Corporate Climate Responsibility Monitor

2022

ASSESSING THE TRANSPARENCY AND INTEGRITY
OF COMPANIES' EMISSION REDUCTION AND NET-ZERO TARGETS

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This document was prepared in collaboration with Carbon Market Watch.

Disclaimer

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Summary

The *Corporate Climate Responsibility Monitor* evaluates the transparency and integrity of companies' climate pledges.

Companies around the world are increasing alert to the climate emergency. They face calls from a growing range of stakeholders to take responsibility for the impact of their activities. Most large companies now have public climate strategies and targets, many of which include pledges that, on the face of it, appear to significantly reduce, or even eliminate, their contributions to global warming. The rapid acceleration of corporate climate pledges, combined with the fragmentation of approaches means that it is more difficult than ever to distinguish between real climate leadership and unsubstantiated greenwashing. This is compounded by a general lack of regulatory oversight at national and sectoral levels. Identifying and promoting real climate leadership, and sorting it from greenwashing, is a key challenge that, where addressed, has the potential to unlock greater global climate change mitigation ambition.

The *Corporate Climate Responsibility Monitor* assesses the climate strategies of 25 major global companies, critically analysing the extent to which they demonstrate corporate climate leadership (Section A, summarised in Figure S1). We evaluate the integrity of climate pledges against good practice criteria to identify good examples for replication, and highlight areas where improvement is needed (Section B, summarised in Figure S2).

We assess and draw insights on transparency and integrity in four main areas of corporate climate action:

Tracking and disclosure of emissions (section A1)

Setting emission reduction targets (section A2)

Reducing own emissions (section A3)

Climate contributions and offsetting claims (section A4).

The 25 companies assessed in this report are major multinational companies. They reported combined revenues of USD 3.18 trillion in 2020, approximately 10% of the total revenue from the world's largest 500 companies. Their total self-reported GHG emission footprint in 2019, including upstream and downstream emissions (scope 3) that may include a moderate level of overlap, amount to approximately 2.7 $GtCO_2e$. This is equivalent to roughly 5% of global GHG emissions.
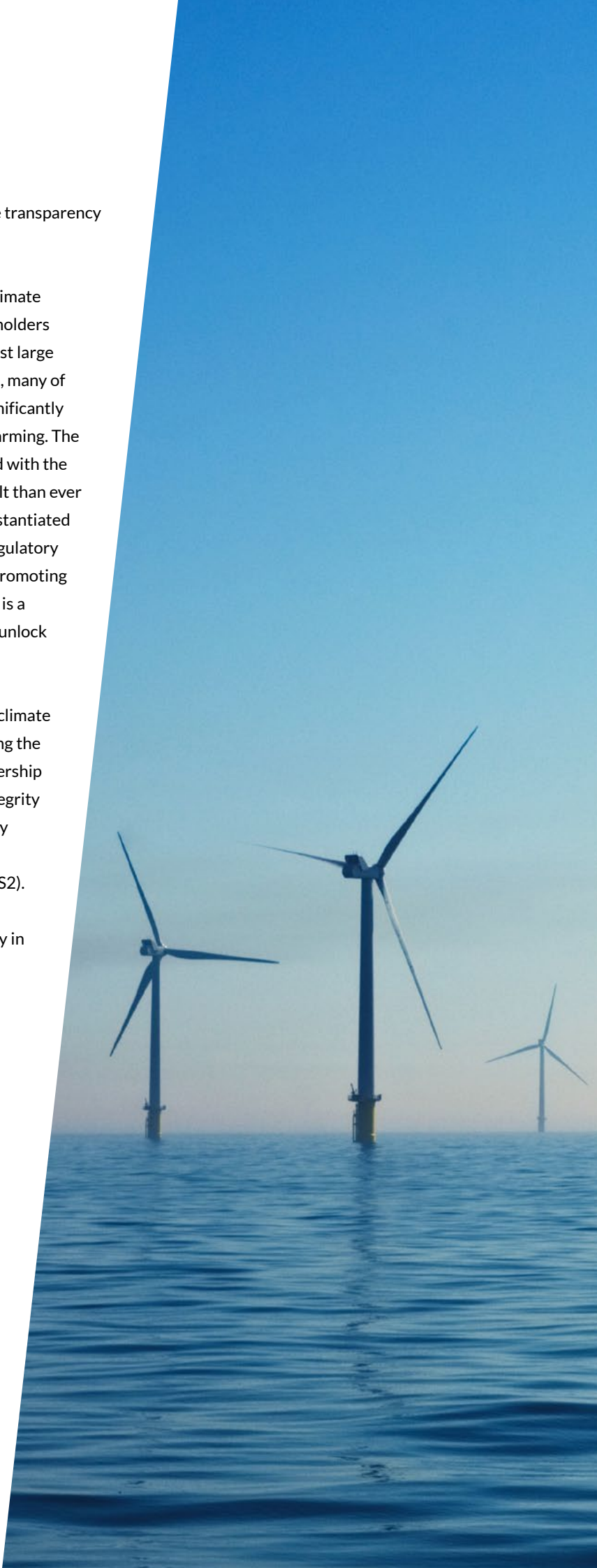
Key insights

Headline pledges are often ambiguous and emission reduction commitments are limited

Net zero targets commit to reduce the analysed companies' aggregate emissions by only 40% on average, not 100% as suggested by the term "net zero". All of the 25 companies assessed in this report pledge some form of zero emission, net zero or carbon-neutrality target. But just 3 of the 25 companies – Maersk, Vodafone and Deutsche Telekom – clearly com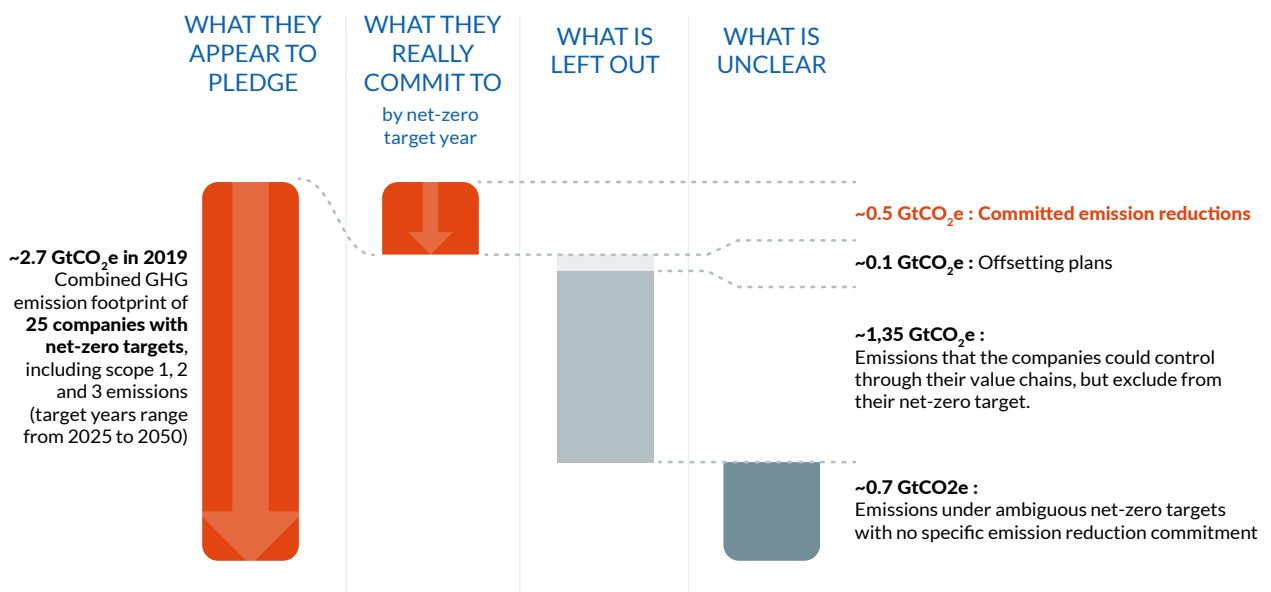mit to deep decarbonisation of over 90% of their full value chain emissions by their respective target years of their headline pledges. At least 5 of the companies only commit to reduce their emissions by less than 15%, often by excluding upstream or downstream emissions. The 13 companies that provide specific details on what their headline net zero pledges mean, commit to reduce their full value chain emissions from 2019 by only 40% on average. The other 12 companies do not accompany their headline pledges with any specific emission reduction commitment for their that target year. Collectively, the 25 companies specifically commit to reducing only less than 20% of their 2.7 $GtCO_2e$ emission footprint, by their respective headline target years (Figure S1).

Targets for 2030 fall well short of the ambition required to align with the internationally agreed goals of the Paris Agreement and avoid the most damaging effects of climate change. Among the companies we assessed, 15 of the 25 prominently report interim climate targets. However, our analysis finds that the average emission reduction commitment of full value chain emissions between 2019 and 2030 is just 23%, if we exclude the 5 companies for which we could not identify any commitment for emission reductions post 2019. This compares to the need to cut global GHG emissions by 40-50% between 2010 and 2030[1], equivalent to approximately half of 2019 emission levels, to be in line with the goal to limit global temperature increase to 1.5°C.

Figure S1: Integrity of corporate net-zero pledges

WHAT THEY APPEAR TO PLEDGE

WHAT THEY REALLY COMMIT TO
by net-zero target year

WHAT IS LEFT OUT

WHAT IS UNCLEAR

~2.7 $GtCO_2e$ in 2019 Combined GHG emission footprint of **25 companies with net-zero targets**, including scope 1, 2 and 3 emissions (target years range from 2025 to 2050)

~0.5 $GtCO_2e$: Committed emission reductions

~0.1 $GtCO_2e$: Offsetting plans

~1,35 $GtCO_2e$: Emissions that the companies could control through their value chains, but exclude from their net-zero target.

~0.7 GtCO2e : Emissions under ambiguous net-zero targets with no specific emission reduction commitment

The 25 companies assessed in this report are not necessarily a representative sample of all corporate actors with net zero targets. They represent 25 of the largest companies in the world, accounting for approximately 5% of global GHG emissions and revenues of USD 3.2 trillion in 2020.

Standard-setting initiatives are lending credibility to low quality and misleading targets. Companies report their A-ratings from CDP on transparency and 1.5°C-ratings from the Science Based Targets initiative (SBTi) on integrity prominently to advertise their pledges. But standard-setting initiatives face a challenging task, and potential conflict of interest, if performing the role of both defining the standard as well as assessing companies against their own criteria and guidelines. Our extensive inspection of companies' targets often reveals specific details or loopholes that call those companies' apparent ambition into question. For the majority of the 18 companies assessed in this report with an SBTi approved 1.5°C (or 2°C) compatible target, we would consider that rating either contentious or inaccurate, due to various subtle details and loopholes that significantly undermine the companies' plans (see Figure 3).

Figure S2: Certifications from standard-setting initiatives
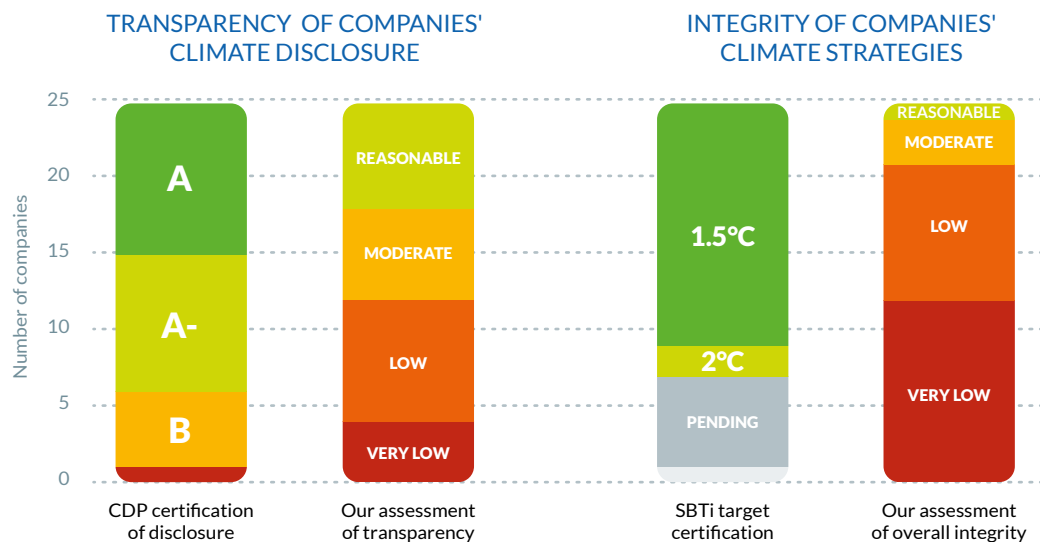
Demonstrated good practice emission reduction measures must be replicated and scaled up

Companies' uptake of readily-available emission reduction measures shows little sense of urgency. Good practice examples for target-setting and the implementation of emission reduction measures are demonstrated among our sample of companies for all emission scopes and can be readily replicated by ambitious peers. Yet many of the companies could significantly improve their uptake of ambitious measures to address their climate footprint, especially for their upstream and downstream emissions (scope 3). Scope 3 emissions account on average for 87% of total emissions for the 25 companies assessed in this report, but only 8 of the 25 companies disclosed a moderate level of detail on their plans to address these emissions. Companies could demonstrate their climate leadership by further prioritising climate change objectives and engaging in constructive dialogue to share knowledge on good practices.

