute to the UK's decarbonisation targets?

A: The UK would need to reduce its emissions by 200 MtCO₂e below 2019 levels by 2030 to follow the CCC's Balanced Net Zero pathway which aims for net zero emissions by 2050, a reduction of 40% vs 2019. If all companies had achieved emission reductions in line with SBTi targets, i.e. 3.8% per year, starting in 2019, they would have contributed the required reductions of ~40%, or to this effort. At the current rate of adoption SBTi targets, the likely contribution is closer to 10–40 MtCO₂e in 2030 compared to 2022. This emphasises the need to increase the rate at which companies commit to (and then meet) ambitious targets in line with SBTi.

Figure 11 summarises the quantitative results to Q1–Q5.



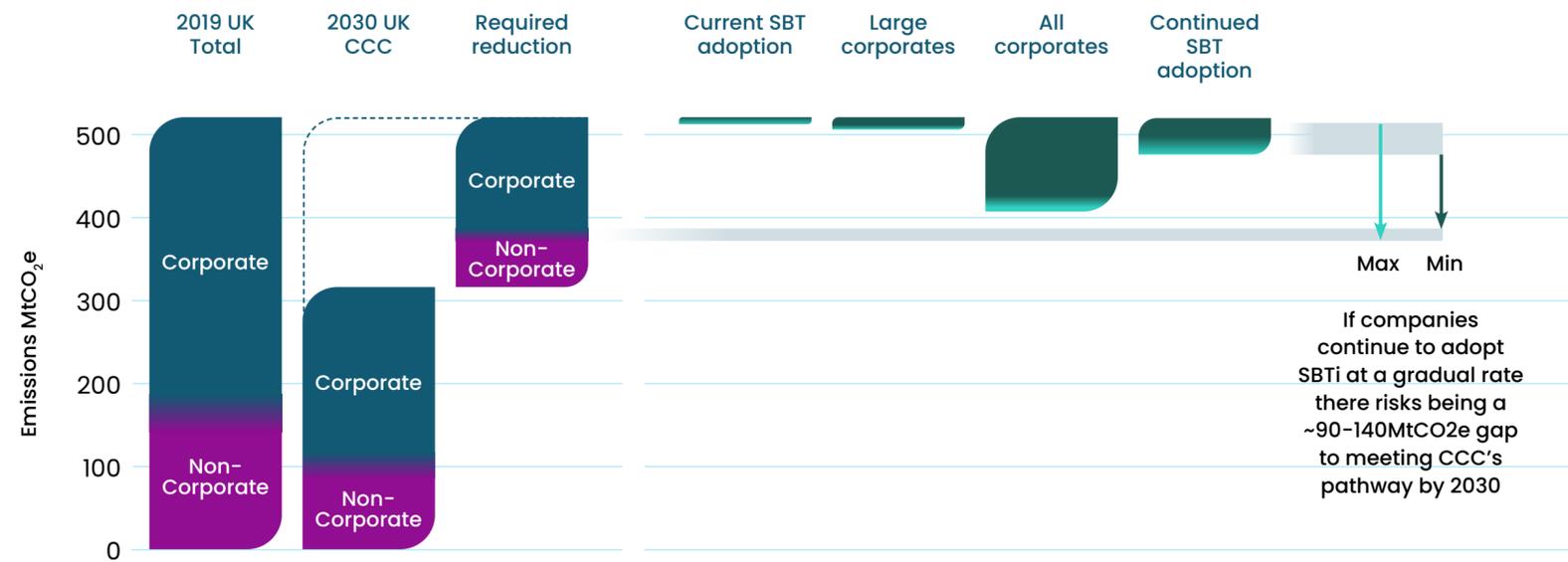


Figure 11 Possible contribution to the required emission reductions by 2030 of various universes of corporations setting SBTs (scope 1 and 2) in or after 2022

The left most column shows the same (historical) emissions as in Figure 2 with an approximate split into corporate and non-corporate emissions. 2nd from the left are UK emissions in 2030 in the CCC's Net Zero Pathway, again with an estimate of the share of emissions under corporate control. The third column shows the difference between these, i.e. the reductions required by 2030, again split by corporate/non-corporate. The four columns on the right show the results from our analysis of how much emission reduction can be achieved in the corporate sector under different scenarios: Current SBT adoption, 121 large FTESE/Forbes companies adopting SBTi in 2022, all corporates adopting SBTi in 2022, continued adoption of SBTi targets at the same rate as in recent years. The arrows on the right show that in the last scenario, of continued adoption, there will be a residual gap of 90-140 MtCO₂e in 2030 in the corporate emissions sector.

6.2 Discussion

The UK has committed to balancing its greenhouse gas emissions by 2050. On the path to net-zero it needs to reduce emissions by ~ 40% below 2019 levels by 2030 (64% below 1990, ~200 MtCO₂e). Around two-thirds of UK emissions are managed by companies making corporate climate action a key driver for the early and drastic emissions reductions needed to achieve these decarbonisation goals.

Companies with science-based climate action targets, specifically those approved by the SBTi, are recognised as the most ambitious actors with verified targets and implementation plans. However, to date they cover only around 2% of these corporate emissions. The combined targeted emission reductions from SBTs are a significant but small contribution to UK decarbonisation, contributing around 1% of the total effort (~ 2 MtCO₂e).

Widening target setting in line with SBTi ambition in various company universes (all UK companies or the largest UK companies or a realistic number of companies if SBTi adoption continues at the current pace) can contribute between 11-115 MtCO₂e by 2030 if these targets were adopted as early as 2022. Continuing at the current pace of adoption of SBTi targets would bring savings of around 13-42 MtCO₂e. This would leave residual corporate emissions of between ~90-140 MtCO₂e that would require additional action. This emphasises the need for companies to commit to ambitious targets now and take urgent action to meet those targets.

For a net-zero 2030 goal, these would need to be matched with additional negative emissions if no additional reduction efforts were made before then.

Typically, companies' indirect emissions (in their supply chain and in the use of their products) are many times those direct emissions. Action on those indirect emissions will therefore be necessary to multiply the contribution to fighting climate change. Taking action on supply-chain emissions can bring wider benefits by engaging a broader spectrum of stakeholders and bringing wider environmental and social benefits. Examples of wider benefits include energy security, air quality improvements, traffic reduction, water usage impacts, reducing material use in packaging and tackling food waste.

Nature-based solutions are part of companies' portfolio of actions, but development of plans and implementation is often at an early stage. All the companies analysed in the case studies are implementing or planning to implement NbS as part of their portfolio. Plans for NbS are mostly in the early stages, with more detailed plans and wider implementation expected in the next few years. This topic will be covered in a second report from Natural Capital Partners which will explore the role of NbS.

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Appendix A.1 Targets dataset definitions and cleaning

The raw dataset provided by CDP contained all targets for companies who had reported their emissions at country level, including the UK, at least once since 2015. It was prepared for analysis as follows:

- All non-public entries were removed
- Duplicate, partial, inconsistent and non-English language entries were removed
- Targets with zero reductions were removed
- Only active SBTi targets were retained, covering Scope 1 and/or 2 as part of the target (see Approach section in main part of report)

The resulting dataset contained 553 active targets with suitable data.

Appendix A.2 Simple annual reduction rates per industry in the SBTi group

For estimating the potential reductions if other companies in the UK adopted SBTi targets from 2022, we used the simple annual reduction rates below. The sectoral rates were used for the large companies estimate only, for the other two estimates we used the overall average rate. Note that power generation does not appear in the table below as we did not use it in the large company estimate to be able to aggregate emissions across all companies.

Industry	Average targeted simple annual reduction percentage in the SBTi company group
Average across all sectors	3.78%
Apparel	7.01%
Biotech, health care & pharma	4.62%
Food, beverage & agriculture	3.57%
Fossil Fuels	[sample too small, average used]
Hospitality	[sample too small, average used]
Infrastructure	2.08%
Manufacturing	2.85%
Materials	4.81%
Retail	4.30%
Services	4.41%
Transportation services	[sample too small, average used]

Appendix A.3 SBTi adoption scenarios for UK corporate sector

Figure 12 shows three scenarios for possible SBTi target adoption and the expected emission reductions at 3.8% annual reductions. The central scenario, shown in green would see around 90 MtCO₂e of 2019 UK emissions covered by 2030. This could be reduced to around 60 MtCO₂e if the targets were including (simple annual) reductions of (at least) 3.8% per year, i.e. ~30 MtCO₂e savings.

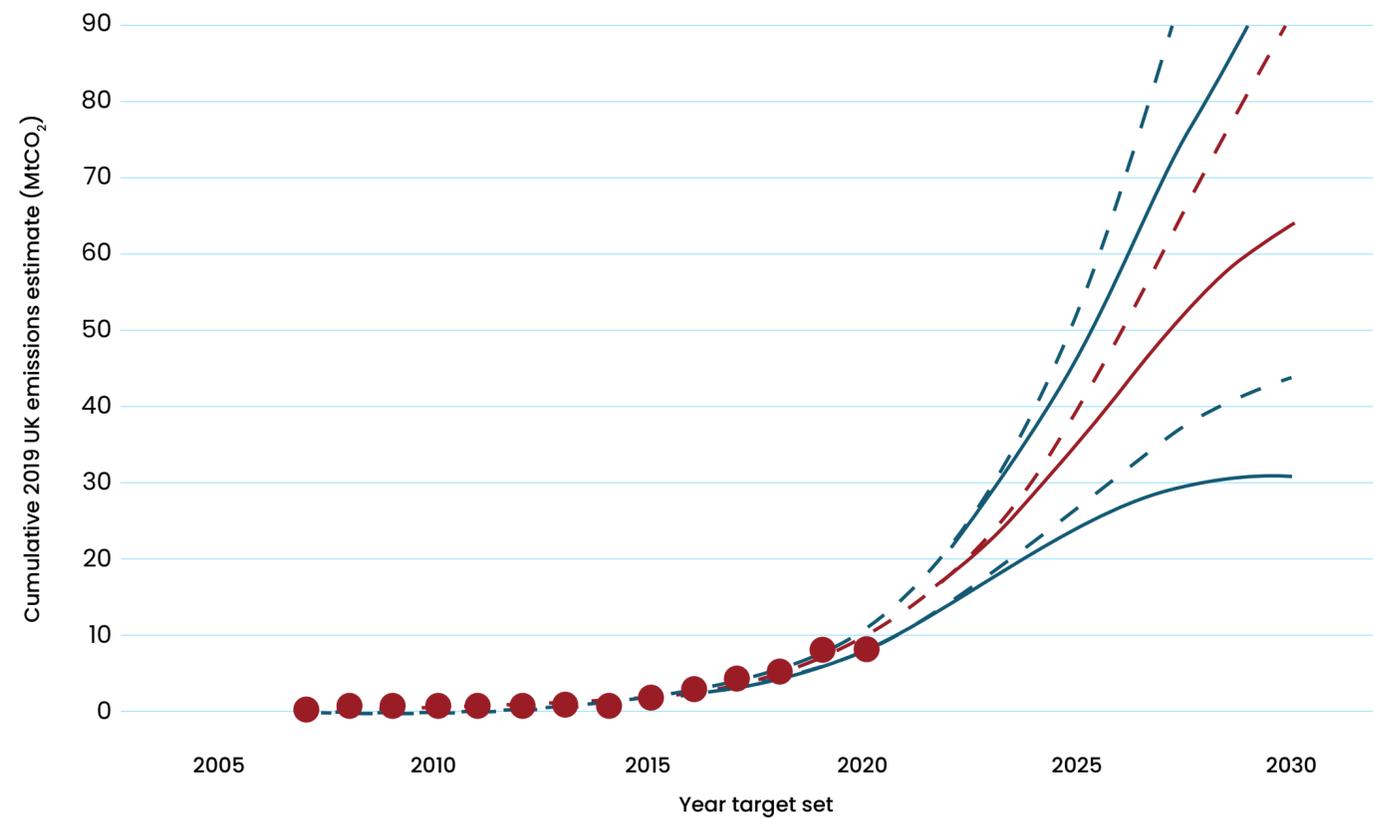


Figure 12 Scenarios of SBTi adoption

The blue lines represent our estimates of the upper and lower bound of SBTi scenario adoption in terms of UK emissions covered based on the historical developments so far, shown in red circles. The red line represents the mid-point between these two bounds. The dotted lines represent the baseline emissions, with the solid lines showing reductions if the targets are set at ~3.8% simple annual reductions.

Appendix A.4 Consideration on the results for the SBTi group

Figure 13 shows the spread of simple annual emission reductions between the ~92 SBTi targets. The size of the bubbles indicates the company size by emissions. The figure shows that a handful of large companies with lower annual reductions decrease the average, which is the main reason for the discrepancy between the 27% reduction seen in the SBTi company group and the ~42% reductions expected from the straight arithmetic average reduction. This result led us to prioritise using the arithmetic mean of emission reductions over the weighted average.

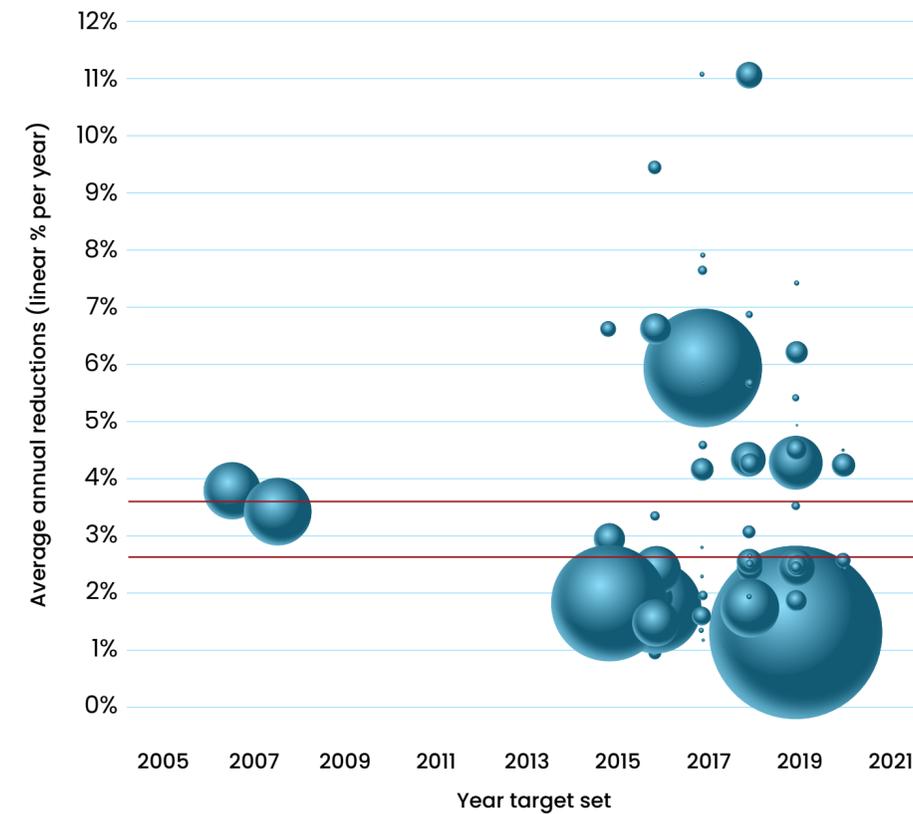


Figure 13 Simple annual emission reduction depending on when the target was set.

Each bubble represents one target, the bubble size indicates the company size in estimated UK 2019 emissions. The two red lines indicate the weighted average (bottom line) vs the arithmetic mean (top line) of the annual reductions.

In this context it is also important to bear in mind that the average emission reduction across the SBTi group of companies masks a very wide range of emission reduction ambition which is shown in **Figure 14**. This means that any average reduction across a group of companies is directly dependent on the sectoral mix of that group.

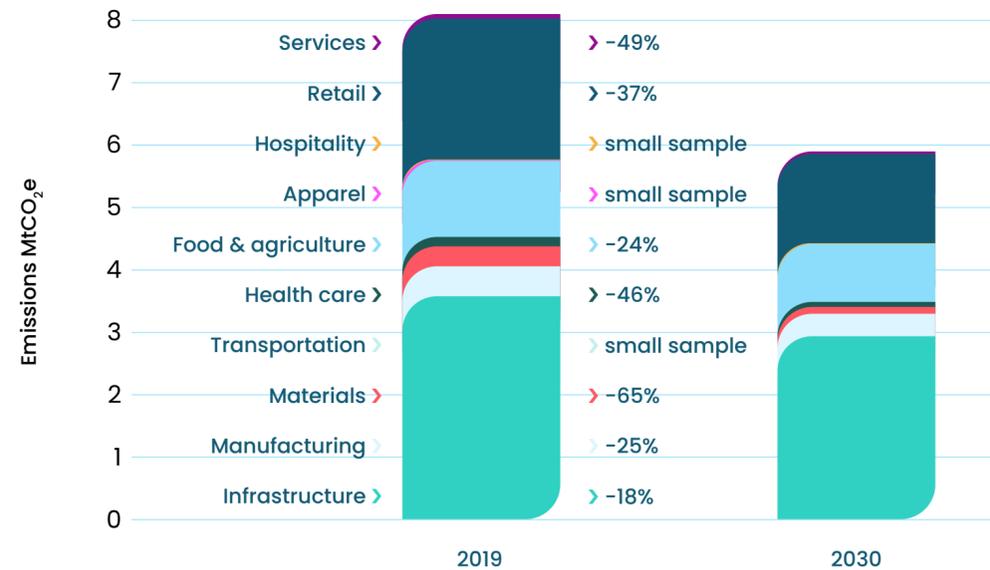


Figure 14 2019 and 2030 emissions per sector in the SBTi group of company targets

There are possible additional reasons for the discrepancy between the CCC's 40% goal and the envisaged SBT-compliant reductions of around a third on average we found for these targets:

Non-representative nature of sample:

It is clear that the group of companies which report to CDP with full country detail and who have set SBTi targets are not necessarily well representative of the mix of companies who contribute to UK emissions. Possible discrepancies could lead to lower reduction targets in the SBTi group compared to the reductions required for the whole group for the following reasons:

- Companies in the SBTi group may be more advanced in their climate planning and/or starting from a lower emissions base compared to the average UK company. This could mean that they have fewer 'easy' emission reductions to achieve as they may have already captured them in previous years, such as a move to 100% zero carbon power supply.
- Companies that are covered by the emissions trading scheme may not choose to set SBT. These companies will have higher emissions intensities than the SBTi group and will represent a relatively high proportion of the industry emissions. The CCC have stated that in their analysis the companies in the emission trading scheme will reduce emissions by 53% in 2030 compared to 2019, implying a smaller reduction for companies outside this group.
- Sectors where lower reductions are expected may be overrepresented (see discussion on outliers above).

Differentiation of targeted emission reductions by country:

It is also possible that the companies we analysed have differentiated their emission reductions by country but this is not apparent in the dataset. Companies report their targets only globally aggregated to CDP, i.e. total, typically company-wide, emissions in the base year and the target year. However, it is possible and likely that companies with a large geographic spread will plan to achieve the planned reductions preferentially in some geographies versus others. E.g. a company may plan higher reductions in regions with stable activity but high emissions intensity, such as in industrialised nations, but plan lower reductions in countries with growing activity, such as emerging economies. This differentiation may mean that the actual planned emission reduction in the UK may be larger than the reported global emission reduction, but this UK level differentiation is not available to us.

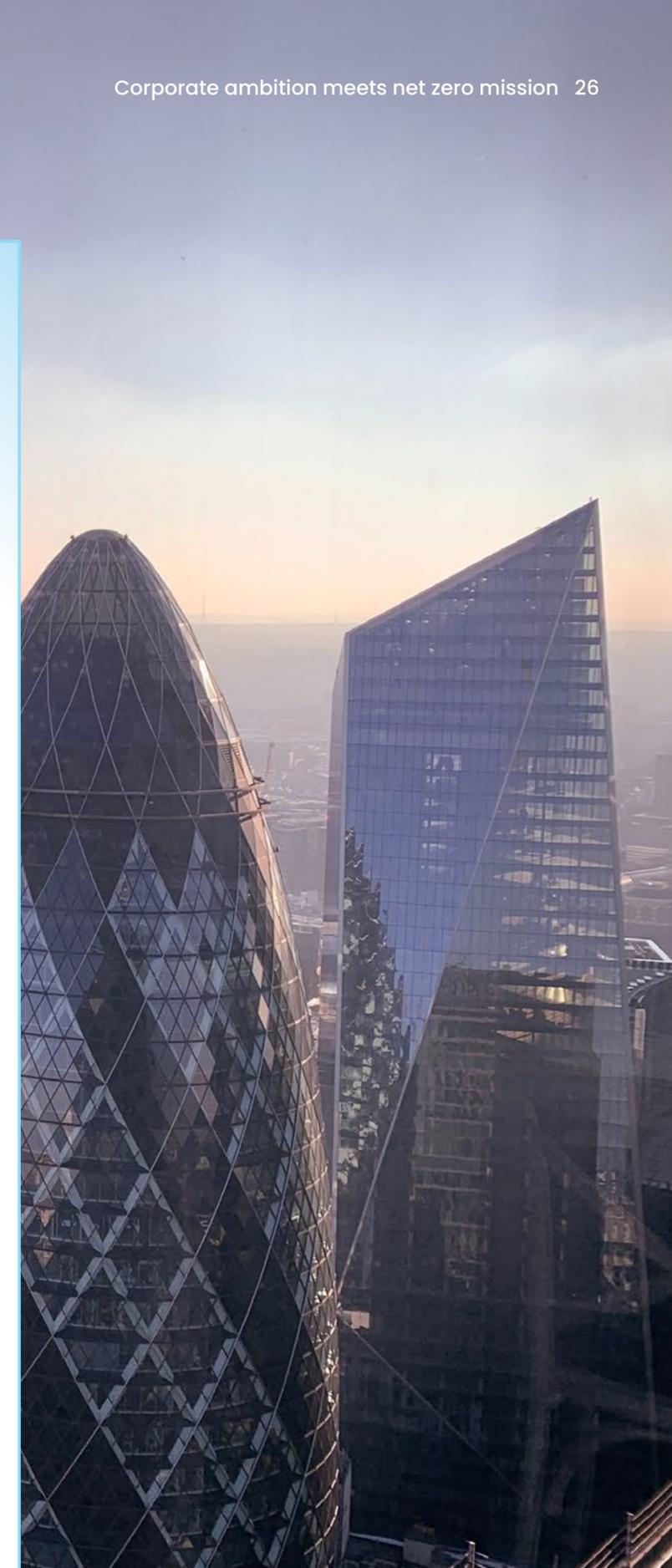
Move from SBTi 2C standard to 1.5C standard:

As described above, not all of the SBTi targets are 1.5°C compatible yet, several stem from several years ago when the SBTi standard only existed for 2°C compatible pathways. It is expected that these targets will be strengthened when they are changed to 1.5°C targets with increased ambition

Appendix B: Companies included in large companies list

List of large UK corporates based on FTSE 100 and Forbes Global 2000

Name	Industry	Name	Industry
1 Amcor plc	Manufacturing	30 Associated British Foods	Retail
2 ATASSIAN	Services	31 AstraZeneca	Biotech, health care & pharma
3 Centrica	Power generation	32 Auto Trader Group	Services
4 CNH Industrial NV	Manufacturing	33 AVAST	Services
5 Coca-Cola European Partners	Food, beverage & agriculture	34 AVEVA GROUP	Services
6 Dixons Carphone	Retail	35 Aviva plc	Services
7 FIAT CHRYSLER AUTOMOBILES	Manufacturing	36 B&M EUROPEAN VALUE RETAIL S.A.	Retail
8 IHS Markit Ltd.	Services	37 BAE Systems	Manufacturing
9 Inchcape	Retail	38 Barclays	Services
10 Investec Limited	Services	39 Barratt Developments plc	Infrastructure
11 JUST GROUP	Retail	40 Berkeley Group	Infrastructure
12 Liberty Global plc	Services	41 BHP GROUP	Materials
13 Linde PLC	Materials	42 BP	Fossil Fuels
14 LyondellBasell Industries N.V.	Materials	43 British American Tobacco	Food, beverage & agriculture
15 Marks and Spencer Group plc	Retail	44 British Land Company	Services
16 Viatrix	Biotech, health care & pharma	45 BT Group	Services
17 Quilter	Services	46 Bunzl plc	Retail
18 RSA Insurance Group	Services	47 Burberry Group	Apparel
19 TECHNIPFMC	Fossil Fuels	48 Coca-Cola HBC AG	Food, beverage & agriculture
20 TP ICAP	Services	49 Compass	Hospitality
21 Virgin Money UK PLC	Services	50 CRH Plc	Materials
22 WILLIS TOWERS WATSON	Services	51 Croda International	Materials
23 WM Morrison Supermarkets Plc	Retail	52 DCC PLC	Fossil Fuels
24 3i Group	Services	53 Diageo Plc	Food, beverage & agriculture
25 abrdn	Services	54 ENTAIN	Hospitality
26 ADMIRAL GROUP	Food, beverage & agriculture	55 EVRAZ	Materials
27 Anglo American	Fossil Fuels	56 Experian Group	Services
28 Antofagasta	Materials	57 Ferguson plc	Retail
29 ASHTEAD GROUP	Services	58 FLUTTER ENTERTAINMENT	Hospitality



Name	Industry
59 FRESNILLO	Materials
60 GlaxoSmithKline	Biotech, health care & pharma
61 GLENCORE INTERNATIONAL	Materials
62 Halma	Manufacturing
63 Hargreaves Lansdown	Services
64 HIKMA PHARMACEUTICALS	Biotech, health care & pharma
65 HSBC Holdings plc	Services
66 Imperial Brands	Food, beverage & agriculture
67 Informa plc	Services
68 Intercontinental Hotels Group	Hospitality
69 Intermediate Capital Group	Services
70 Intertek Group	Services
71 International Consolidated Airlines Group, S.A.	Transportation services
72 ITV	Services
73 JD SPORTS FASHION	Retail
74 Johnson Matthey	Materials
75 JUST EAT TAKEAWAY.COM	Services
76 Kingfisher	Retail
77 Landsec	Services
78 Legal and General	Services
79 Lloyds Banking Group	Services
80 London Stock Exchange Group	Services
81 M&G PLC	Services
82 MELROSE INDUSTRIES	Manufacturing
83 MONDI	Materials
84 National Grid PLC	Infrastructure
85 NatWest Group plc	Services
86 Next	Retail
87 Ocado Group	Retail
88 Pearson	Services
89 PERSHING SQUARE HOLDINGS LTD	Services
90 Persimmon	Infrastructure
91 PHOENIX GROUP HOLDINGS	Services

Name	Industry
92 POLYMETAL INTERNATIONAL	Materials
93 Prudential plc	Services
94 Reckitt Benckiser	Materials
95 RELX Group Plc	Services
96 Rentokil Initial	Services
97 RIGHTMOVE	Services
98 RIO TINTO	Materials
99 ROLLS-ROYCE HOLDINGS	Transportation services
100 Royal Dutch Shell	Fossil Fuels
101 Royal Mail Group	Transportation services
102 Sage Group	Services
103 J Sainsbury Plc	Retail
104 Schrodgers	Services
105 SCOTTISH MORTGAGE INV TST	Services
106 SEGRO	Services
107 Severn Trent	Infrastructure
108 Smith & Nephew	Biotech, health care & pharma
109 DS Smith Plc	Manufacturing
110 Smiths Group	Manufacturing
111 Smurfit Kappa Group PLC	Manufacturing
112 Spirax-Sarco Engineering	Services
113 SSE	Power generation
114 St. James Place	Services
115 Standard Chartered	Services
116 Taylor Wimpey Plc	Infrastructure
117 Tesco	Retail
118 Unilever plc	Materials
119 United Utilities	Infrastructure
120 Vodafone Group	Services
121 Weir Group	Manufacturing
122 WHITBREAD	Hospitality
123 WPP Group	Services

Appendix C.1 Energy: bp

Appendix C.1.1 Company description and emissions summary

bp is an integrated energy business with operations in Europe, North and South America, Australasia, Asia and Africa. Their activities include hydrocarbons (oil and gas) production, refining and transport and low carbon energy.

In terms of contribution to climate change, direct emissions (Scope 1) and emissions from the generation of electricity, heating and cooling (Scope 2) for bp totalled 45.5 MtCO₂e in 2020.¹⁷ Of the Scope 1 emissions 39.8 MtCO₂e was CO₂ and 1.9 MtCO₂e methane. The indirect emissions (Scope 3) were significantly higher at 327.6 MtCO₂e.¹⁸ The contribution from different categories is not detailed for Scope 3 emissions but the scope is reported to be estimated CO₂ emissions from the assumed combustion of upstream production of crude oil, natural gas and natural gas liquids.

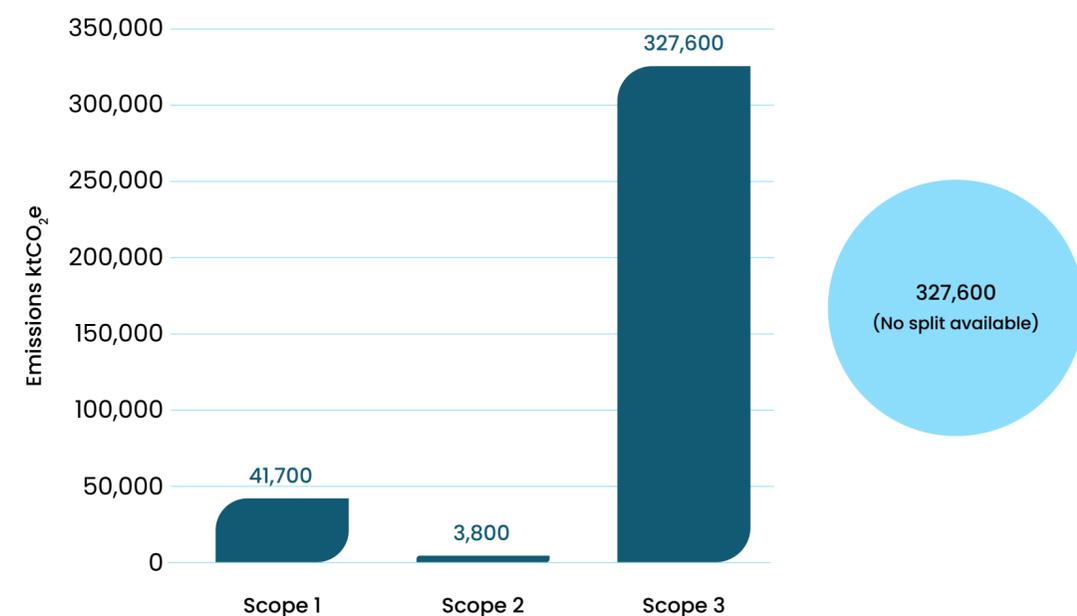


Figure 15 Emissions summary for bp

¹⁷ Sustainability report - 2020 highlights (bp.com). Operational emissions from activities operated by bp.

¹⁸ Estimated emissions from the assumed combustion of upstream production of crude oil, natural gas and natural gas liquids on a bp equity share basis, excluding bp's share of Rosneft production. Assumes that all produced volumes undergo full stoichiometric combustion to CO₂. Broadly equivalent to the GHG Protocol, Scope 3 category 11.

¹⁹ Rosneft is a Russian oil company with a 6% share of global oil production and BP holds a 19.75% share.