A few companies demonstrate leadership with higher quality and innovative approaches for sourcing renewable electricity, but the overall integrity of renewable electricity procurement remains low. Most companies assessed in this report use unbundled renewable energy certificates (RECs) to claim their energy use has limited, or no, climate impact, i.e. they source their electricity from the local regional or national grid, and in addition purchase certificates from renewable energy producers in potentially different locations. Companies use RECs to claim the reduction of their electricity-related emissions, despite the significant limitations of this construct. For example, such certificates can be generated from decade-old hydro-power plants that have not contributed to the energy transition, or from wind parks that produce the electricity at a different location or at a different point in time (Box A1, section 3.1.2). There are promising signs that companies are starting to understand the nuances of renewable electricity quality, as 6 out of the 25 analysed companies source the majority of their electricity from higher quality power purchase agreements (PPAs) and own-generation. Beyond this, some companies are innovating to find new ways to further improve the integrity of renewable energy procurement.

Offsetting plans are contentious, but climate contributions without neutralisation claims are gaining traction as an alternative approach

Companies' plans to offset or "neutralise" their emissions are especially contentious. 19 of the 25 companies assessed already know that they will rely on offsetting for their future pledges, and only one company plans explicitly without offsets (see Figure S3). At least two-thirds of these companies rely on carbon dioxide removals from forestry and other biological-related carbon sequestration (nature-based solutions) to claim that their emissions in the future are offset, i.e. that the impact to the climate is the same as if the emissions were never released in the first place. But these approaches are unsuitable for individual offsetting claims, because biological carbon storage can be reversed (e.g. when forests are cut and burned) and because there is a global requirement to reduce emissions and increase carbon storage, not one or the other. Claims of carbon neutrality today are often misleading; we identified significant credibility problems with all of the carbon neutrality claims from the companies assessed in this report, due to a combination of limited emission coverage, inconsistent messaging, or procurement of low-quality carbon credits.

The concept of making a contribution to climate change mitigation beyond the company's value chain without claiming carbon neutrality is gaining traction. Examples identified are however undermined by the modest scale of contributions, or a lack of transparency regarding the objectives of the programmes and potential to use the investments to support offsetting claims in the future. More good practice examples are required to facilitate replication of the climate contribution approach.

Figure S3: Use of offsets for carbon neutrality claims and net zero pledges
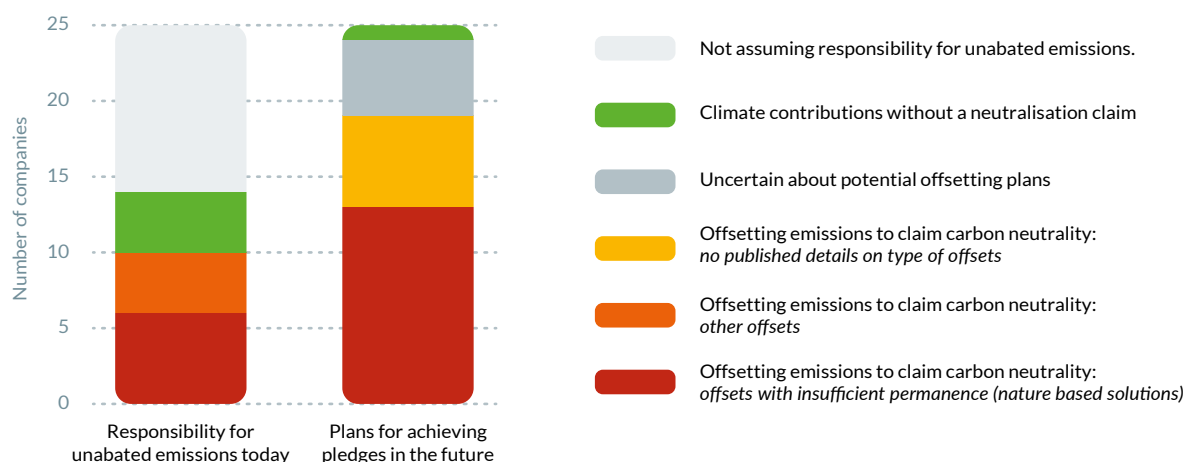
Companies will be the innovators that find the solutions to the climate crisis, but they must be subject to scrutiny and regulation

Mitigation of climate change depends on innovation; companies have, and will continue, to play a central role in finding and scaling up solutions for deep decarbonisation. These efforts need urgent acceleration. The findings of this report indicate that regulators should not rely on consumer and shareholder pressure to drive corporate action. Companies must be subject to intense scrutiny to confirm whether their pledges and claims are credible, and should be made accountable in the case that they are not. Truly ambitious corporate actors can be supported by introducing stronger regulation that levels the playing field by ensuring that those ambitious actors are not at an economic disadvantage compared to their less ambitious peers. Regulators and standard-setting initiatives must find ways to distinguish and segregate climate leadership from greenwashing, to support ambitious actors to innovate and accelerate decarbonisation.

Table 1: Overview of good practice for corporate climate responsibility

1 TRACKING AND DISCLOSING EMISSIONS	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE** TRANSPARENCY & INTEGRITY	
COMPREHENSIVENESS OF DISCLOSURE	✓ Disclose full details on their GHG emissions on an annual basis, with a breakdown of the data to specific emission sources (including scope 1, 2, 3 and non-GHG climate forcers) and the presentation of historical data for each emission source.	LOW | 6/25	

2 SETTING SPECIFIC AND SUBSTANTIATED TARGETS	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE**	
		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES	✓ Explicitly state that their targets cover all scope 1, 2 and 3 emissions as well as any relevant non-GHG climate forcers.	REASONABLE | 19/25	REASONABLE | 15/25
EMISSION REDUCTIONS IN THE PLEDGE	✓ Set a specific emission reduction target that is independent from any offsetting, and aligned with 1.5°C compatible trajectories or benchmarks for the sector, as their main headline pledge.	VERY LOW | 1/25	VERY LOW | 3/25
INTERIM TARGETS	✓ Set interim targets that are aligned with the long-term vision in terms of depth and scope, with the first target on a timescale that requires immediate action and accountability (maximum 5 years).	REASONABLE | 15/25	VERY LOW | 1/22

3 REDUCING EMISSIONS	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE**	
		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	✓ Implement encompassing and deep decarbonisation measures, and disclose details of those measures to support replication and the identification of new solutions.	VERY LOW | 0/25	VERY LOW | 1/25
RENEWABLE ELECTRICITY GENERATION AND PROCUREMENT	✓ Procure the highest quality renewable energy available, and disclose the full details of that procurement.	LOW | 6/25	VERY LOW | 2/25

4 CLIMATE CONTRIBUTIONS AND OFFSETTING	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE**	
		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	✓ Provide an ambitious volume of financial support to climate change mitigation activities beyond the value chain, without claiming neutralisation of the company's own emissions	VERY LOW | 0/25	VERY LOW | 0/25
OFFSETTING CLAIMS TODAY	✓ Avoid misleading claims, and procure only high-quality credits that lead to an additional climate impact that is permanent and accurately quantified.	VERY LOW | 0/10	VERY LOW | 0/10
OFFSETTING CLAIMS TODAY	✓ Avoid misleading pledges; commit to procuring only high-quality credits from high-hanging fruit projects, and ensure corresponding adjustments are applied to limit double counting risks.	VERY LOW | 2/25	VERY LOW | 0/24

Note: *Good practices were derived from the principles elaborated in the following subsections, and from a compilation of the practices identified from existing company pledges in 2021. The good practice performance scores refer to the number of companies that we assessed to have high transparency and high integrity, out of the 25 companies assessed (see section B). In some cases, the rating is a proportion of fewer than 25 companies; for example, the integrity of offsetting is assessed only for companies that pursue offsetting. Full details on the assessment methodology can be found in the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0 (NewClimate Institute, 2022).*

Table 2: Overview of companies assessed in the Corporate Climate Responsibility Monitor 2022

● HIGH INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
No companies achieved a high integrity rating				

◔ REASONABLE INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
MAERSK	Net-zero by 2040	◑	◑	p. 86

◑ MODERATE INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
APPLE	Carbon neutral by 2030	◔	◑	p. 56
SONY	Zero emissions by 2050	◔	◑	p. 95
VODAFONE	Net-zero by 2040	◔	◑	p. 102

◕ LOW INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
AMAZON	Net-zero carbon by 2040	◕	◕	p. 54
DEUTSCHE TELEKOM	Net-zero by 2040	◔	◕	p. 68
ENEL	Net-zero by 2050	◑	◕	p. 70
GLAXOSMITHKLINE	Net-zero by 2030	◑	◕	p. 74
GOOGLE	Carbon-free 2030	◕	◕	p. 76
HITACHI	Carbon neutral by 2050	◕	◕	p. 79
IKEA	Climate positive by 2030	◔	◕	p. 81
VOLKSWAGEN	Carbon neutral by 2050	◑	◕	p. 105
WALMART	Net-zero by 2040	◔	◕	p. 107
VALE	Carbon neutral by 2050	◑	◕	p. 100

○ VERY LOW INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
ACCENTURE	Net-zero by 2025	◔	○	p. 52
BMW GROUP	Carbon neutral by 2050	◑	○	p. 59
CARREFOUR	Carbon neutral by 2040	○	○	p. 61
CVS HEALTH	Net-zero by 2050	◕	○	p. 63
DEUTSCHE POST DHL	Zero / net-zero by 2050	◕	○	p. 65
E.ON SE	Carbon neutral by 2040	◕	○	p. 72
JBS	Net-zero by 2040	○	○	p. 84
NESTLE	Net-zero by 2050	○	○	p. 88
NOVARTIS	Carbon neutral by 2030	◕	○	p. 91
SAINT-GOBAIN	Net-zero carbon by 2050	○	○	p. 93
UNILEVER	Net-zero by 2030	◕	○	p. 97

RATINGS **5-point scale** ● High ◔ Reasonable ◑ Moderate ◕ Low ○ Very low . **See individual company analyses.**
Assessments were made based on public information identified by the authors. A poor rating may not necessarily be an indication that a company's climate strategy is weak, but could also indicate that the information was insufficient to confirm good practice. Ambitious companies can improve their ratings by ensuring that all aspects of their climate responsibility strategies are transparently and accurately disclosed, and in the public domain.

About the corporate climate responsibility monitor

The need for scrutiny on corporate climate action

Many companies are putting themselves at the forefront of climate action. The rate of corporate climate pledge setting is accelerating exponentially: by January 2022, over 3,000 companies had joined the UNFCCC's Race to Zero campaign[2], more than doubling the number of companies setting net-zero emission pledges from the year before.[3]

Civil society's increasing concern with the urgency of the climate crisis is resulting in more pressure from consumers, shareholders and regulators for companies to decarbonise. In parallel, companies realise that the direction of travel is set for the decarbonisation of the global economy, and it is increasingly attractive for them to assume a leading role in that new paradigm. Many companies are scrambling for new approaches and narratives to demonstrate their climate leadership, recognising that historical approaches face limitations in today's context.

The rapid acceleration of corporate climate pledge setting, combined with the fragmentation of approaches and the general lack of regulation or oversight, means that it is more difficult than ever to distinguish between real climate leadership and unsubstantiated greenwashing.