Appendix C.1.2 Commitments to action and progress

Targets summary

Table 2 Summary of targets and disclosures for British Petroleum

Net zero target	2050 (operations and upstream oil and gas production)
Scope 1 and 2 target	20% by 2025 and 30–35% by 2030 (relative to 2019)
What progress has been made on Scope 1 & 2 target?	16% reduction relative to 2019
Scope 3 target (percentage reduction)	20% by 2025 and 30–40% by 2030 (relative to 2019)
Scope 3 definition	Combustion of upstream oil and gas production on an equity basis
What progress has been made on Scope 3 target?	9%
Renewable energy targets	Non quantitative
TCFD reporting	Yes

Overarching actions

bp is aiming for net zero across Scope 1 and 2 and across upstream oil and gas production by 2050 or sooner. The upstream oil and gas production targets excludes bp's share of the emissions from Rosneft production.¹⁹ They do not intend to rely on offsets to meet net zero or 2030 targets.

Scope 1 and 2

As part of the strategy to reach net zero, bp has set aims to reduce Scope 1 and 2 emissions by 20% by 2025 and 30–35% by 2030. They have already achieved a 16% reduction relative to the 2019 baseline. The reductions resulted from a number of factors including divestment, COVID-19 related production decreases and specific interventions. Measures identified to continue to reduce emissions include energy efficiency, reducing flaring and managing methane.

As methane is a significant contributor to emissions, bp also have the aim to reduce methane intensity of their operations by 50%. The first step is to improve the way methane emissions are measured. The aim is to install methane measurement at existing oil and gas processing sites by 2023. In terms of reducing methane intensity, flaring is one of the main sources of methane. bp supports the World Bank's Zero Routine Flaring by 2030 initiative.²⁰

Scope 3

Interim aims for Scope 3 emissions are 20% by 2025 and 35–40% by 2030. Reductions of 9% have been achieved relative to 2019. Actions to achieve further reductions are through portfolio management, including divestments and decarbonisation. Blue hydrogen²¹ and Carbon Capture Utilisation and Storage (CCUS) are also strategically important. As part of the decarbonisation strategy, bp aims to increase the proportion of investment made into non-oil and gas businesses. Investments in low carbon energy in 2020 were \$750 million.

bp are also aiming to cut the carbon intensity of products they sell by 50% by 2050, with interim aims of 5% by 2025 and 15% by 2030. This will be achieved by providing products such as biogas, low-carbon electricity, new low-carbon fuels such as green hydrogen and introducing CCUS.

The emissions from Rosneft production are excluded from the net zero target. However, bp and Rosneft are working together through a Strategic Collaboration Agreement to support carbon management and sustainability activities.

Working with customers, bp aims to launch a new business in providing integrated energy and mobility solutions to cities and businesses. There is an ambition to increase their network of electric vehicle charging points to more than 70,000 by 2030.

In terms of waste, bp has the aim to increase the circularity of their operations. Plans on how to do this will be developed by the end of 2022. They have also set an aim that all bp-owned food brand packaging will be reusable, recyclable or biodegradable by 2025.

An employee carbon offsetting scheme covering travel and home energy emissions for employees who choose to participate is partly funded by bp and runs in UK, US and Germany. Corporate aviation travel is also offset.

Disclosure and link of targets to remuneration

The annual cash bonus for some employees is linked to sustainable emissions reductions. 30% of senior leaders' equity awards is linked to low carbon.

In terms of relationship with trade associations, bp is setting new expectations on alignment on climate change. After a review in 2020, bp left three associations where there was no alignment and identified areas with other associations where the views are significantly different.

The TCFD disclosure for bp was expanded in 2020 to include more information across the 4 recommendations.

Appendix C.1.3 Examples of NbS actions undertaken or planned

bp aims to ensure that from 2022 all new projects will have plans in place to achieve a net positive impact on biodiversity, with 90% of actions delivered within 5 years of project approval. In addition, they aim to enhance biodiversity around major operating sites and to support biodiversity restoration and the sustainable use of natural resources in countries where they operate.

bp also aims to support the development of scalable markets for certified natural climate solutions and to use Nature-based Solutions (NbS). They will not use offsets though to meet the net zero aims or targets to 2030. A plan on how to use NbS for 2030 will be developed in 2022. To develop the market, bp are developing a portfolio of investments in projects implementing natural climate solutions that generate certified emissions reductions. They will also engage with external stakeholders to continue to develop the approach to align with the latest knowledge and practice. A programme in Mexico in partnership with USAID and an NGO Pronatura is being implemented to scale up sustainable forestry management in Mexico. The emissions reductions from the programme are generated and registered under the Climate Action Reserve's Mexico Forest Protocol. In 2020, bp also acquired a majority stake in the carbon offset developer Finite Carbon, which is the largest developer of carbon offsets in the US.

Appendix C.1.4 Contribution to UK targets

In addition to the actions undertaken to reduce emissions across operations, bp is also contributing to UK targets in other ways:

- bp are developing plans for the UK's largest blue hydrogen facility on Teesside. The project targets 1 GW hydrogen production by 2030 and would capture and send for storage up to 2 MtCO₂ per year. This would make a major contribution to the UK government's target of 5 GW of hydrogen production by 2030.
- bp also plays a leading role in the Net Zero Teesside and Northern Endurance Partnership projects, aiming to deliver a gas fired power station with CCUS and create a net zero industrial cluster.

²⁰ Zero Routine Flaring by 2030 (worldbank.org)

²¹ Blue hydrogen refers to production of hydrogen from natural gas and capture and storage of the resulting CO₂.

Appendix C.2 Manufacturing: Rio Tinto

Appendix C.2.1 Company description and emissions summary

Rio Tinto is a mining and metals company working in 35 countries. They produce iron ore, aluminium, copper, diamonds, titanium and borates and operate mines, smelters and refineries. Gross revenue in 2020 was \$47 bn.

In terms of contribution to climate change, direct emissions (Scope 1) and emissions from the generation of electricity, heating and cooling (Scope 2) totalled 22.8 MtCO₂e and 8.7 MtCO₂e respectively in 2020.²² The largest contribution to these emissions is purchased power at 35%.

Indirect emissions (Scope 3) were more than ten times higher at 519 MtCO₂e in 2020. The largest contribution (94%) comes from direct processing emissions associated with their products, specifically iron ore, bauxite and alumina. These are generally regarded as hard-to-abate emissions.

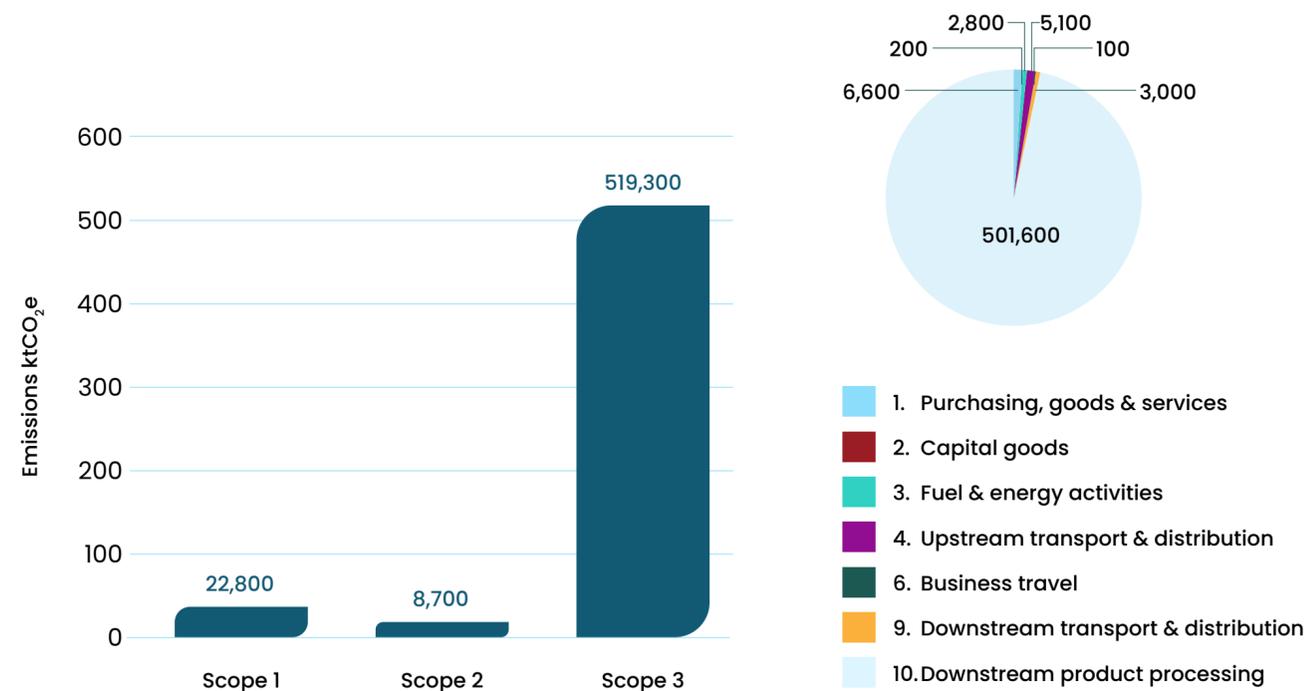


Figure 16 Emissions summary for Rio Tinto

22 Rio Tinto Climate Change Report 2020 (pdf)

Appendix C.2.2 Commitments to action and progress

Targets summary

Table 3 Summary of targets and disclosures for Rio Tinto

Net zero target	2050 (operations only)
Scope 1 and 2 target	15% by 2030 (relative to 2018)
What progress has been made on Scope 1 & 2 target?	3% reduction relative to 2018
Scope 3 target (percentage reduction)	See text
Scope 3 definition	See text
What progress has been made on Scope 3 target?	See text
Renewable energy targets	None specific
TCFD reporting	Yes

Overarching actions

As well as shorter-term targets, Rio Tinto has the ambition to reach net zero emissions across their operations by 2050. Given the cost and availability of alternative zero carbon technologies for parts of their operations, carbon offsets and removals are part of their strategy. However, they support that avoiding and reducing emissions takes priority over offset and removal.

Scope 1 and 2

Rio Tinto has committed to reduce absolute emissions by 15% and emissions intensity by 30% in 2030 relative to the 2018 baseline. These targets are consistent with a 45% reduction in absolute emissions relative to 2010 baseline and with 1.5°C pathway.²³ The emissions reported in 2020, represent a 3% reduction compared to the 2018 baseline. Most of these reductions result from using renewable electricity certificates. The 2030 targets were informed by a bottom-up assessment of mitigation options. The two most important decarbonisation options between now and 2030 are to continue switching to the purchase and generation of renewable electricity, and to optimise process plants in the alumina and minerals businesses and to start trialling new technologies to reduce emissions from process heat. Rio Tinto has committed to spend approximately \$1 bn on emissions reduction initiatives over the next five years.