The goalpost of what constitutes good practice climate action for companies has shifted with the adoption of the Paris Agreement and the increasingly clear scientific evidence that underpins its urgency. With the objectives of the Paris Agreement, greenhouse gas emissions need to be reduced at speed, in all countries and in all sectors. The 1.5°C limit requires a reduction in global CO_2 emissions of approximately 45% from 2010 levels by 2030, to reach a state of net-zero global CO_2 emissions by around 2050, net-zero of emissions of all greenhouse gases by around 2060 to 2070, and net-negative emissions thereafter.[4] Company actions that were considered viable in the era of the Kyoto Protocol only ten years ago are no longer sufficient.

For example, it is no longer sufficient for companies to only address their own direct emissions; rather, companies now need to address upstream and downstream emissions as well. It is no longer good practice for a company to compensate for emissions by reducing or removing emissions elsewhere; rather, emission reductions and removals "elsewhere" need to be enhanced in parallel to the company's emission reductions, to reach global net zero.

A new mindset and evaluation standard for companies is necessary. While in the Kyoto era only some countries were required to act, companies now need to ask themselves: "Would we reach global net zero emissions if all would do what we are doing?"

The difficulty of distinguishing real climate leadership from greenwashing is a key challenge that, where addressed, has the potential to unlock greater global climate change mitigation ambition. Corporate climate action is key to closing the emissions gap to a 1.5°C pathway. In a short space of time, and in the absence of sufficient top-down regulation, consumer's and shareholder's expectations have become a major driver for enhanced corporate climate action. Companies appear to be responding. To facilitate this important bottom-up pressure mechanism, it is essential that the credibility of companies' strategies is transparent and can be understood by their target audiences.

The Corporate climate responsibility monitor

The *Corporate Climate Responsibility Monitor* evaluates the transparency and integrity of companies' climate pledges. The objectives of the *Corporate Climate Responsibility Monitor* are:

- **Identify and highlight good practice approaches** that can be replicated by other companies, recognising that companies are experimenting to work out what is constructive and credible practice.

- **Reveal the extent to which major companies' climate leadership claims have integrity**, and provide a structured methodology for others to replicate such an evaluation.

- **Scrutinise the credibility of companies' plans for offsetting their emissions** through carbon dioxide removals or emission reduction credits, recognising that voluntary carbon markets are highly fragmented and there remains a lot of uncertainty on credible good practice.

The *Corporate Climate Responsibility Monitor* focuses on four main areas of corporate climate action: tracking and disclosure of emissions (section A1), setting emission reduction targets (section A2), reducing own emissions (section A3) and taking responsibility for unabated emissions through climate contributions or offsetting (section A4). Evaluations for 25 major global companies are set out in Section B.

The *Corporate Climate Responsibility Monitor* is prepared by NewClimate Institute and Carbon Market Watch. The consortium partners combine years of experience with the independent critical analysis of corporate climate action and carbon market mechanisms. NewClimate Institute and Carbon Market Watch are both not-for-profit organisations. Neither the institutions, nor our staff, hold commercial interests in either voluntary carbon credit markets, nor do we provide advisory services to specific corporate actors.

Development of the Corporate Climate Responsibility Monitor

The *Corporate Climate Responsibility Monitor* is based on the guiding principles for good practice corporate climate responsibility set out in the accompanying methodology document: *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0* (NewClimate Institute, 2022). We have drawn these guiding principles from a combination of scientific literature review, previous work of the authors, and the identification of existing good practices from company case studies.

The guiding principles identified in this document and the accompanying methodology document relate to issues where the state of scientific knowledge and debate is rapidly evolving. The contents of this document represent the views of the authors, based on our interpretation of existing research and current developments. Our assessments of specific companies are based upon these perspectives and interpretations, which may not be universally held views.

The *Corporate Climate Responsibility Monitor* promotes transparency with the philosophy that consumers, shareholders, regulators and wider observers should be able to follow and assess the integrity of companies' claims. Accordingly, the company assessments in section B are based only on publicly available information that the authors were able to identify. Each rating represents the authors' understanding of the publicly available information. In some cases company information was scattered across different sources (e.g. annual reports, press releases and statements, web-pages, or other marketing materials); it is possible in this process that information may have been misinterpreted, or that relevant information was overlooked. Companies should consider how to present information as transparently as possible, to ensure that observers are able to identify all the relevant information necessary to understand their climate strategies.

We assess the transparency and integrity of companies' strategies based on the information that is self-reported by the companies. We do not assess or certify the accuracy or truth of the information provided by companies, including their GHG emission reporting. In specific cases, we supplement self-reported information from the companies with information that we have identified from other sources, but we cannot guarantee the accuracy of that information.

→ See also the assessment methodology for the *Corporate Climate Responsibility Monitor*

Key elements of corporate climate responsibility

This section provides an overview of the good practice criteria and assessment methodology for the Corporate Climate Responsibility Monitor, based on the specific principles for credibility in four focus areas: tracking and disclosure of emissions; setting specific and credible targets; reducing own emissions; climate contributions and offsetting. For each of these four focus areas, we discuss trends, good practices and challenges identified from the companies we assessed.

Good practice overview

Corporates looking to take a position of climate leadership can learn from each other to replicate good practice approaches that are transparent, constructive and robust. The *Corporate Climate Responsibility Monitor 2022* assesses 25 major global companies to draw out good practice in four key areas:

1. Tracking and disclosure of emissions (section 1)

To develop a comprehensive and robust climate strategy, it is key that companies understand and are transparent about their GHG emission footprints and their trajectories. Section 1 presents good practice principles and trends for tracking and disclosure of emissions.

2. Setting specific and substantiated targets (section 2)

Companies' headline climate change pledges encompass a broad range of target setting approaches. Regardless of the type of target and the terminology used, the commitments should send a clear signal for immediate action to decarbonise the value chain, and should avoid misleading consumers, shareholders, observers and regulators. Section 2 presents good practice principles and trends for setting specific and substantiated targets, considering the coverage of emission sources, the explicit specification of an emission reduction target as part of the headline pledge, and the substantiation of long-term visions through interim targets.

3. Reducing own emissions (section 3)

Encompassing measures for deep emission reductions are the backbone of ambitious corporate climate targets. Section 3 presents good practice principles and trends for reducing own emissions, including a special focus on good practice for sourcing renewable electricity.

4. Climate contributions and offsetting (section 4)

Corporate climate leadership includes not only ambitious target setting, but also taking responsibility for unabated emissions. Section 4 explores good practice and trends related to two distinct approaches for assuming responsibility for unabated emissions: climate contributions and offsetting claims.

The specific assessments include a rating of the **transparency** and **integrity** of companies' approaches. Transparency refers to the extent to which a company publicly discloses the information necessary to fully understand the integrity of that company's approaches towards the various elements of corporate climate responsibility. Integrity, in this context, is a measure of the quality, credibility and comprehensiveness of those approaches.

Table 3 provides an overview of good practice corporate climate responsibility and the rating methodology for the *Corporate Climate Responsibility Monitor 2022* for transparency and integrity in each of these four areas. Full details on the methodology can be found in the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0 (NewClimate Institute, 2022).

Table 3: Overview of good practice for corporate climate responsibility

Performance scores refer to the proportion of the 25 companies that we assessed to have high transparency and high integrity.

1 TRACKING AND DISCLOSING EMISSIONS	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE TRANSPARENCY & INTEGRITY**	
COMPREHENSIVENESS OF DISCLOSURE	✓ Disclose full details on their GHG emissions on an annual basis, with a breakdown of the data to specific emission sources (including scope 1, 2, 3 and non-GHG climate forcers) and the presentation of historical data for each emission source.	LOW | 6/25	

2 SETTING SPECIFIC AND SUBSTANTIATED TARGETS	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE**	
		TRANSPARENCY	**INTEGRITY**
COVERAGE OF EMISSION SOURCES	✓ Explicitly state that their targets cover all scope 1, 2 and 3 emissions as well as any relevant non-GHG climate forcers.	REASONABLE | 19/25	REASONABLE | 15/25
EMISSION REDUCTIONS IN THE PLEDGE	✓ Set a specific emission reduction target that is independent from any offsetting, and aligned with 1.5°C compatible trajectories or benchmarks for the sector, as their main headline pledge.	VERY LOW | 1/25	VERY LOW | 3/25
INTERIM TARGETS	✓ Set interim targets that are aligned with the long-term vision in terms of depth and scope, with the first target on a timescale that requires immediate action and accountability (maximum 5 years).	REASONABLE | 15/25	VERY LOW | 1/22

3 REDUCING EMISSIONS	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE**	
		TRANSPARENCY	**INTEGRITY**
EMISSION REDUCTION MEASURES	✓ Implement encompassing and deep decarbonisation measures, and disclose details of those measures to support replication and the identification of new solutions.	VERY LOW | 0/25	VERY LOW | 1/25
RENEWABLE ELECTRICITY GENERATION AND PROCUREMENT	✓ Procure the highest quality renewable energy available, and disclose the full details of that procurement.	LOW | 6/25	VERY LOW | 2/25

4 CLIMATE CONTRIBUTIONS AND OFFSETTING	**GOOD PRACTICE**	**GOOD PRACTICE PERFORMANCE**	
		TRANSPARENCY	**INTEGRITY**
CLIMATE CONTRIBUTIONS	✓ Provide an ambitious volume of financial support to climate change mitigation activities beyond the value chain, without claiming neutralisation of the company's own emissions	VERY LOW | 0/25	VERY LOW | 0/25
OFFSETTING CLAIMS TODAY	✓ Avoid misleading claims, and procure only high-quality credits that lead to an additional climate impact that is permanent and accurately quantified.	VERY LOW | 0/10	VERY LOW | 0/10
OFFSETTING CLAIMS TODAY	✓ Avoid misleading pledges; commit to procuring only high-quality credits from high-hanging fruit projects, and ensure corresponding adjustments are applied to limit double counting risks.	VERY LOW | 2/25	VERY LOW | 0/24

Note: *Good practices were derived from the principles elaborated in the following subsections, and from a compilation of the practices identified from existing company pledges in 2021. The good practice performance scores refer to the number of companies that we assessed to have high transparency and high integrity, out of the 25 companies assessed (see section B). In some cases, the rating is a proportion of fewer than 25 companies; for example, the integrity of offsetting is assessed only for companies that pursue offsetting. Full details on the assessment methodology can be found in the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0 (NewClimate Institute, 2022). High-hanging fruits refer to the most ambitious projects that tackle the least accessible areas of mitigation potential. For more information see section 4.1.2.*

1 Tracking and disclosure of emissions

To develop a comprehensive and robust climate strategy, it is key that companies understand and are transparent about their GHG emission footprints and their trajectories. A complete and transparent overview of a company's emissions footprint is crucial to understand a company's scope of influence, to grasp relevance of its climate-related targets, and to determine whether emission reduction measures are appropriate and comprehensive.

This section assesses the comprehensiveness of companies' GHG emission tracking and disclosure for specific emission scopes, and for subsidiary companies. This report does not assess the rigorousness and accuracy of companies' calculations when quantifying emissions from each emission scope; quantified GHG emissions throughout this document are self-reported by the companies and not verified by the authors. Rather, we assess how comprehensive the companies' own disclosure is in terms of the coverage of emission sources.