Scope 3

Rio Tinto report that they were the first global diversified miner to divest all fossil fuel assets, although they still operate within energy and carbon intensive value chains. Their Scope 3 emissions are primarily from the use of fossil fuels (either directly or indirectly) in processing of their products by customers. Rio Tinto works in partnerships with their supply chain to reduce these emissions with four longer term goals.

- Work in partnerships on steel decarbonisation pathways that could deliver reductions in steel making carbon intensity of at least 30% from 2030
- Work in partnerships to develop breakthrough technologies with the potential to deliver carbon neutral steelmaking pathways by 2050.
- Work in partnerships to develop breakthrough technologies enabling zero-carbon aluminium smelting
- Reach net zero emissions by 2050 from shipping their products.

These longer-term goals are supported by specific short- and medium-term targets to advance the areas.

Climate action linked finance

Rio Tinto has set up a third-party verified structure for a sustainability bond but have not yet needed to issue one.

Disclosure and link of targets to remuneration

Rio Tinto aligns climate change disclosures with the recommendations from the Task Force on Climate-related Financial Disclosures (TCFD). They also regularly engage with the Climate Action 100+ (CA100+) group of investors²³ and will work towards providing disclosures consistent with the new CA100+ benchmark. There is also a link between executive remuneration and climate performance, with a weighting for ESG performance of 35%, of which 20% relates to safety.

In recognition that industry associations have an important role in policy, Rio Tinto publishes a disclosure report on membership of associations and a strategy for engagement. It also identifies those associations that take a significantly different position on climate change than Rio Tinto. In the latest report, only the US National Mining Association fitted this category.

²³ Climate Action 100+ (climateaction100.org)

²⁴ Natural Climate Solutions (wbcsd.org)

Appendix C.2.3 Examples of Nbs actions undertaken or planned

Rio Tinto are exploring the potential of investments in Nature-based Solutions. They commit to adhere to the four principals that are recommended by the World Business Council for Sustainable Development (WBCSD) and Nature4Climate.²⁴ These are:

- Raise ambition with respect to climate action.
- Provide an interim solution for hard-to-abate emissions, but not a permanent one.
- Deliver environmental and social safeguards and benefits in addition to greenhouse gas emissions reductions.
- Apply sound and verified carbon measurement and accounting methodologies to ensure high environmental integrity of credits.

Their initial focus is on identifying Nbs projects within their own operational boundaries, including investigating the potential for a community-based forest project in Madagascar and grassland management near their mine in Pilbara.

Appendix C.2.4 Contribution to UK targets

Rio Tinto's carbon footprint in the UK is very limited so most of their activities are global or based in other countries/regions.

Appendix C.3 Media: Sky

Appendix C.3.1 Company description and emissions summary

Sky is a media and entertainment company operating in six countries across Europe, including in the UK. Revenue is \$18.6 billion and it has 23 million customers and 34000 employees. In 2018, it became part of the Comcast NBCUniversal group.

In terms of contribution to climate change, direct emissions (Scope 1) and emissions from the generation of electricity, heating and cooling (Scope 2) are significantly lower than the indirect emissions from their value chain (Scope 3). Emissions from electricity use of customers using Sky’s products are the most significant contribution to the indirect emissions.

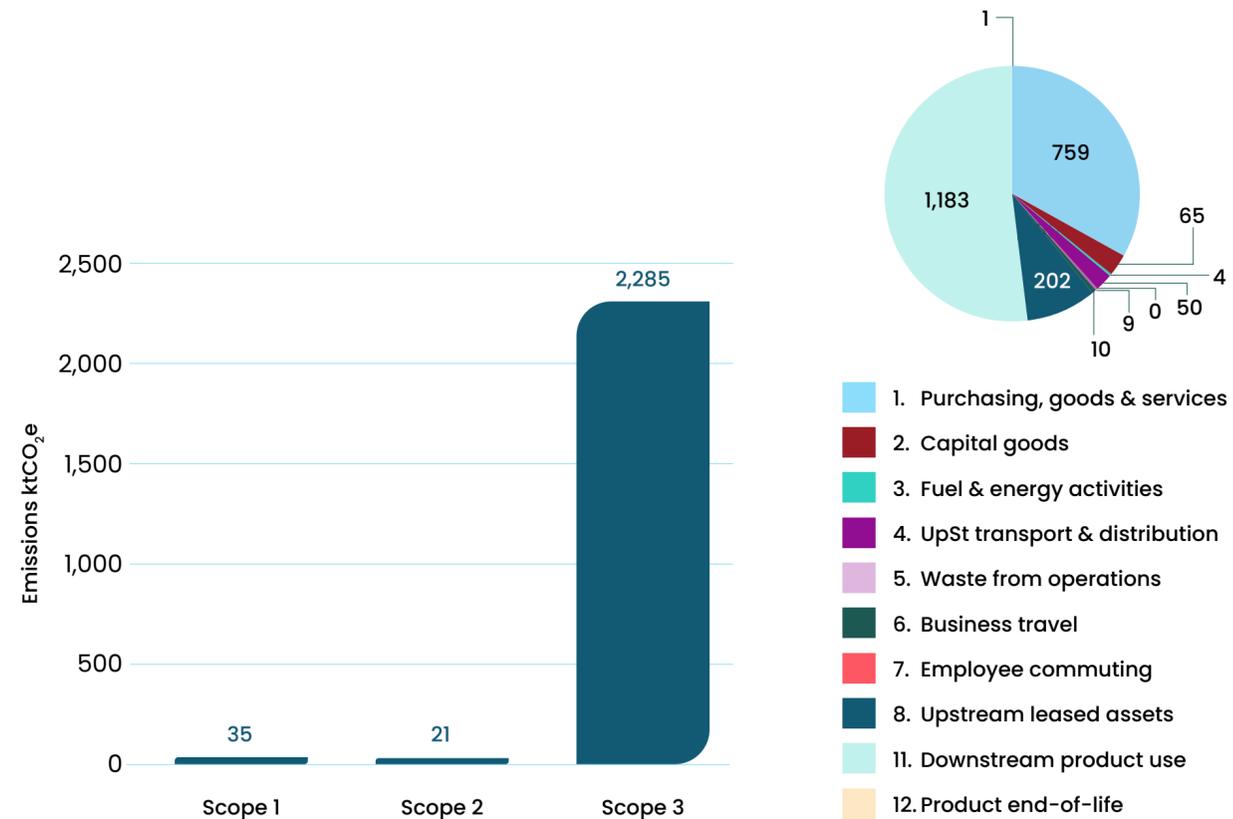


Figure 17 Emissions summary for Sky

25 Science Based Targets (sciencebasedtargets.org)
 26 Home - Race to Zero & Race to Resilience (unfccc.int)
 27 Business Ambition for 1.5°C (unglobalcompact.org)
 28 Count Us In (count-us-in.org)
 29 Sky Zero - going net carbon zero by 2030 (skyzero.sky)
 30 The CarbonNeutral Protocol was created and is managed by Natural Capital Partners (carbonneutral.com)

Appendix C.3.2 Commitments to action and progress

Targets summary

Table 4 Summary of targets and disclosures for Sky

Net zero target	2030
Scope 1 and 2 target	In net zero target
What progress has been made on Scope 1 & 2 target?	22.7% reduction relative to 2018
Scope 3 target	In net zero target
Scope 3 definition	Full scope
What progress has been made on Scope 3 target?	4.2%
Renewable energy targets	100% by 2020 (achieved)
TCFD reporting	No

Overarching actions

In February 2020, Sky announced that they want to be net zero carbon by 2030 across operations, supply chains and the use of Sky products by their customers. The targets have been validated by SBTi.²⁵ They are part of the UN Global Compact, Race to Zero²⁶ and supporting the Business Ambition for 1.5°C.²⁷ They are the principal media partner for COP26 and Sky News was the first to launch a daily news programme dedicated to climate change and environment – The Daily Climate Show. In addition, Sky are partners of Count Us In, with a mission to inspire 1 billion people across the world to reduce carbon emissions and challenge leaders to deliver global change.²⁸ Sky Zero²⁹ was also launched to inspire consumers to take action to contribute to net zero and provide practical information on how to do this.

Scope 1 and 2

Scope 1 and 2 emissions in 2020 were 22.7% below the 2018 baseline and a 4.8% reduction below baseline has been achieved across all scopes. Sky has also been a CarbonNeutral³⁰ company since 2006, compensating emissions with offsets from certified projects around the world. The 2020 renewable energy target has been met through on-site renewables, renewable electricity tariffs (backed by traceable certificates) or, where there is no alternative, traceable renewable energy certificates aligned to the location and retired from the market in the same year as the electricity

use. Sky has also improved the energy and cooling efficiency of their data centres and larger technical sites.

Sky is part of RE100 committing to source 100% renewable electricity by 2020³¹ and EV100 committing to a 100% electric fleet by 2030.³² In November 2020, 151 plug-in hybrid vehicles were assigned to low mileage engineers.

Scope 3

Sky is carrying out activities to reduce Scope 3 emissions across a range of areas.

As energy consumed in the use of the products is the largest contribution, efficient design of those products is an important part of the strategy. Compared to 2018, improvements in the energy efficiency of the products used by consumers have led to a 9.6% reduction in carbon emissions from product use. Further efficiencies have been identified to roll out.

A service model for broadband contracts, in line with that for Sky Q boxes, has been rolled out to ensure that equipment is refurbished or recycled to improve resource efficiency. Using automation, the focus is on the process of refurbishment to improve efficiency and reduce the use of materials such as paint and glues. More Sky Q boxes are now refurbished than manufactured.

Sky is committed to reducing its Scope 3 emissions and this was a key priority when designing Sky Glass, their latest product launched in October 2021.³³ Sky Glass has been designed to reduce emissions as much as possible. It has low power features built in such as auto-switch-off and auto-adjusting screen brightness helping it be more energy efficient. It is the only TV to come in recyclable packaging, free from single-use plastic and by using a TV with everything built in electricity consumption can be reduced by up to 50%. The design and product supply chain is continually reviewed to reduce emissions where possible.

To make the product CarbonNeutral®, Sky offset the unavoidable emissions with carbon offsets which reduces the same amount of emissions elsewhere. The product follows the requirements of the CarbonNeutral Protocol, the global standard for carbon neutral programmes.

Sky is working with the University of Bristol and other broadcasters to develop a tool DIMPACT, which maps the impact of content delivery to devices to enable companies to make more informed decisions to reduce emissions.

All product suppliers now provide primary emissions data and they are encouraged to undertake energy audits and work towards ISO 50001 energy management certification. Three manufacturing sites have PV panels, which supply renewable energy for over half their energy needs, and Unipart (UK logistics partner) has committed to switching to renewable energy in 2021.

In terms of content, Sky has committed to make UK commissioned Sky Originals programmes carbon neutral in production. Sky Studios Elstree aims to be the world's most sustainable film and TV production studios when it opens in 2022. Sky is also a founding member of albert, albert Sports Consortium and albert News Consortium³⁴ (all tackling environmental impact of production) and has committed to the UNFCCC Sports for Climate Action Framework.³⁵

31 RE100 – led by Climate Group, in partnership with CDP (there100.org)

32 Making electric transport the new normal by 2030 (theclimategroup.org)

33 Sky Glass – 4K UHD TV – Specs & Features | [Sky.com](https://www.sky.com)

34 albert (wearealbert.org)

35 Sports for Climate Action (unfccc.int)

36 Sky Ocean Rescue & WWF ([wwf.org.uk](https://www.wwf.org.uk))

37 Business For Nature (businessfornature.org)

38 Kew Royal Botanical Gardens ([kew.org](https://www.kew.org))

39 Hydrotreated Vegetable Oil

40 BITC – Business in the Community (bitc.org.uk)

41 Aldersgate Group (aldersgategroup.org.uk)

42 Corporate Leaders Group (corporateleadersgroup.com)

Sky Ocean Rescue was launched with WWF³⁶ to tackle plastic pollutions in the sea, as part of which Sky committed and now are single use plastic free across their operations, products and supply chain.

Disclosure and link of targets to remuneration

Performance against environmental (including climate) key performance indicators is part of the remuneration package for Sky executives.

Company reporting for Sky is now through the Comcast Group who will be reporting according to the TCFD recommendations and to CDP in 2021.

Appendix C.3.3 Examples of Nbs actions undertaken or planned

The offsets used by Sky to reach carbon neutrality have included forest conservation projects in Brazil and Indonesia and reforestation in Mexico. In 2009, Sky's Rainforest rescue was a campaign that brought deforestation to the attention of viewers and also helped deliver forestry projects in Acre in Brazil and Rimba Raya in Indonesia.

As part of Sky Ocean Rescue, a million seagrass seeds have been planted in the UK's largest seagrass restoration project. Seagrass represents an important untapped carbon sink in the UK.

For consumers, Sky Zero provides advice on options that they can implement to reduce emissions and protect nature.

Sky joined Business for Nature which is a global coalition that brings together business and conservation organizations to demonstrate credible business leadership on nature.³⁷

Sky also sponsored new research and a conference to raise the standards of global reforestation. This resulted in 10 golden rules for reforestation.

From 2030, any remaining carbon footprint for Sky will be offset in natural carbon sinks. In preparation for this Sky are working to identify projects that they can invest in now, to be able to provide a sink for carbon in as little as ten years. One project in development is the planting of mixed native woodland on the shores of Loch Ranoch in the Cairngorms. Sky is also engaging with Kew to provide scrutiny of projects to ensure the environmental integrity of projects.³⁸

Appendix C.3.4 Contribution to UK targets

As well as the contribution from actions to reduce their emissions, Sky contributes to meeting UK targets in other ways including:

- Achieving albert sustainable production certification for the 2020/21 Premier League and EFL Seasons
- Implementing low-carbon Green D+ HVO³⁹ fuel on all Sky Sports Outside Broadcast in England, Scotland and Wales.
- Using their voice on climate change through membership of BITC's Net Zero Carbon Taskforce,⁴⁰ Aldersgate Group⁴¹ and Prince of Wales' Corporate Leaders Group.⁴²

Appendix C.4 Retail: Tesco

Appendix C.4.1 Company description and emissions summary

Tesco is the UK’s largest retailer (by sales) with sales of £53.4 bn in 2020.⁴³ It operates in UK, Ireland, Hungary, Czech Republic and Slovakia and the food wholesale company Booker and convenience store One Stop are also part of Tesco group.

In terms of contribution to climate change, direct emissions (Scope 1) and emissions from the generation of electricity, heating and cooling (Scope 2) are reported by Tesco group to be significantly lower than the indirect emissions from their value chain (Scope 3).⁴⁴

Total group Scope 1 and Scope 2 emissions are 1.1MtCO₂e, of which 0.9MtCO₂e were in the UK.⁴⁵ Figure 18 shows reported emissions for Tesco with Scope 3 emissions reported to total 89 MtCO₂e.⁴⁶

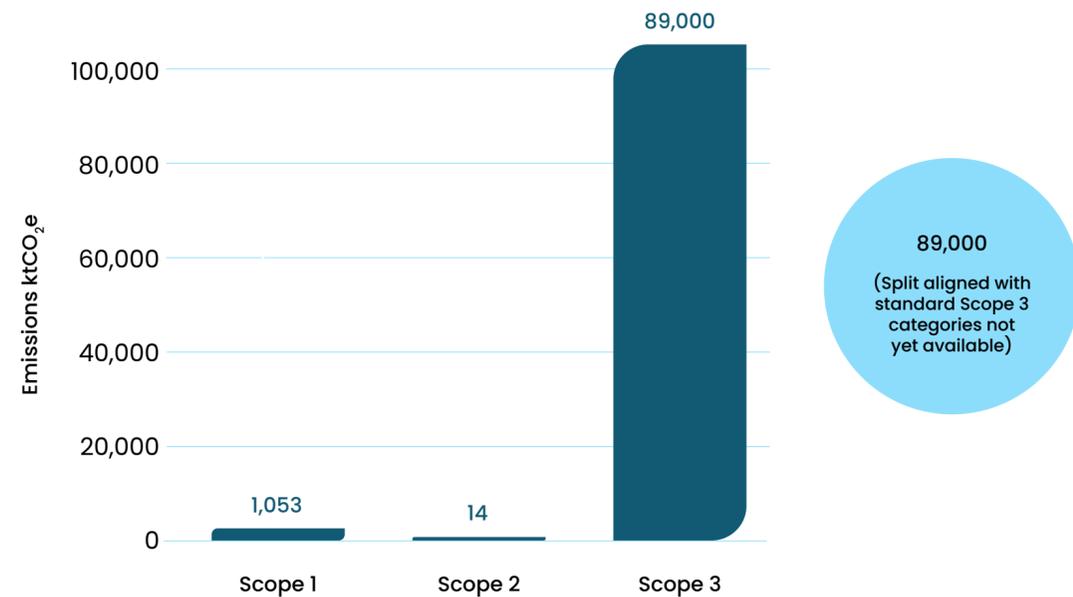


Figure 18 Emissions summary for Tesco

⁴³ TESCO (tesco.com)

⁴⁴ Tesco Plc Climate Change Factsheet 2021. Last updated 17 May 2021

⁴⁵ In accordance with the GHG Protocol, Tesco reports both market-based and location-based Scope 2 emissions. These methods ‘allocate’ emissions from electricity to the end-user. In the market-based method, Tesco’s reporting reflects the emissions from the electricity they have actually purchased. In the location-based method, an average emissions intensity of the grid is used. As Tesco has sourced electricity from renewable sources, the market-based method results in a lower number than the location-based method.

⁴⁶ [Climate Change – Tesco PLC](#). Breakdown of Scope 3 emissions is given but not aligned specifically with Scope 3 categories yet.

⁴⁷ Science Based Targets – companies taking action (sciencebasedtargets.org)

⁴⁸ RE100 is a global corporate initiative bring companies together who are committed to 100% renewable energy (there100.org)

Appendix C.4.2 Commitments to action and progress

Targets summary

Table 5 Summary of targets and disclosures for Tesco

Net zero target	2050 (All Scopes)
Scope 1 and 2 target	65% by 2025 (below 2015 levels) Net zero by 2035 (Group)
What progress has been made on Scope 1 & 2 target?	54% reduction relative to 2015 levels
Scope 3 target (percentage reduction)	1.5°C aligned near-term targets to be announced. Net zero by 2050
Scope 3 definition	All Scope 3 emissions
What progress has been made on Scope 3 target?	
Renewable energy targets	100% by 2030 (achieved 2020)
TCFD reporting	Yes

Overarching actions

Tesco has committed to reach net zero emissions for its own operations (Scopes 1 and 2) by 2035 for the Group and by 2050 from its supply chain and products (Scope 3).

Scope 1 and 2

Tesco has also committed to Science Based Targets to reduce Scope 1 and 2 emissions by 60% in 2025, compared to a 2015 base-year. This target is classified as in line with 1.5°C temperature ambition by the Science Based Targets Initiative.⁴⁷ In 2020/21, they have already achieved a 54% reduction in Scope 1 and Scope 2 emissions.⁴⁴

Having identified that grid electricity was a significant part of the carbon footprint, Tesco set an ambition to reduce demand and switch to 100% renewable electricity by 2030 and signed up to RE100.⁴⁸ This ambition was met in 2020 – 10 years early. Going further than this, Tesco has also invested in renewable energy generation, signing an agreement which will supply the group with around 21% of the electricity demand.

The focus of operational decarbonisation has now turned to transport and heating. Tesco has pledged to have a fully electric home-delivery fleet in the UK by 2028 and in September 2020 became signatories to EV100.⁴⁹

Scope 3

In September 2021, Tesco announced a net zero target for all emissions across its value chain, including sourcing of raw materials and food production, land-use change, use of sold products including fuel packaging and waste. Tesco was also the first retailer to commit to near-term targets on Scope 3 in line with a 1.5°C temperature ambition, and plan to have these validated by the SBTi once their updated methodology has been released.

To reduce its Scope 3 emissions, Tesco must rely on being able to influence wider change as the emissions lie beyond its direct control. Tesco is already working on promoting sustainable diets, reducing food waste and improving packaging. It has committed to increasing sales of plant-based meat alternatives by 300% by 2025, with a 96% increase since 2018 already achieved. Replacing sales of meat with plant-based alternatives has the potential to reduce agricultural greenhouse gas emissions, which make up the largest proportion of Scope 3 emissions. Tesco has also reduced food waste in their operations by 42% since 2016/17. However, this represents less than 0.5% of handled food being wasted. They are working with customers and suppliers to reduce remaining food waste. Addressing the impact of packaging both in the immediate sense of environmental pollution and associate emissions, Tesco launched its 4R strategy to Remove, Reduce, Reuse and Recycle all its packaging materials, working on own label but also requesting change among branded suppliers. One billion pieces of plastic have been removed from Tesco products.

Land use change including deforestation contributes around 3% of global greenhouse gas emissions and is significant in Tesco's footprint too. Ingredients such as palm oil and soy are major drivers of deforestation and Tesco is taking action on these and other products and working towards zero net deforestation. As of 2020/21, all palm oil is certified to the Roundtable on Sustainable Palm Oil Standard (RSPO), all paper and wood products are certified to the Forest Stewardship Council, the Programme for the Endorsement of Forest Certification or from a recycled source and all UK soy meets their Zero Soy Transition plan.⁵⁰ Currently, 72% of the palm oil used in the UK Tesco supply chain is certified as segregated, but only 31% for Booker and 44% in Central Europe. Segregated palm oil is kept separate from palm oil products from estates/plantations that are not certified to RSPO.