Table 4 presents a summary overview of principles for good practice (section 1.1) as well as a summary trends, promising examples and bad practice identified from the company assessments (section 1.2).
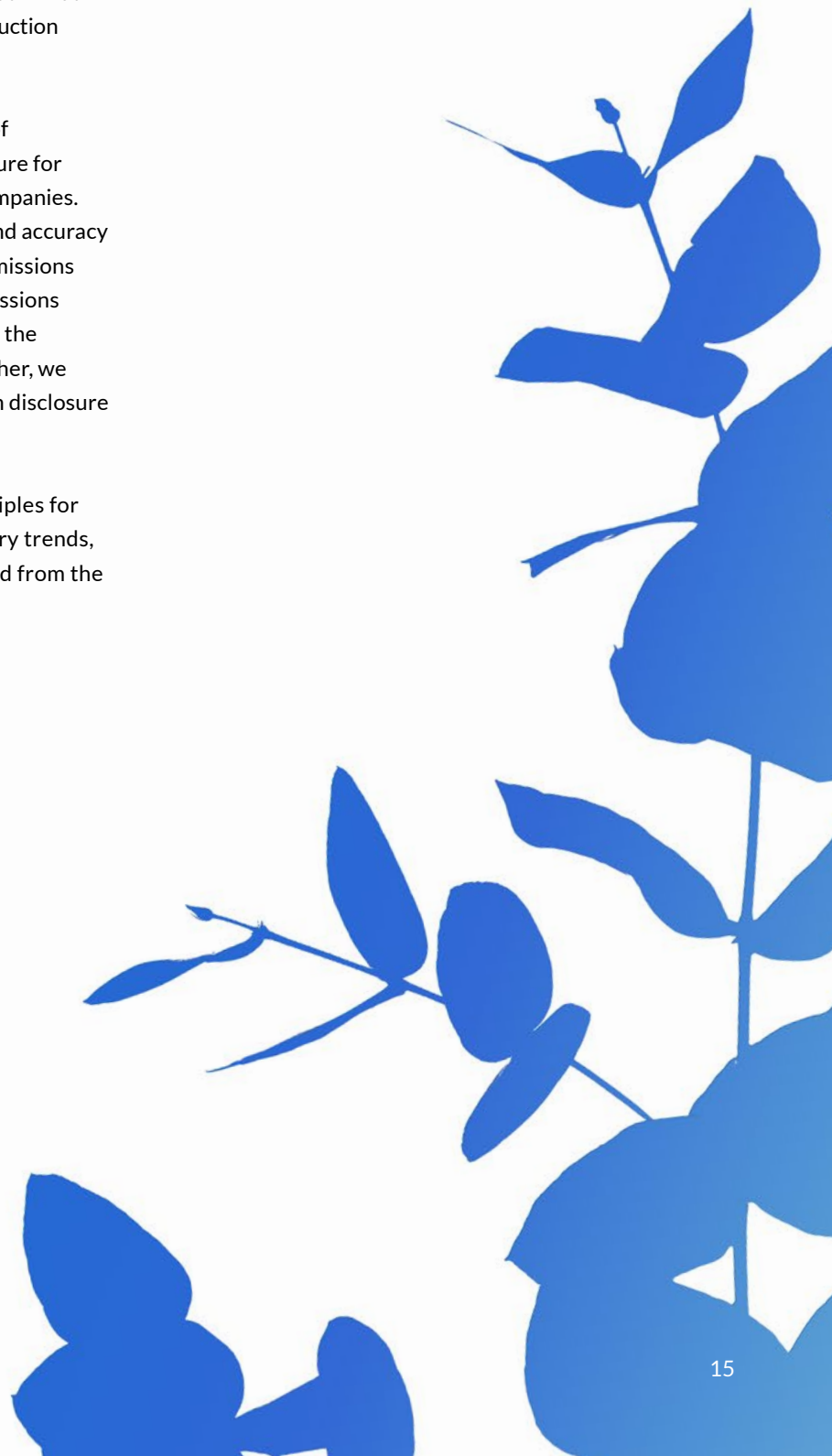
Table 4: Summary of good practice and trends for GHG emission tracking and disclosure

SUMMARY OF GOOD PRACTICE PRINCIPLES (SECTION 1.1) AND PERFORMANCE FROM THE COMPANIES ASSESSED

GOOD PRACTICE FOR TRACKING AND DISCLOSURE

- ✓ Annually disclose their emissions
- ✓ Disclose emissions in a clear and understandable format
- ✓ Provide a breakdown of emission sources
- ✓ Present historical data for the same emission sources
- ✓ Present activity data and emission intensities
- ✓ Disclose non-GHG climate forcers if relevant
- ✓ Present scope 2 emissions using the accounting approach that returns the higher emission value
- ✓ Include the emissions from subsidiaries

GOOD PRACTICE PERFORMANCE
TRANSPARENCY & INTEGRITY

Scope 1	MODERATE | 13/25
Scope 2	VERY LOW | 0/25
Scope 3 upstream	LOW | 8/25
Scope 3 downstream	MODERATE | 10/25
Inclusion of subsidiaries	REASONABLE | 16/25

SUMMARY OF TRENDS, ROLE MODELS AND BAD PRACTICE (SECTION 1.2)

ALL ANALYSED COMPANIES PROVIDE SOME DISCLOSURE ON THEIR GHG EMISSIONS,
but the level of detail differs significantly by company.

NEARLY ALL COMPANIES SHOW EMISSIONS BY SCOPE,
but usually only aggregated data for each scope, without further breakdown to specific emission sources.

ELECTRICITY-RELATED EMISSIONS:
No companies reported with the most transparent and constructive approach on their scope 2 emissions, by disclosing both market-based and location-based accounting methods and using the higher value for aggregated reporting. 8 of the 25 companies disclose emissions from only one of the two accounting methods.

SUBSIDIARY COMPANIES:
Several companies do not clarify if and how they disclose the emissions of their subsidiaries. 9 of the 25 companies explicitly confirm that their disclosure includes emissions from subsidiaries.

PROMISING EXAMPLES

DETAILED DOWNLOADABLE DATA SETS

- **Sony** discloses detailed information on emissions in tabular format, with scope 3 emissions broken down to 15 distinct categories, including estimates for emissions associated with investments. Detailed data can be downloaded on GHG emissions and underlying activity indicators, covering the past 20 years.

- **Vodafone** makes its full dataset for its Environmental, Social and Governance reporting available for download in a transparent workbook. Data on GHG emissions are broken down to specific sources and detailed energy data are reported.

BAD PRACTICE

SELECTIVE DISCLOSURE OF SCOPE 3 EMISSIONS:
At least 7 of the 25 companies do not report on all scope 3 emissions in public documentation. This way, companies fail to report on up to 98% of their emissions footprint.

INFLATED HISTORICAL EMISSIONS:
Extraordinarily high emissions reported in specific historical years (including target base years), requires explanation.

EXCLUSION OF LUC EMISSIONS:
The coverage of emissions from land use change remains highly inconsistent and is likely a source of significant under-reporting.

UNCLEAR EXCLUSION OF EMISSION SOURCES:
When companies exclude emission sources from their GHG emission disclosure, this is often not explicitly explained, or set out in footnotes that can be easily overlooked.

DISPLACEMENT OF EMISSIONS TO SUBSIDIARIES:
Some companies move carbon intensive infrastructure or products to subsidiary companies, which they do not include in their emissions disclosure, to improve the apparent GHG footprint of their parent company.

SUPPORTING COMPANIES TO IMPROVE THEIR TRACKING AND DISCLOSURE

- Standardised templates for detailed emissions reporting including activity indicators would set a clear standard for companies to follow when disclosing their emissions

The good practice performance scores refer to the number of companies that were assessed to have high transparency and integrity, out of the 25 companies. Full details on the assessment methodology can be found in the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0, section 1.[5]

1.1 Principles for good practice

This section includes a summary of guiding principles and assessment criteria for tracking and disclosure of emissions from section 1 of the accompanying methodology document, *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0.*[6]

1.1.1 Tracking and disclosure of emissions

Companies should annually disclose detailed information on their GHG emissions, covering the full spectrum of climate impacts associated with the activities of the company. Meaningful planning for complete decarbonisation depends on a thorough and granular understanding of a company's emission sources. Complete and transparent disclosure covers all direct emissions (scope 1), indirect energy-use emissions (scope 2) and other upstream and downstream indirect emissions (scope 3). The latter includes business travel emissions, emissions from procured products and services, investments, waste, upstream and downstream transport and distribution and emissions from product use. Where relevant, companies should also include non-GHG climate forcers in their disclosure. Companies should publish information on the methodologies and assumptions involved in the calculation of emissions, to facilitate comprehension and verification. This is particularly important for emission sources where there remains significant uncertainty and inconsistency in accounting approaches, such as emissions from land-use change. Complete and consistent reporting of GHG emissions across documents is necessary to avoid misleading readers.

Companies should report scope 2 emissions using both the location-based and market-based method, taking the highest of the two values for their calculation of their total emission: According to the GHG Protocol, companies should report on scope 2 emissions using both the location-based and market-based accounting methods.[7] The **location-based method** reflects the average emissions intensity of grids on which energy consumption occurs. The **market-based method** reflects emissions from electricity that companies have purposefully chosen. It derives emission factors from contractual renewable electricity procurement instruments. Both accounting approaches have the potential to mislead in different circumstances. In order to create a clear incentive to both maximise energy efficiency improvements and to procure renewable electricity, it would be most constructive for companies to report on both market-based and location-based scope 2 emissions, and to use the larger of the two values towards the company's aggregated total emissions.

Companies can ensure full transparency by reporting on even minor and irrelevant scope 3 emission sources. The GHG Protocol's Scope 3 Standard identifies 15 distinct reporting categories for scope 3 emission sources, and requires companies to quantify and report scope 3 emissions from each category.[8] It is important for transparency that companies disclose data or at least explanatory information for all 15 of these mandatory scope 3 emission categories, even those deemed minor or irrelevant.[9] Differences in interpretations regarding what constitutes a "minor" or "relevant" emission source could lead to significant inconsistencies between companies' reporting. Some observers may perceive the omission of minor emission sources to be a significant gap in disclosure, unless these omissions are explained.

Companies' disclosure should include contextual information to understand key emission drivers and trends. Complete and transparent disclosure includes historical data, a breakdown of emission sources, activity data and emission intensities. Ambitious companies go beyond the publication of aggregated emissions; they provide a high level of detail to allow for thorough understanding of the specific individual emission sources. Transparency on specific emission sources and activity data is a tool for increasing ambition in its own right: it contributes to a constructive, collaborative dialogue that is required to overcome challenges and share lessons learnt for accelerated decarbonisation.

Companies' disclosure should include the emissions associated with subsidiary companies. Companies may depend on emission-intensive assets and infrastructure that are held in other subsidiary companies. Transparent and complete reporting also includes these emissions, which should be integrated into the company's scope 1, 2 and 3 emissions. The exclusion of these emissions from GHG inventories can lead to inaccurate interpretations regarding specific brands' or products' GHG emission footprints. If companies report transparently on the emissions of all subsidiaries, this can incentivise those companies to make a real shift away from emissions-intensive activities and assets, rather than continuing those emissions-intensive activities through subsidiaries.

1.1.2 Good practice assessment criteria

The criteria for good practice in Table 5 forms the basis for the company assessments in section B. Full details on the methodology for rating companies' tracking and disclosure can be found in the accompanying methodology document, *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0*, section 1.[10]

Table 5: Good practice for tracking and disclosure of emissions

TRACKING AND DISCLOSURE OF EMISSIONS	CORPORATE CLIMATE LEADERS EXHIBITING GOOD PRACTICE...
ASSESSED FOR THE FOLLOWING EMISSION SCOPES INDIVIDUALLY: • Scope 1 • Scope 2 • Scope 3 upstream • Scope 3 downstream	✔ Annually disclose their emissions ✔ Disclose emissions in a clear and understandable format ✔ Ensure complete and consistent reporting of GHG emissions in public documentation ✔ Provide a breakdown of emission sources ✔ Present historical data for the same emission sources ✔ Present activity data and emission intensities ✔ Disclose non-GHG climate forcers if relevant ✔ Disclose scope 2 emissions using both the market-based and location-based accounting method, using the accounting approach that returns the higher emission value for aggregated emissions. ✔ Integrate the emissions from subsidiaries into the respective emission scopes.

1.2 Trends, role models, and bad practice

Disclosing GHG emissions is common practice for companies, but with varying levels of comprehensiveness and granularity.

All of the companies we assessed have reported their GHG emissions footprint on an annual basis. Providing transparency on the current emissions footprint is the first step towards implementing a comprehensive and robust climate responsibility approach.

There are significant differences in the level of detail of the GHG emission disclosures among the analysed companies. Where some companies facilitate a thorough understanding of their emission sources through granular data on specific emission sources, others only present aggregate data for scopes 1, 2 and 3, without providing a clear breakdown.

Fewer than half of analysed companies present any underlying activity data to complement their GHG emission disclosure. Underlying activity data can enable a more thorough understanding of emission sources

and the extent to which companies are taking steps to address their climate impact. These activity indicators include energy consumption data from specific individual energy carriers, raw material consumption, production volumes, waste volumes, passenger and freight transportation statistics, among others.