In addition to the use of certified products, they are providing £10 million to farmers in the Cerrado region of Brazil to protect native vegetation and transition to producing soy only on existing agricultural land. No beef is bought from Brazilian farmers.

Climate-linked financing

Finance is an important part of the solution to climate change. Tesco has a £2.5 bn revolving credit facility, under which interest rates are linked to the achievement of targets for greenhouse gas emissions, renewable electricity and food waste. In addition, in January 2021 they launched a €750 m sustainability-linked bond.

Disclosure

Recognising that climate change brings financial risks to the business, Tesco has implemented the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), carrying out and reporting on climate risk assessments.

Appendix C.4.3 Examples of NbS actions undertaken or planned

Tesco and WWF partnered in 2018 with the long-term aim of halving the environmental impact of the average UK shopping basket and restoring nature in food production. A Sustainable Basket Metric was defined to measure seven critical environmental issues in the food system. As part of that partnership, a new project has been launched in 2021 to subsidise dairy farmers to plant herbal leys, a soil-enriching grass mix to feed dairy cows. The mix will help increase biodiversity and also reduce carbon footprint due to a lower need for artificial fertiliser. The partnership also includes a specific workstream and budget line (the Innovation Fund) to drive innovation in Tesco's own operations and/or supply chain. The focus of the innovations should be on alternative animal feed to soy or fishmeal, reducing greenhouse gas emissions on farms and agricultural nature-based solutions.

Appendix C.4.4 Contribution to UK targets

As well as contributing to reducing emissions directly through their commitments on direct emissions, Tesco contributes to UK targets in other ways; examples include:

- In recognition that the charging infrastructure for electric vehicles in the UK needs to be developed faster, Tesco is rolling out 2400 charging points across 600 stores. Progress to the end of 2020/21 was 1400 charging bays in 400 UK stores.
- To deliver their renewable transition roadmap, they are in partnership with multiple renewable energy partners, including smaller businesses, such as Low Carbon, to create new solar and wind farms via Power Purchase Agreements. This adds new renewable electricity to the UK grid.

⁴⁹ EV100 is a global initiative focused on accelerating the transition to electric vehicles. (www.theclimategroup.org/ev100)

⁵⁰ Tesco UK Zero Deforestation Soy Transition Plan ([pdf](#))

Appendix C.5 Consumer goods: Unilever

Appendix C.5.1 Company description and emissions summary

Unilever is the world's largest consumer goods company with a turnover of €51 bn.

In terms of contribution to climate change, direct emissions (Scope 1) and emissions from the generation of electricity, heating and cooling (Scope 2) totalled 0.78 MtCO₂e in 2020⁵¹, of which around 8% was in the UK. Scope 3 emissions are much higher at 60 MtCO₂e.

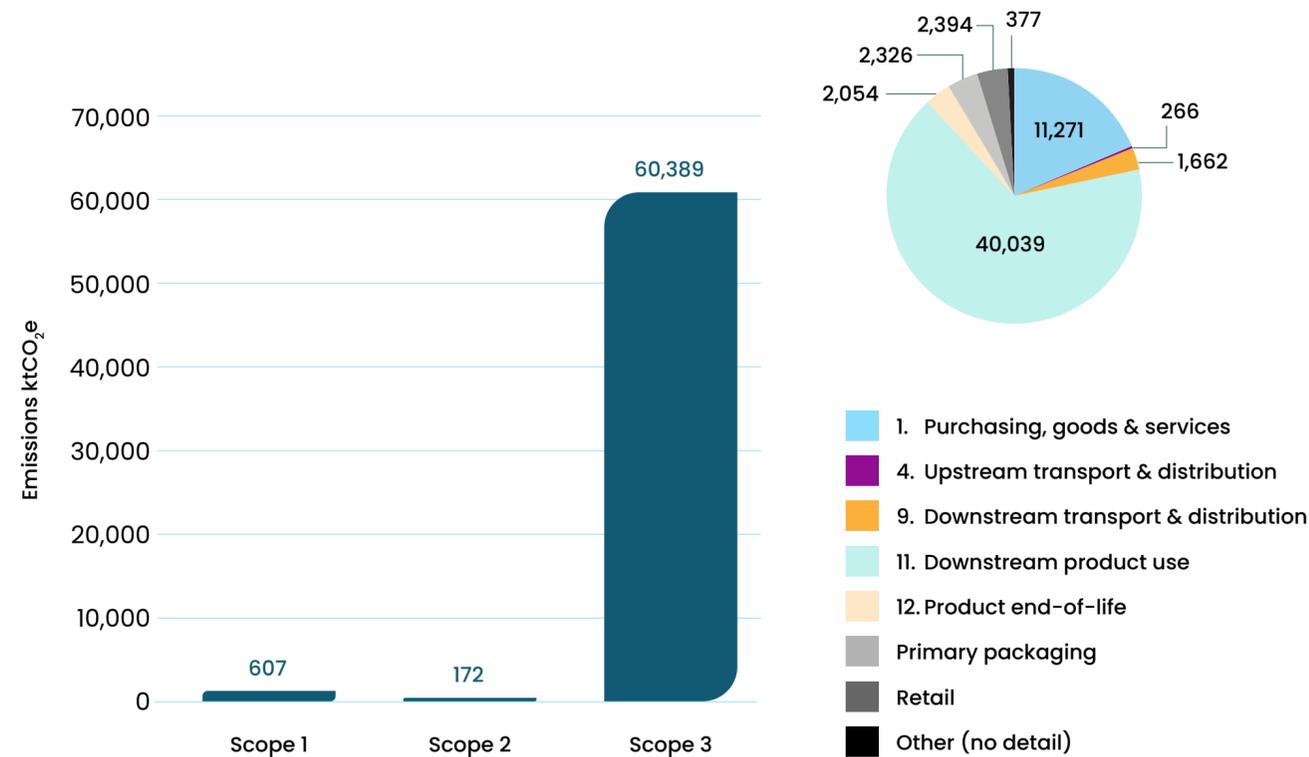


Figure 19 Emissions summary for Unilever

51 Sustainability performance data (unilever.com)

Appendix C.5.2 Commitments to action and progress

Targets summary

Table 6 Summary of targets and disclosures for Unilever

Net zero target	2039
Scope 1 and 2 target	0 by 2030 (70% by 2025 relative to 2015)
What progress has been made on Scope 1 & 2 target?	60% reduction relative to 2015
Scope 3 target (percentage reduction)	50% on per consumer basis in 2030 (relative to 2010)
Scope 3 definition	Upstream Scope 3 emissions and mandatory downstream emissions (exclude indirect use-phase emissions)
What progress has been made on Scope 3 target?	
Renewable energy targets	100% (achieved Jan 2020)
TCFD reporting	Yes

Overarching actions

Unilever has committed to reach net zero emissions by 2039 across Scope 1, 2 and 3 emissions. By 2039, any residual emissions will be balanced with carbon removals and not through offsetting.

They have also committed that future capital expenditure is aligned with the Paris Agreement temperature goal.

Scope 1 and 2

The target for Scope 1 and 2 emissions is a 100% reduction by 2030 (relative to 2015), which is classified as in line with 1.5°C temperature ambition by the Science Based Targets Initiative.

Reducing Scope 1 emissions to zero is to be achieved through:

- Energy efficiency programmes
- A transition of energy to renewables. 100% of worldwide electricity is already renewable and Unilever is now aiming to shift heating sources to renewables. They are a member of the RE100.
- Halving food waste in operations by 2025.
- Phasing out high-impact HFC refrigerants from their cooling systems.

Scope 3

For the target, Scope 3 is defined as upstream emissions (e.g. purchased goods, fuel and energy related activities, business travel) and downstream emissions comprising direct emissions from aerosol propellants and the biodegradation of chemicals in the disposal phase but excluding indirect use-phase emissions such as emissions associated with hot water used with products.

For raw materials (which account for nearly 50% of their value chain emissions), the approach is based on strategic sourcing, supplier eco-efficiency, product design and transformational aspects. It builds on evidence provided by lifecycle analysis. A plan will be put in place integrating greenhouse gas emission reduction roadmaps for all key materials and ingredients. They also intend to prioritise partnerships with suppliers who set their own science-based targets.

Unilever has also committed to end any deforestation associated with palm oil, paper & board, soy, cocoa and tea in their supply chain by 2023. In 2020 they published a comprehensive strategy to ensure that raw materials will come from places that are verified as deforestation and conversion free.⁵²

On packaging materials there are a variety of targets on plastic reduction, re-use and recycling including reducing the use of virgin plastic packaging in 2025 to 50% of the 2018 baseline and making 100% of the plastic packaging reusable, recyclable or compostable by the same year.

Approximately 15% of the greenhouse gas footprint comes from logistics and distribution. They have achieved a 40% improvement in CO₂ efficiency of the global logistics network compared to 2010 already and are targeting a 40 – 50% reduction in emissions over the next decade. For business travel, they are part of the EV100 initiative and have committed to deliver 100% EVs or hybrids in the Unilever car fleet by 2030.

Unilever has a fleet of over 3 million point-of-sale freezer cabinets, the energy consumption of which accounts for around 10% of the value chain footprint. Several actions have been identified to reduce the emissions including reducing energy consumption through innovation and exploring programmes to enable the freezers to be powered by renewable electricity, even where Unilever is not operating them directly.

While in most places around the world, the use of natural hydrocarbon propellant gases is preferred for aerosol propellants in the US regulations restrict or prohibit their use. Low global warming potential hydrofluorocarbon (HFC) propellants are therefore industry practice in US. Unilever is engaging with regulators to explore regulatory change and at the same time exploring other actions to limit HFC use.

Innovation in products is also part of the climate action plan. Concentration and compaction of products has already reduced emissions and has significant remaining potential for both emissions reductions and packaging savings. Unilever is working on innovations that could reduce emissions by 60% for some products.

Carbon is an essential feedstock for some of the chemicals used in Unilever's products. They have made a commitment to replace all fossil-fuel derived carbon feedstocks with renewable or recycled carbon by 2030. Plans include using sustainably source biomass, turning non-recyclable plastic waste into biodegradable cleaning and fragrance chemical and carbon capture and utilisations. Unilever is working in partnership with the Renewable Carbon Initiative⁵³ in this area.