Some companies facilitate scrutiny by making their emission and activity datasets available for download. Sony, Vodafone, Unilever and Deutsche Post compile relevant data in a downloadable format, which facilitates a clearer understanding of whether the company is reporting on its full scope of emissions and where the major emission sources are. Sony's (section B p95) and Vodafone's (section B p102) data is especially comprehensive, with current and historical emissions broken down to specific emission sources and a selection of activity indicators reported for certain geographic locations.

The coverage of reported emissions remains highly inconsistent; for some companies the omission of major emission sources remains a serious barrier to transparency.

Only 7 of the 25 companies disclose full details on all scope 3 emission sources. While nearly all companies reported at least some scope 3 emissions, companies are selective in what they present, showing only minor emission sources and, in various instances, creating a misleading impression of their overall footprint. Many companies report emissions as well as other details of their climate strategies to CDP – formerly the Carbon Disclosure Project – which provides the companies with a certified rating of climate reporting transparency that can be used in marketing material. The information disclosed in those reports is not often available to observers without significant effort or costs. Some of the companies analysed – including Carrefour (p61), Novartis (p91) and Walmart (p107) – reported significantly higher scope 3 emissions to CDP than they did in their main public communications.

The exclusion of major emissions sources (sometimes only described in footnotes) can significantly change the integrity of GHG emission disclosure. For example, despite relatively detailed reporting on scope 1, 2 and 3 emissions, E.ON excludes over 40% of its energy sales from its emissions data, and Carrefour (p61) excludes the majority of Carrefour-branded stores as well as upstream and downstream emissions that account for over 98% of the company's GHG footprint from the GHG inventory of its Annual Report. The exclusion of market segments, geographies and product lines from emission reporting can be easily overlooked by consumers, shareholders and regulators. This can have implications not only for the robustness of GHG emission reporting but also the integrity of targets and emission reduction measures.

Land-use change (LUC) emissions are inconsistently reported and could be a source of major under-reporting for some companies. There remains a lack of clear guidance for corporates to account for LUC emissions. This includes emissions from business activities associated with issues such as deforestation or monoculture, but also carbon dioxide sequestration from better managed agricultural and forested lands. The GHG Protocol is currently in the process of preparing guidance for corporate accounting of land sector emissions and removals. For now, companies' approaches to both the coverage and calculation of emissions remain inconsistent and untransparent. This is likely to represent a major source of under-reporting for some companies. JBS' disclosure of 6.8 $MtCO_2e$ from scope 1, 2 and 3 emissions falls far short of the 280 $MtCO_2e$ estimated by an independent assessment from IATP,[11] due to the exclusion of suppliers' agriculture and deforestation emissions, despite these farms supplying the large majority of JBS' meat (see JBS case p84). IKEA discloses GHG emissions stemming from specific individual raw materials including attributing 34 $MtCO_2e$ to wood, but does not provide detailed information on how those emissions are calculated, which is especially relevant given that turning wood into a net-sink is a key aspect of IKEA's communicated climate strategy (see IKEA case p81). The lack of clear guidelines for consistent accounting in these sectors may undermine the comparability of companies' GHG emission disclosure and pledges.

Most companies' reporting of emissions from electricity consumption (scope 2) obscures the real climate impact of their electricity consumption and diverts prioritisation away from energy efficiency improvements.

Most companies assessed use the market-based accounting method to effectively claim the neutralisation of their electricity-related emissions, when they procure renewable electricity, although this is often not an accurate claim. For the majority of the renewable electricity procurement constructs that companies pursue, the additional climate impact associated with that construct is unclear, and sometimes unlikely (see section 3). Even in the case of higher-quality renewable energy procurement constructs such as PPAs, the causal relationship between the electricity procurement contract and the development of truly additional generation capacity is complex. One cannot assume a guaranteed impact for the neutralisation of electricity-related emissions. This practice may give the false impression that a company has no or few scope 2 emissions and divert prioritisation away from energy efficiency improvements.

Misleading emission accounting approaches can significantly impact the integrity of companies' climate strategies.

The exclusion of carbon intensive subsidiaries can create a false impression of a company's environmental footprint. Some companies are moving or selling carbon intensive infrastructure, assets or products to wholly or partially owned subsidiary companies. Companies may claim that this allows them to focus on the development of more sustainable business models for their core business. However, this can also be simply a rebranding and distraction exercise, if the company excludes those subsidiaries' activities from its GHG emission reporting. This can appear to make a company's emission footprint much lower than it really is. This potential issue is especially relevant in sectors with major assets in carbon intensive infrastructure, such as the energy industries, where fossil fuel related infrastructure is being sold off or passed on to new subsidiaries and joint ventures. Both major energy utilities assessed in this report – E.ON SE and Enel S.p.A. – report only partially on the emissions of some subsidiaries.

Extraordinarily high emissions in specific historical years (including target base years), can conceal the real meaning of targets. Historical GHG emission trends are more transparent if they are accompanied by activity data and explanations. This is especially the case when emissions in a target base year are extraordinarily different from other years. For example, CVS Health's scope 3 emissions are 70-80% higher in 2019 than in 2017, 2018 and 2020, without a clear explanation, potentially undermining the meaningfulness of the company's target for a 47% reduction in scope 3 emissions by 2030 compared to 2019. In such cases, companies could improve their integrity through providing clearer explanations of why emissions in these years are so much higher, and why this represents a reasonable choice of base year for their targets.

Reporting emissions from optional emission scopes can represent good practice, but it can also distract from emissions in the normal scope. Some companies – including Unilever (p97) – report optionally on *indirect* emissions from the product use phase. This includes for example, the energy used to heat water that people use when they wash their hands with Unilever-branded soaps, or the energy used to operate washing machines loaded with Unilever-branded detergents. This is different from reporting on the *direct* emissions from the product use phase, which is a normal part of downstream scope 3 emission reporting: for example, the energy-related emissions from washing machine use should be reported by the manufacturers of the washing machines. While it can be good practice for companies to monitor indirect emissions from the product use phase to determine whether they may be able to influence a reduction in those emissions, those emissions can dwarf a company's normal emission reporting scope, and divert attention away from action on those emission scopes. In the case of Unilever, where these emissions account for approximately two thirds of the company's reported scope 3 emissions in 2020, the company is likely to achieve a significant share of its target for a 50% emission intensity reduction in scope 3 emissions between 2010 and 2030 simply through other companies' actions to improve the efficiency of appliances and the emission intensity of the electricity grid.

2 Setting specific and substantiated targets

Companies' headline climate change pledges encompass a broad range of target setting approaches:

- Some companies opt for specific GHG emission reduction targets, but most major companies are moving towards "net zero" pledges (or similar terminology), which envisage emission reductions combined with offsetting some emissions.

- Some companies' headline pledges are long-term visions for 2040 or 2050, while others focus on shorter-term commitments for 2025 or 2030.

- Some targets cover a company's full scope of emissions throughout the value chain, while others focus only on specific emission sources.

- Some companies do not commit to absolute GHG-related targets, but rather focus on emission intensity targets (emissions per unit of output or revenue), or targets associated with decarbonisation indicators, such as renewable energy targets.

- Some companies select from only one of these target setting approaches, while others combine several, or all of them.

The high diversity of target setting approaches could stem from differences in companies' specific circumstances, different availability of mitigation options, and different understandings of the materiality of scope 3 emissions. Further, there are differences of opinion and mixed messages regarding the type of targets that represent the highest standard of climate change mitigation ambition.

Regardless of the type of target set and the terminology used, it is most crucial that the targets send a clear signal for immediate action to decarbonise the entire value chain. Limiting global temperature increase to 1.5°C requires the rapid decarbonisation of all sectors, to reach a state of net-zero global CO_2 emissions by around 2050, net-zero GHG emissions by around 2060 to 2070, and net-negative emissions thereafter.[12] The pathway to net-zero is crucial: a 1.5°C limit requires immediate action to achieve a reduction in global CO_2 emissions of about 45% from 2010 levels by 2030;[13] further delay could put the Paris Agreement objectives beyond reach.

Targets should also not mislead consumers, shareholders and observers, whose demands represent a vital pressure mechanism for raising ambition. Nor should they mislead regulators into avoiding or limiting the implementation of policies to incentivise ambitious climate action.

This section assesses whether headline targets are specific and substantiated, focusing on the coverage of emission sources in the headline pledge (section 2.1.1), emission reductions in the headline pledge (section 2.1.2), and substantiation of the headline pledge through interim targets (section 2.1.3).

Table 6 presents a summary overview of principles for good practice (section 2.1) as well as a summary trends, promising examples and bad practice identified from the company assessment (section 2.2).

Table 6: Summary of good practice and trends for target setting

SUMMARY OF GOOD PRACTICE PRINCIPLES (SECTION 2.1) AND PERFORMANCE FROM THE COMPANIES ASSESSED

GOOD PRACTICE FOR TARGET SETTING		GOOD PRACTICE PERFORMANCE	
		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES	✓ Explicitly state that their targets cover all scope 1, 2 and 3 emissions, and also non-GHG climate forcers where relevant.	REASONABLE | 19/25	REASONABLE | 15/25
EMISSION REDUCTIONS IN THE PLEDGE	✓ Set a specific emission reduction target that is independent from offsetting claims, and aligned with 1.5°C compatible trajectories or benchmarks for the sector, as their main headline pledge.	VERY LOW | 1/25	VERY LOW | 3/25
INTERIM TARGETS	✓ Set interim targets that are aligned with the long-term vision in terms of depth and scope, with the first target on a timescale that requires immediate action and accountability (maximum 5 years).	REASONABLE | 15/25	VERY LOW | 1/22

SUMMARY OF TRENDS, ROLE MODELS AND BAD PRACTICE (SECTION 2.2)

EMISSION REDUCTIONS:
While all of the companies assessed pledge some form of zero-emission, net-zero or carbon-neutral target, the 13 companies for which sufficient information was available, plan to reduce their full value chain emissions from 2019 (before netting) by an average of just 40% (median 40%; mean 46%), not 100%. The other 12 companies do not accompany their net-zero targets with any specific emission reduction commitment for their net-zero target year.

THE COVERAGE OF EMISSION SOURCES
is so variable that targets are rarely comparable; 15 of the 25 companies set targets covering their full value chain emissions, while 8 companies' have targets that cover only scope 1 and 2 emissions.

INTERIM TARGETS:
15 of the 25 companies prominently report interim targets, but the average emission reduction commitment of full value chain emissions between 2019 and 2030 is estimated at just 23% (median 23%; mean 25%), while the 1.5°C limit would require global emissions to be cut in half by that time. This excludes the 5 companies for which we could identify no commitment for any emission reductions post 2019.

PROMISING EXAMPLES

DEEP DECARBONISATION COMMITMENTS
- **Maersk**'s net-zero target for shipping emissions in 2040 includes a target for the reduction of 90-95% of the company's full value chain emissions. The target is substantiated by interim targets.
- **Vodafone** set a net-zero target for 2040 that explicitly includes the commitment to reduce own emissions by at least 95%. The target is substantiated by interim targets.

GUIDING ACTION THROUGH SHORT-TERM TARGETS
- Sony has set a comprehensive series of climate and energy related targets on a five-yearly basis since 2010, covering emission intensities and activitiy indicators. The company uses the targets to guide its measures during each 5-year period

BAD PRACTICE

HIDING INACTION BEHIND NET-ZERO: 12 of the companies with (net-)zero emission targets have made no specific commitment for the reduction of their own emissions in the net zero target year. For 5 of the remaining 13, the pledges amount in reality to less than 15% emission reductions, due to scope limitations and dependence on offseting.

MISLEADING TARGET SCOPE COVERAGE: 8 of the 25 companies set net-zero or carbon neutrality targets that cover only their direct operational emissions (scope 1 and 2), although upstream and downstream emissions in the value chain (scope 3) account for on average 87% of the companies' emissions. These nuances are not always transparent and may mislead consumers, shareholders, regulators and observers to misinterpret the integrity of the target.

FALSE TARGETS: At least 4 of the 25 companies assessed have headline pledges or interim targets compared to a base level of emissions that may in reality require no significant emission reductions at all between 2019 / 2020 and the target date.