⁵² Unilever People and Nature Policy, December 2020 (pdf)

⁵³ Renewable Carbon Initiative (renewable-carbon-initiative.com)

⁵⁴ Dove unveils forest restoration project in North Sumatra (ukfoodanddrink.co.uk)

⁵⁵ Natural Climate Solutions Alliance, World Economic Forum (weforum.org)

Reducing emissions from diets implies a shift to more plant-based alternatives and Unilever has committed to ensuring that 20% of ice cream products are non-dairy by 2030 and has a target of €1 bn annual sales of plant-based meat and dairy alternatives by 2025 – 2027.

Disclosure and link of targets to remuneration

25% of long-term incentive plan for management is linked to performance against sustainability commitments (including climate targets).

Unilever reports according to the recommendations of the TCFD.

In recognition that they have a role in influencing society, Unilever intend to step up advocacy on climate issues. They disclose the principal trade associations they belong to and are working to ensure that climate change positions are aligned. Unilever also disclose their positions on climate policies.

Appendix C.5.3 Examples of NbS actions undertaken or planned

As part of their climate strategy, Unilever has committed to setting up a €1 billion Climate & Nature Fund which will redirect brand marketing investment from 2021 to consumer-relevant climate and nature programmes. Unilever announced its first Climate & Nature fund programme, which is part of Beauty and Personal Care Division's commitment to help protect and regenerate 1.5 million hectares of land, forests and oceans by 2030. The project aims to protect and restore 20,000 hectares of forest in North Sumatra, Indonesia. The project is being carried out in partnership with Conservation International, and as well as protecting biodiversity it is expected to benefit 16000 local people.⁵⁴

Unilever is part of the Natural Climate Solutions Alliance which aims to scale up affordable NCS.⁵⁵

Appendix C.5.4 Contribution to UK targets

In addition to the actions to decrease their own and supply chain emissions in the UK, Unilever is investing in a pilot at the Port Sunlight site to demonstrate the use of hydrogen as a fuel.

The company is also very active in the policy discussions in the UK around climate change. It was one of the founding companies in the UK Corporate Leaders Group and their CEO is a member of the COP26 Business Leaders Group led by the COP President Alok Sharma.

Appendix C.6 Telecoms: Vodafone

Appendix C.6.1 Company description and emissions summary

Vodafone Group is a technology communications provider with mobile operations in 22 countries, partnering with mobile networks in 42 more and having fixed broadband operations in 17 markets.

In terms of contribution to climate change, direct emissions (Scope 1) and emissions from the generation of electricity, heating and cooling (Scope 2) for Vodafone totalled 1.37 MtCO₂e in 2021. The indirect emissions (Scope 3) were higher at 9.4 MtCO₂e.⁵⁶ The main source of Scope 3 emissions was purchased goods and services, followed by joint ventures and associates (shown below in the investments category).

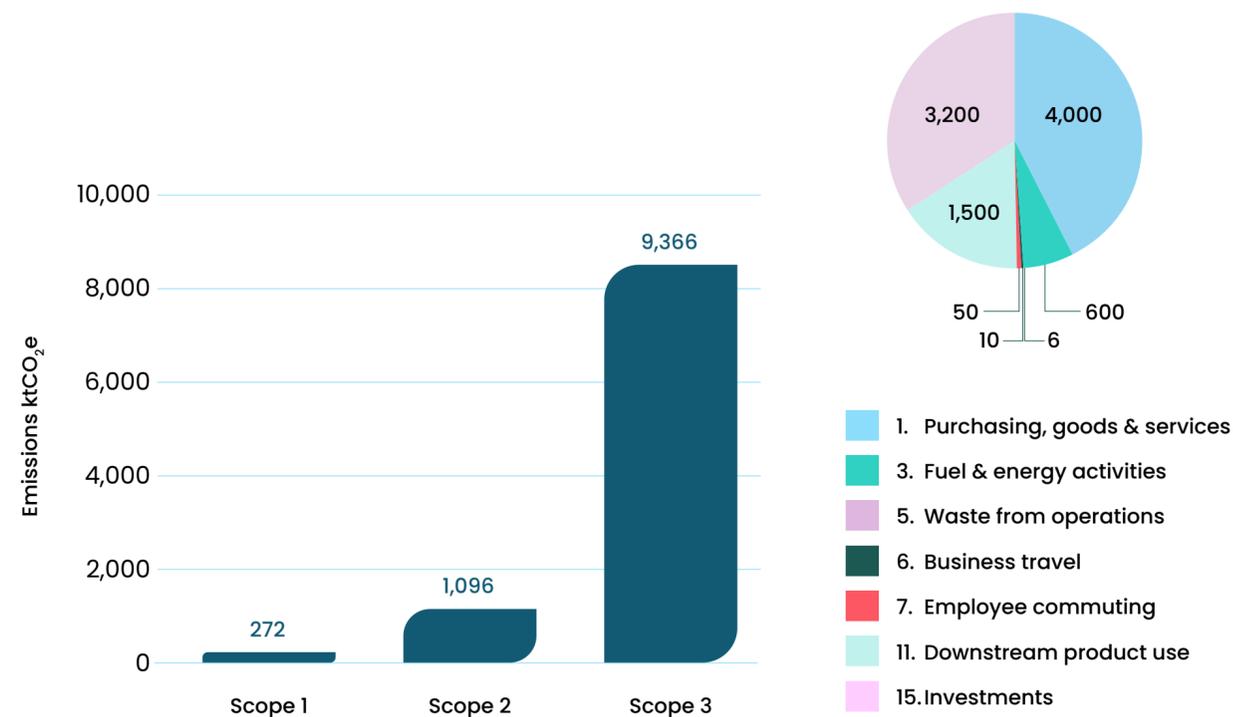


Figure 20 Emissions summary for Vodafone

⁵⁶ Vodafone Group Annual Report 2021. In accordance with the GHG Protocol, Vodafone reports both market-based and location-based Scope 2 emissions. These methods 'allocate' emissions from electricity to the end-user. In the market-based method, Vodafone's reporting reflects the emissions from the electricity they have actually purchased. In the location-based method, an average emissions intensity of the grid is used. As Vodafone has sourced electricity from renewable-sources, the market-based method results in a lower number than the location-based method
⁵⁷ Certified to ISO 50001

Appendix C.6.2 Commitments to action and progress

Targets summary

Table 7 Summary of targets and disclosures for Vodafone

Net zero target	2040
Scope 1 and 2 target	0 by 2030 (2027 in the UK)
What progress has been made on Scope 1 & 2 target?	36% reduction relative to base year.
Scope 3 target (percentage reduction)	50% by 2030 (relative to 2020)
Scope 3 definition	Full scope
What progress has been made on Scope 3 target?	None (2020 is base year)
Renewable energy targets	100% of electricity purchase in Europe by 2021 and globally by 2025
TCFD reporting	Aligned by 2022

Overarching actions

Vodafone has a net zero target across the full value chain by 2040.

Scope 1 and 2

Vodafone has committed to reducing Scope 1 and Scope 2 emissions to net zero by 2030 and has already reduced emissions by 36% compared to the base year. The 2030 target is approved by the Science Based Targets Initiative as in line with 1.5°C. The reduction in Scope 1 and Scope 2 emissions in 2020 is a result of improvements in energy efficiency and an increase in the proportion of renewable energy purchased. The energy efficiency improvements have come from capital expenditure and a 'best-in-class' energy management system.⁵⁷ The renewable electricity purchases are part of a commitment to purchase 100% of electricity used in Europe from renewable sources by July 2021 and globally by 2025. Vodafone is also part of the RE100 initiative.

Scope 3

The commitment on Scope 3 emissions includes an interim target of halving Scope 3 emissions by 2030 against a 2020 baseline. Vodafone now includes a 20% weighting for environmental and social criteria in supplier evaluation. There is a positive scoring if the supplier has set a Science-Based Target.

The use of sold products is the third highest contributor to Scope 3 emissions. As electricity grids decarbonise, these emissions will decrease automatically. However, Vodafone is also working with business and government customers to reduce their own carbon emissions. Offerings include logistics and fleet management, smart metering and manufacturing activities. They have a target to enable savings of 350 MtCO₂ from 2020–2030. In March 2021, they were a founding member of the European Green Digital Coalition, which works together with EU policymakers to drive investment in digital solutions for climate change.

Electronic waste has a range of environmental impacts and a circular economy can reduce those impacts, including reducing greenhouse gas emissions from the reuse of materials. Vodafone has set a commitment to reuse, resell or recycle 100% of network waste by 2025. Globally, 98.7% of network waste was reused or recycled in 2021. They are also working to increase circularity of consumer devices through trade-in schemes, take-back programmes, repair and insurance services and provision of greater information

Climate-linked financing

In May 2019, Vodafone raised €750m with a Green Bond to finance project to manage climate risks. The projects must be aligned with energy efficiency, renewable energy or green buildings objectives

Disclosure and link of targets to remuneration

Vodafone is aligning with the recommendations of the Task Force on Climate-related Financial Disclosure with the intention to be fully aligned by 2022. In 2021, the first standalone TCFD report was published.⁵⁸ In 2021, executive remuneration policy includes a link to a specific greenhouse gas reduction ambition.

Appendix C.6.3 Examples of Nbs actions undertaken or planned

Vodafone has partnered with Defra and Forest Research to explore the potential to use digital solutions to monitor the role of trees in tackling climate change. A pilot started in 2020, will use Internet of Things (IoT) technology to monitor tree growth and impact of environmental change. Specialist sensors have been attached to trees in the Alice Holt forest in Surrey and the Harwood forest in Northumberland. The data collected was used by Defra and Forest Research to assess the impact of temperature, humidity and soil moisture on tree growth and function. Overall, the trial has been successful with a high rate of data capture (>95%) and provision of good quality data in the Alice Holt forest. Data capture is not so high in the Harwood site but has provided some important insight into IoT network penetration in dense conifer stands.⁵⁹

Vodafone is also demonstrating how an IoT system can help prevent deforestation and protect biodiversity. They created a system in a forest in Romania with acoustic sensors. These sensors send captured data to a cloud platform, where artificial intelligence recognises the sounds of logging. The system then sends real-time alerts with geolocation to an app on rangers' phones so they can intervene.

On agriculture, a subsidiary, Mezzanine has developed MyFarmWeb which helps larger commercial farms in Africa, Australia, New Zealand and USA capture agricultural information into a system that helps optimise practice to increase yield and avoid environmental damage.

Appendix C.6.4 Contribution to UK targets

As discussed above, Vodafone works with business, government and NGO customers, including in the UK, to reduce their own emissions. As well as their own activities to reduce emissions described here this will contribute to meeting UK targets. Vodafone UK committed to scope 1 and 2 net zero by 2027 3 years earlier than group wide target

⁵⁸ Vodafone TCFD report 2021 (pdf)

⁵⁹ Connecting trees and forests to the Internet of Things (forestresearch.gov.uk)