LOW QUALITY TARGETS ARE CERTIFIED AS AMBITIOUS: 18 companies assessed in this report have their target approved by SBTi as 1.5°C (or 2°C) compatible, but for the majority of those, we find that their targets are highly contentious, due to subtle technicalities.

SUPPORTING COMPANIES TO IMPROVE THEIR TARGET SETTING

- Observers and standard setters can support bringing ambitious and comprehensive reductions of a company's own emissions back to the forefront, through insisting that net-zero is only meaningful if substantiated through specific emission reduction targets.

The good practice performance scores refer to the number of companies that were assessed to have high transparency and high integrity, out of the 25 companies. Full details on the assessment methodology can be found in the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0, section 2.[14] We use 2019 emissions as a base year for analytical purposes, as the most recent year with complete GHG reporting before the COVID-19 pandemic distorted emission trends.

2.1 Principles for good practice

This section includes a summary of guiding principles and assessment criteria for target setting from section 2 of the accompanying methodology document, *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0.*[15]

2.1.1 Coverage of emission sources in the headline pledge

Targets should be explicit in their coverage of the complete spectrum of emission sources and greenhouse gases, to maximise impact and avoid misleading communication. The most comprehensive targets cover the full GHG emission footprint of a company across its entire value chain, including upstream and downstream scope 3 emissions, and non-GHG climate forcers where relevant (see section 1). Targets with partial scope coverage have the potential to mislead: disclaimers get lost or may not be well understood by the audiences of climate pledge communications. Companies should explicitly set out the coverage of their headline climate pledges to avoid misinterpretation and to ensure accountability.

Coverage of all normal scope 3 emission categories is highly relevant, despite uncertainties and indirect influence. Scope 3 emissions can entail a degree of uncertainty, particularly for complex emission sources related to land-use such as upstream food processing, and downstream emissions associated with consumer behaviour and product use. The decarbonisation of these emissions may also depend partially on actions taken by others. Despite these uncertainties, the inclusion of all mandatory scope 3 emission sources from the GHG Protocol's Scope 3 Standard in companies' targets is crucial.[16] This provides a clear incentive for all actors with a potential influence on the decarbonisation of emission sources to take measures to do so. For manufacturers of cars, electric appliances, or electronic devices, scope 3 emissions often account for the major share of those companies' emissions, and the companies are the actors with the greatest influence to decarbonise those emission sources, by manufacturing products with alternative or more efficient technologies. Even in the cases where companies have a lower degree of influence in the reduction of scope 3 emissions, this does not justify their exclusion from targets; the full inclusion of scope 3 emissions in targets can incentivise companies to cooperate with suppliers and consumers to mutually support each other to reduce emissions, including to seek out new solutions where needed. Targets that omit Scope 3 emissions carry a significant potential to mislead, since Scope 3 emissions account for a large portion of most companies' climate impact.

2.1.2 Emission reductions in the headline pledge

Climate pledges only send a meaningful signal for decarbonisation if they explicitly include deep emission reduction commitments that are independent of offsetting and carbon dioxide removals. Headline pledges may be in the form of emission reduction targets, they may be accompanied by such targets, or they may not specify any emission reduction targets at all. Achievement of the Paris Agreement objectives requires the deep decarbonisation of all companies across all industries. The depth of these emission reduction targets is critical for determining alignment with 1.5°C compatible emission trajectories. A state of global net-zero CO_2 emissions that is compatible with the 1.5°C goal requires the deep reduction of emissions to 91-97% below 2010 by 2050, alongside a limited role for carbon dioxide removals to neutralise a small volume of residual emissions from the emission sources that are hardest to abate. Climate pledges are only making a contribution to the Paris Agreement objectives if they put emission reductions within the value chain in the spotlight, and are more constructive if they avoid ambiguous terminology that could otherwise distract from this focus.

Emission reduction commitments must be deep enough to align with a 1.5 °C compatible emission pathways. For example, the Net Zero Standard of the Science-Based Targets initiative (SBTi) requires companies from any sector with net zero targets—except the forestry, land-use, and agriculture sectors—to explicitly commit to emission reductions of at least 90% below 2019 levels across all emission scopes.[17] The commitment to such deep emission reductions ensures that the net-zero terminology is not misleading, regardless of the target year, but it is not alone a measurement of sufficiency in terms of 1.5°C compatibility. Where available in the literature, benchmarks for specific decarbonisation indicators can indicate the key 1.5°C compatible milestones for specific sectors.[18]

2.1.3 Substantiation of the headline pledge through interim targets

Specific targets over short- and medium-term periods that require immediate action and accountability are of primary importance and should be the main focus: long-term visions can provide a useful signal, but only when accompanied with adequately ambitious interim targets within a timeframe that requires immediate action. Pathways to decarbonisation that are characterised by initially slow or delayed action will lead to a larger volume of cumulative emissions, which would require even more drastic emission reductions at a later date, and could put the 1.5°C goal beyond reach. Within a corporate environment, we consider that a maximum 5-year timeframe for interim targets is good practice, since it is particularly challenging to establish an accountability mechanism for targets set over the medium- or longer-term. Like for the sufficiency of emission reduction commitments in the headline pledge, interim targets must also be ambitious enough to be aligned with 1.5°C compatible emission pathways.

2.1.4 Good practice assessment criteria

The criteria for good practice in Table 7 forms the basis for the company assessments in section B. Full details on the methodology for rating companies' target setting approaches can be found in the accompanying methodology document, *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0*, *section 2*.[19]

Table 7: Good practice for setting specific and substantiated targets

SETTING SPECIFIC AND SUBSTANTIATED TARGETS	CORPORATE CLIMATE LEADERS DEMONSTRATING GOOD PRACTICE…
COVERAGE OF EMISSION SOURCES	✓ Clearly communicate the scope and year of their target. ✓ Cover all scope 1, 2 and 3 emissions (including upstream and downstream scope 3 emissions), as well as non-GHG climate forcers where relevant.
EMISSION REDUCTIONS IN THE HEADLINE PLEDGE	✓ Set a specific emission reduction target that is independent from neutralisation claims as their main headline pledge. ✓ Commit to emission reductions of at least 90% below 2019 levels, if their headline pledge is a net-zero target, to ensure that the terminology is not misleading. ✓ Set an emission reduction target that is aligned with 1.5°C compatible trajectories or benchmarks for the sector.
SUBSTANTIATION THROUGH INTERIM TARGETS	✓ Set interim targets that are aligned with the long-term vision in terms of depth and scope, with the first target on a timescale that requires immediate action and accountability (maximum 5 years). ✓ Chart a trajectory that is aligned with 1.5°C compatible trajectories or benchmarks for the sector. ✓ Prominently provide details on interim targets alongside headline pledges.

2.2 Trends, role models, and bad practice

Comprehensive scope coverage demonstrates some companies' climate leadership, while limited coverage renders other companies' targets almost meaningless.

The companies' headline targets cover between less than 2% and 100% of the emissions they are responsible for. 15 out of 25 companies' headline targets cover the full scope of emissions across the full value chain, while 8 companies have targets that cover only their own operational emissions (scope 1 and 2) without upstream and downstream emissions from the value chain. For some companies, the choice of scope for their targets is a detail which reinforces the integrity of their pledge to deep emissions reductions, while for others the choice of scope coverage may signal almost a continuation of business as usual. The stark differences in scope coverage can make targets incomparable.

Limited emissions coverage is often not presented transparently and has significant potential to mislead. It is not always clearly apparent in companies' public communications when their headline pledges are only limited to specific scopes. For the companies that cover the full range of their scope 1, 2 and 3 emissions in their targets, this was communicated transparently in every one of those cases. For companies whose targets were limited to only specific emission scopes, the majority did not set this out transparently. Observers may miss the nuances and be misled by announced targets, unless scope exclusions are communicated transparently.

Net-zero target terminology risks to distract from emission reductions unless such targets are further substantiated.

The tendency towards setting "net-zero targets" has led to ambiguous targets where the reduction of a company's own emissions are not often in the forefront. 24 of the 25 companies assessed have a net-zero or carbon-neutral target as their headline pledge. Only Walmart set an explicit target for the reduction of their own value chain emissions, that is independent from offsetting, as their headline pledge, although this is applicable to only scope 1 and 2 emissions. Of those companies with a net-zero or carbon neutrality target, just half of those companies specified prominently what this means in terms of a commitment to the reduction of their own emissions. For the remaining half, this target formulation represents a more ambiguous commitment than previous emission reduction targets, potentially facilitating a backtracking in ambition or a continuation of business as usual under what appears to be more ambitious branding.

Net-zero targets commit to reduce the analysed companies' aggregate emissions by only 40% on average, not 100% as suggested by the term "net-zero". All of the 25 companies assessed in this report pledge some form of zero-emission, net-zero or carbon-neutral target. But just 3 of the 25 companies – Maersk, Vodafone and Deutsche Telekom – clearly commit to deep decarbonisation of over 90% of their full value chain emissions by their respective net-zero and zero emission target years. At least 5 of the companies only commit to reduce their emissions by less than 15%, often by excluding upstream or downstream emissions. The 13 companies that provide specific details on what their net-zero pledges mean, commit to reduce their full value chain emissions from 2019 by only 40% on average (median 40%, mean 46%). The other 12 companies do not accompany their net-zero targets with any specific emission reduction commitment for their net-zero target year. Collectively, the 25 companies specifically commit to reducing only less than 20% of their 2.7 $GtCO_2e$ emission footprint, by their respective net-zero and zero emission target years (Figure 1).

Net-zero targets can serve as a useful vision if complemented by specific emission reduction targets, including short-term interim targets. For example, although Sony's commitment to a 100% emission reduction by 2050 is made ambiguous by an undefined role for offsetting, the company uses this longer-term vision to guide the formulation of much more specific short- and mid-term targets which include emission reduction targets for specific emission scopes as well as other non-GHG targets for activity-specific indicators. These short term targets provide a far clearer signal for the implementation of emission reduction measures, than the 2050 target alone would do. Enel also use their 2050 net zero target as a vision to inform more specific targets for 2023 and 2030, which are then the main instrument for designing specific measures.

Targets for 2030 fall short of necessary ambition. 15 of the 25 companies prominently report interim targets, but the average emission reduction commitment of full value chain emissions between 2019 and 2030 is estimated at just 23% (median 23%; mean 25%). This excludes the 5 companies for which we could not identify any commitment for emission reductions post 2019.

Observers and standard setters can support companies to bring short-term emission reductions back to the forefront through insisting that net-zero is only meaningful if substantiated through specific emission reduction targets, including short-term interim targets. This is already the position of the UNFCCC Race to Zero campaign and the Science Based Targets initiative (SBTi), but the current reality shows limited compliance with these positions.

Figure 1: Integrity of net-zero pledges and emission reduction commitments
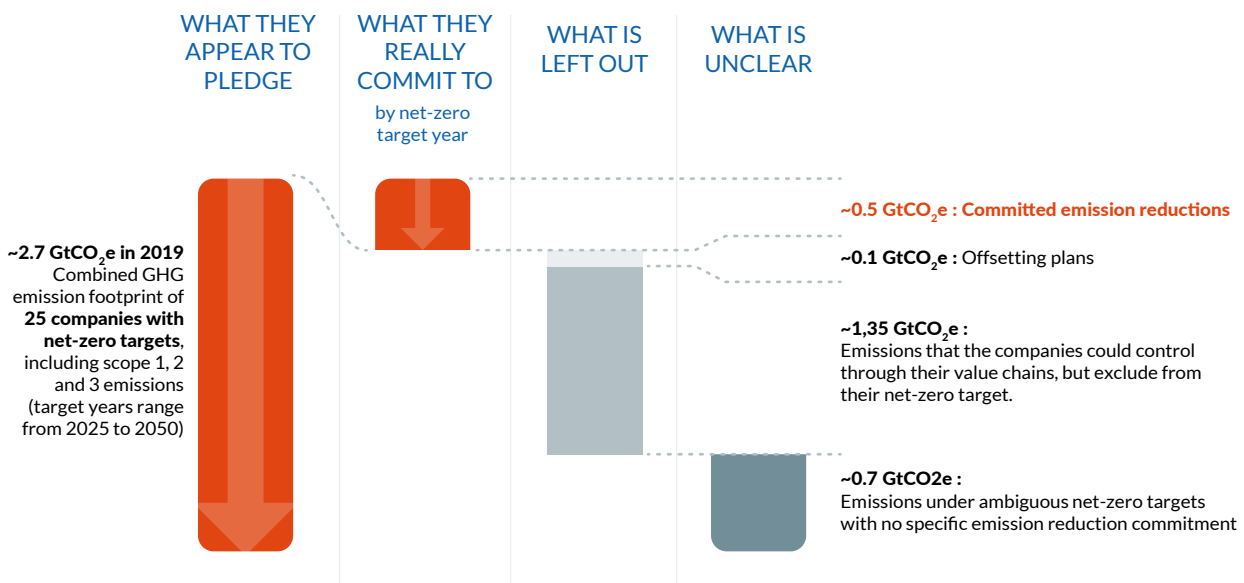
WHAT THEY APPEAR TO PLEDGE

WHAT THEY REALLY COMMIT TO
by net-zero target year

WHAT IS LEFT OUT

WHAT IS UNCLEAR

~2.7 GtCO$_2$e in 2019
Combined GHG emission footprint of **25 companies with net-zero targets**, including scope 1, 2 and 3 emissions (target years range from 2025 to 2050)

~0.5 GtCO$_2$e : Committed emission reductions

~0.1 GtCO$_2$e : Offsetting plans

~1,35 GtCO$_2$e :
Emissions that the companies could control through their value chains, but exclude from their net-zero target.

~0.7 GtCO2e :
Emissions under ambiguous net-zero targets with no specific emission reduction commitment

The 25 companies assessed in this report are not necessarily a representative sample of all corporate actors with net zero targets. They represent 25 of the largest companies in the world, accounting for approximately 5% of global GHG emissions and revenues of USD 3.2 trillion in 2020.

Standard-setting initiatives are lending credibility to low quality and misleading targets.

Companies report their 1.5°C- and A-ratings from SBTi and CDP prominently to demonstrate the credibility of their pledges. 16 of the 25 companies assessed in this report have a SBTi approved "1.5°C aligned target", another 2 have an approved "2°C aligned target", while another 6 of the companies await SBTi approval for their targets; 19 of the 25 companies received an A or an A- rating on the transparency of their climate reporting from CDP in 2021. Companies regularly display these ratings at the point of presenting their targets in their public-facing reports. For most readers trying to form an impression of a company's ambition, this is the most easily interpretable information point.

Standard-setting initiatives face a difficult task to assess companies against their criteria and guidelines. Our extensive inspection of companies' targets often reveals specific details or loopholes that call those companies' apparent ambition into question (see Figure 2). For the majority of the 18 companies assessed in this report with an SBTi approved 1.5°C or 2°C aligned target, we would consider such ratings as either highly contentious or inaccurate, due to subtleties that are difficult to detect. For example, some companies – including Accenture, CVS Health and GlaxoSmithKline who all prominently publicise their SBTi 1.5°C ratings – set targets compared to a base level of emissions that may in reality require hardly any further emission reductions between 2019 or 2020 and the target date. In some of the cases where this occurs, the targets are formulated relative to a year that had unusually higher emissions. Some companies' SBTi certified targets are discretely but significantly inconsistent with targets the companies communicate directly; Nestlé is certified by SBTi as 1.5°C compatible for a 50% emission reduction target by 2030 compared to a 2018 base year, although close inspection of Nestlé's own reports leads us to the interpretation that the

company's target may be compared to a "business as usual scenario" projected from 2018, which would equate to an 18% emission reduction compared to a 2018 base year. These examples illustrate the difficulty of performing individual assessments with limited resources, and raise the question whether it is realistic and valuable to conduct evaluations for a mass of companies without sufficient resources to conduct detailed investigations.

The "legislative" function of standard-setting initatives should be separated from the "judicative" function of evaluating companies' implementation of those standards. Now that climate action is seen as an important component of companies' marketing strategies, companies have the intrinsic motivation to present themselves as frontrunners and their claims therefore need to be checked by independent entities. Due to their own instrinsic motivation to demonstrate mobilisation and momentum, standard-setting initiatives are not entirely independent in this regard. There must be a division of power between organisations performing the functions of mobilisation, standard setting, and verification, just as there should be a seperation between legislative and judicative functions in any governance system. Standard-setting initiatives should focus on the development of guidelines and standards, rather than pursuing the mass evaluation of individual companies with insufficient resources and conflicting incentives. This can otherwise lead to a platform for greenwashing; multiple examples are included in this report.

Figure 2: Certifications from standard-setting initiatives

TRANSPARENCY OF COMPANIES' CLIMATE DISCLOSURE

INTEGRITY OF COMPANIES' CLIMATE STRATEGIES
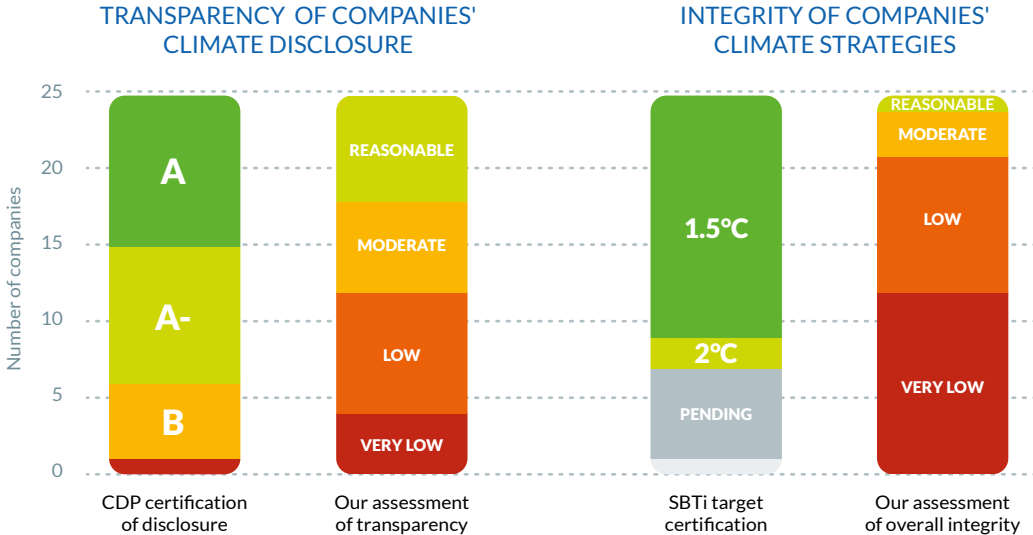
3 Reducing emissions

Encompassing measures for deep emission reductions are the backbone of ambitious corporate climate targets. As companies' emission profiles vary widely, there is not a standardised set of measures that all can implement. The integrity and robustness of companies' decarbonisation efforts must be considered against each company's circumstances and emission profile (section 3.1.1).

Electricity-related emissions are relevant for all companies to address and are often a central feature of companies' plans and claims. For this reason, we single out renewable electricity procurement for deeper assessment (section 3.1.2).

Table 8 presents a summary overview of principles for good practice (section 3.1) as well as summary trends, promising examples and bad practice identified from the company assessment (section 3.2).

Table 8: Summary of good practice and trends for reducing emissions

SUMMARY OF GOOD PRACTICE PRINCIPLES (SECTION 3.1) AND PERFORMANCE FROM THE COMPANIES ASSESSED

GOOD PRACTICE FOR REDUCING EMISSIONS		GOOD PRACTICE PERFORMANCE	
		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	✔ Implement encompassing and deep decarbonisation measures, and disclose details of those measures to support replication and the identification of new solutions.	VERY LOW | 0/25	VERY LOW | 1/25
RENEWABLE ELECTRICITY PROCUREMENT	✔ Procure the highest quality renewable energy available, and disclose the full details of that procurement.	LOW | 6/25	VERY LOW | 2/25

SUMMARY OF TRENDS, ROLE MODELS AND BAD PRACTICE (SECTION 3.2)

FOCUS ON SCOPE 1 AND 2 EMISSIONS:
Around half of the companies outline measures for scope 1 and 2 emissions in at least moderate detail, whereas only a minority disclose detailed information on measures for scope 3 emissions. 10 of the 25 companies provide no or very limited information on their planned reduction measures.

RENEWABLE ELECTRICITY PROCUREMENT:
At least 20 of the 25 companies claim to actively procure renewable electricity, but only 6 of those companies report statistics to claim that renewable electricity accounts for the majority of their electricity consumption in 2020. Renewable energy certificates are the most commonly used electricity procurement option (at least partially used by 17 out of 20 companies), but companies appear to be expanding their portfolios of higher quality renewable energy, including PPAs and on-site generation. More than half of the companies have a target for 100% renewable electricity consumption by 2030.

PROMISING EXAMPLES

INVESTING IN TECHNOLOGICAL SOLUTIONS

- **Maersk** invests to develop and scale up alternative fuels. The company founded the Mærsk McKinney Møller Center for Zero Carbon Shipping and partnered with a renewable energy company to establish a factory for e-methanol.

RENEWABLE ELECTRICITY IN THE TECH INDUSTRY

- **Apple** procures ~95% of its electricity through PPAs, own installations, and equity in renewable electricity projects, and supports the development of energy storage systems.

- **Google** monitors how its electricity consumption is matched on an hourly basis with regional carbon-free sources, aiming for 24/7 matching by 2030.

- **Amazon** publishes information on its comprehensive portfolio of RE projects, but could improve aggregated data transparency.

ADDRESSING UPSTREAM SCOPE 3 EMISSIONS

- **Walmart** guides suppliers to reduce emissions in energy, product design, waste, forestry, agriculture, and packaging. 23% of Walmart's suppliers have joined the programme.

- **Apple** supports suppliers to source RE through their Supplier Green Energy Programme.

- **DHL** has established a Green Carrier Certification programme to encourage other logistics companies (who are their delivery contractors) to green their fleets and operations.

BAD PRACTICE

VAGUE REPORTING ON PURSUED EMISSION REDUCTION MEASURES: Most companies present only very limited information on the scale and potential impact of their emission reduction measures.

NON-CREDIBLE CLAIMS ABOUT ELECTRICY-RELATED EMISSIONS: A large majority of companies rely on RECs in combination with the market-based accounting method to claim to neutralise their electricity-related emissions, which is likely to be innacurate and can distract from implementing important energy efficiency measures.

DOUBLE COUNTING RENEWABLE ENERGY FROM PPAs AND EQUITY: Some companies claim to neutralise electricity emissions through low-cost PPAs without energy attribution certificates, or through holding equity in renewable energy plants without sourcing electricity from them. In both cases, there is a possibility that the operator sells RECs to other customers, and that the use of RE is double counted.

LIMITED AMBITION FOR RENEWABLE ELECTRICITY: 11 of the 25 companies do not have clear targets to procure 100% renewable electricity this decade. The procurement of renewable electricity is an accessible first step for companies that are serious about deep decarbonisation - along with energy efficiency improvements - and a prerequisite for climate leadership claims.

SUPPORTING COMPANIES TO IMPROVE THEIR EMISSION REDUCTION MEASURES

- Standards and labelling initiatives could provide clearer guidelines on the procurement of high quality renewable electricity, and credible accounting approaches.

The good practice performance scores refer to the number of companies that were assessed to have high transparency and high integrity, out of the 25 companies. Full details on the assessment methodology can be found in the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0, section 3.[20]

3.1 Principles for good practice

3.1.1 Emission reduction measures

Corporate actors must implement encompassing and deep decarbonisation measures. Decarbonisation efforts should focus on all relevant emission sources across all three scopes. Adopting readily available measures should be the first priority for companies that claim to be on a decarbonisation pathway, followed by the scaling up of proven flagship projects and—if necessary—investments in research and development to find new decarbonisation solutions. Further, companies should have a clear plan to phase out all carbon-intensive infrastructure and products. Ambitious companies should plan for and implement a set of measures that leads to complete or near decarbonisation of their activities, depending on the sector they are active in.

Transparent disclosure and information sharing can support replication and the identification of new solutions. Companies can show real climate leadership by prioritising transparent exchange on climate change mitigation over industry competition, to support replication of effective measures and to collaborate for the identification of new solutions. Reports that refer to individual flagship projects may potentially inspire readers, but further details are required to support replication and facilitate an assessment of the company's ambition. Companies' planned measures can only be fully appraised if their plans contain details on the scale of planned measures using indicators that demonstrate what proportion of a company's activities will be addressed by the measures, and what the anticipated impacts are for reductions in GHG emissions.

3.1.2 Renewable electricity generation and procurement

Companies reduce electricity-related emissions in different ways. How a company goes about sourcing renewable electricity makes a big difference in the actual emission impact and the credibility of renewable electricity consumption claims.

Electricity-related emissions are a relevant emissions source for all companies to address and represent a key component of many companies' climate change strategies and pledges. For some companies, those emissions account for the lion's share of their emissions. Other companies may have relatively fewer emissions from electricity consumption today, for instance those in the heavy industry, aviation, and shipping sectors. However, electricity is likely to become increasingly important for those companies, as they move away from fossil fuels to alternatives such as hydrogen and ammonia, for the production of which electricity is needed.

Companies have a variety of options for sourcing renewable electricity (Table 9). While for some an emissions reduction claim may be legitimate, for others the impact is unclear. As the impact of projects vary and is often unclear, it is best practice for companies to combine high quality renewable electricity procurement with the most accurate and transparent emission reporting, including the location-based accounting method alongside the market-based accounting method (see Section A1.1).

Table 9: Overview of renewable electricity procurement options

RENEWABLE ELECTRICITY GENERATION OR PROCUREMENT CONSTRUCT	GENERAL LIKELIHOOD OF EMISSION REDUCTION IMPACT
THE INSTALLATION OF RENEWABLE ELECTRICITY WITH STORAGE TECHNOLOGIES on a company's own premises can ensure that a company is directly using renewable energy, without placing any significant burden on grid infrastructure.	⭐ VERY HIGH
MONITORING AND MATCHING ENERGY CONSUMPTION WITH RENEWABLE ENERGY ON A 24/7 BASIS can significantly increase the credibility of claiming that electricity is derived from renewable sources, as long as the electricity is procured from high quality procurement options that would likely not have existed without the company's financial support.	⭐ VERY HIGH
THE INSTALLATION OF RENEWABLE ELECTRICITY WITHOUT STORAGE on a company's own site can directly create additional renewable energy capacity. However, actors that do not have on-site storage will still rely on the national grid when they do not generate sufficient energy themselves. Therefore, the emission reduction impact of this option is not as reliable as having on-site renewable electricity and storage technologies.	HIGH
THE ARRANGEMENT OF A HIGHER QUALITY POWER PURCHASE AGREEMENT (PPA) is likely to ensure additional renewable electricity capacity that would not exist in the PPA's absence. Higher quality PPAs are those for new and local electricity generation. However, the extent to which a PPA leads to additional renewable electricity capacity depends upon the specific circumstances and overlap or competition with other potential project developers. It is therefore not necessarily guaranteed that a signed PPA will eliminate energy-related emissions. PPAs should include the purchase and transfer of any renewable energy attribution certifications to reduce the risk that the renewable energy claim is double counted.	HIGH
INVESTMENTS IN RENEWABLE ELECTRICITY DEVELOPMENT can contribute to additional renewable electricity capacity and may be an effective strategy for companies to pursue, especially in countries with low levels of renewable electricity penetration. However, investments in renewable electricity development must also be seen as a business case. Companies should not claim that their equity share in RE projects reduces their electricity-related emissions, unless they procure the electricity and attribution certificates from those own RE investments. Otherwise, there is a material risk that renewable electricity is double claimed.	HIGH
A CAPACITY EXPANSION PREMIUM, in which electricity suppliers charge a premium on electricity sales which is dedicated to funds for additional renewable electricity capacity installations, can channel direct support to additional renewable energy capacity. This model alone cannot underpin the claim of the neutralisation of current electricity emissions, but rather it can be add-on to improve the quality of any other energy procurement model.	MODERATE
PROCUREMENT OF RENEWABLE ENERGY CERTIFICATES (RECS) DIRECTLY GENERATED BY THE ENERGY SUPPLIER (BUNDLED RECS) may not currently send any meaningful signal to potential developers of new renewable energy capacity due to oversupply and low prices. They may also simply displace more carbon intensive electricity to other consumers in the same market (see Box A1).	MODERATE
RECS GENERATED BY A THIRD PARTY (UNBUNDLED RECS) face the same limitations as bundled RECs but can even lead to a net decrease in demand for renewable energy capacity due to the potential for implicit double counting (see Box A1).	VERY LOW
NO RENEWABLE ENERGY PROCUREMENT OR GREEN-ENERGY PREMIUM. Some companies still do not pursue any form of renewable energy procurement or support.	NIL

The contentious impact of renewable energy certificates for reducing electricity related emissions

Adapted from NewClimate Institute and Data Driven Enviro-Lab.[21]

RECs are used in several countries under different names, such as "Energy Attribute Certificates" or "Guarantee of Origin." Consumers can purchase RECs in different forms.

- **Unbundled RECs:** Consumers purchase RECs on the spot market from a third party, separately from the supplier of the procured energy.

- **Bundled RECs – third party generated:** Some energy suppliers procure RECs from a third party in order to bundle these RECs with energy sales as a green premium product. In this case the energy supplier may be delivering fossil fuel powered energy, while the third party that provides the RECs is producing renewable energy.

- **Bundled RECs – supplier generated:** Energy suppliers with their own renewable energy generation may sell their own RECs bundled together with energy sales.

The sale of RECs does not necessarily contribute to additional renewable energy supply capacity.

While the purchase of RECs could send a signal to investors that there is demand for renewable energy in theory, there are indications that this is often not the case in practice due to issues including oversupply of certificates and associated low prices, and implicit double counting.[22]

For example, in Europe there is an oversupply of RECs at low prices that mostly stems from decades-old hydropower installations in Scandinavia.[23] As these installations were operating long before the system of RECs was established, certificates have had no influence on the development of hydropower capacity in those countries. If Scandinavian customers believe that their energy is unambiguously delivered by renewable energy, they may see little incentive to purchase RECs; consequently, the owners of hydropower installations may sell RECs to foreign customers instead,[24] leading to the renewable energy generation being implicitly double counted. In this case, a German customer who consumes predominantly fossil-fuel based energy from the German grid can purchase Norwegian RECs and claim lower scope 2 emissions. Neither the German energy provider nor the Norwegian hydropower owner, however, have an incentive to increase their RE capacity as a result of this transaction, so actual GHG emissions do not change. While exceptions may exist, the cause-effect relationship between purchasing a REC and contributing to additional renewable energy capacity – and by extension, to the reduction of emissions – is difficult to ascertain.

RECs can displace carbon-intensive energy to other actors unknowingly

When a customer purchases RECs, the actual energy mix that a certificate owner receives does not change, nor does the energy mix in the grid. If fossil-fired power plants and renewable energy technologies feed electricity into a grid, the actors who draw from that grid would all receive a combination of renewable- and fossil-fired electricity. Consequently, if the owner of a renewable energy generation facility were to sell RECs to one actor, that actor may claim a lower grid emission factor to determine its scope 2 GHG emissions, but would still continue to receive the same combination of renewable- and fossil-fired electricity. The sale of RECs neither results in an increase of renewable energy capacity, nor does it change the electricity mix that each actor receives. Rather, actors who purchase RECs simply displace more carbon-intensive energy to other consumers.

3.1.3 Good practice assessment criteria

The criteria for good practice in Table 10 forms the basis for the company assessments in section B. Full details on the methodology for rating companies' emission reduction measures can be found in the accompanying methodology document, *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0*, Section 3.[25]

Table 10: Good practice for reducing own emissions

REDUCING EMISSIONS	CORPORATE CLIMATE LEADERS EXHIBITING GOOD PRACTICE…
EMISSION REDUCTION MEASURES	✓ Publish detailed information on the planned emission reduction measures for all relevant emission sources throughout the value chain. ✓ Outline the expected emission reductions resulting from the implementation of those measures
RENEWABLE ELECTRICITY PROCUREMENT	✓ Adopt existing reduction measures and scale up demonstrated flagship projects to mainstream those projects across the organisation. ✓ Invest in research and development of new technological solutions, where necessary. ✓ Set out a clear plan to phase out all carbon-intensive infrastructure and products. ✓ Pursue the highest quality renewable electricity procurement option that is feasible for the company

3.2 Trends, role models, and bad practice

Due to a lack of transparency, it is difficult to gauge the integrity of pursued emission reduction measures.

None of the 25 companies assessed in this report, provide detailed information on their pursued emission reduction measures. This lack of information hinders an understanding of whether companies implement adequate measures that target all relevant emission sources. The lack of detailed information also hampers good practice replication by other companies. Companies' presentation of emission reduction measures is often a marketing exercise with limited information that can be of use to understand the potential impacts of the measures.

Transparency guidelines for emission reduction measures can help observers to understand the integrity of corporate decarbonisation efforts and support good practice replication by peers. Companies face the same or similar challenges in reducing their emissions to zero. Companies could demonstrate their climate leadership credentials by prioritising climate change mitigation above industry competition, and sharing the details on pursued reduction measures to support their peers. In addition, companies may be able to realise deeper emission reductions in the medium to longer term if they specify what obstacles they face in bringing certain emissions to zero and discuss potential solutions with policymakers, suppliers, or other businesses. Guidelines and templates on how to transparently present information on emission reduction measures could provide support and constructive pressure for companies to improve their disclosure.

Whereas most companies outline plans to reduce their direct and electricity related emissions (scope 1 and 2), only a few provide details on their abatement efforts for upstream and downstream emissions in their value chain (scope 3).

15 of the 25 companies assessed in this report outline relatively detailed information on how they plan to reduce their direct and electricity related emissions (scope 1 and 2), and another 5 provide this information with a moderate level of detail. As companies have direct control over scope 1 and 2 emissions, those are sometimes more accessible or commercially attractive to address. For example, companies can sometimes realise significant cost savings through investments in energy efficiency improvements and on-site renewable electricity installations, especially when their investment decisions consider longer-term returns. Post DHL and Maersk are pioneering in electric transport and zero-carbon fuels for maritime transport, respectively. This underlines their commitment to reducing their operational emissions and will likely give them an advantage over competitors in the future.

Upstream and downstream value chain emissions (scope 3) account on average for 87% of total emissions for the 25 companies assessed in this report, but companies appear unclear about how they will address these emissions. For 11 companies branching across different industries, scope 3 emissions even account for over 95% of all emissions (Carrefour, Vale, Unilever, JBS, Volkswagen, Nestlé, CVS Health, IKEA, Vale, Hitachi, BMW). Although companies may have limited control over certain scope 3 emission sources, it is good practice for them to identify those sources that they can influence and reduce, and to seek dialogue with upstream suppliers and downstream users to collectively find solutions to deeper emission reductions. Just 8 out of 25 companies disclose even a moderate level of detail on approaches to address these emissions.

Various promising examples for upstream and downstream value chain emissions (scope 3) reduction measures can be immediately replicated. Apple (p56) and IKEA (p81) support their upstream suppliers to procure high quality renewable electricity - Apple invests in new renewable electricity projects and connects their suppliers with renewable energy project developers, while IKEA will set up bundled framework contracts and PPAs for their direct suppliers. Sony (p95) and Unilever (p97) encourage suppliers to set climate targets, while Apple holds its suppliers accountable to environmental standards by including them in contract agreements. Walmart (p107) proactively supports its suppliers and customers to access finance for climate mitigation measures. DHL has established a Green Carrier Certification programme to encourage their delivery contractors to green their fleets and operations. While these examples do not necessarily represent a complete and comprehensive approach for reducing scope 3 emissions, they are measures that could be replicated by most companies to make a start on addressing these emission sources.

Companies' uptake of reduction measures shows little sense of urgency.

Most companies outline emission reduction plans that seem not in line with either their own climate pledges or Paris-aligned decarbonisation pathways. To stand a reasonable change of limiting global warming to 1.5°C, global CO_2 emissions must decrease by 45% between 2010 and 2030 and reach net zero around 2050. While most of the companies assessed pledge to reach net zero emissions even earlier, they do not match those pledges with clear emission reduction strategies

Some companies might delay the implementation of crucial measures that are available today to the last moment possible to meet their targets. For instance, GlaxoSmithKline (p74) appears to plan to heavily reduce scope 3 emissions by replacing emission intensive inhalers in 2028 and 2029, just ahead of the company's 2030 target. Although it might be feasible to implement this measure and achieve emission reductions in the first half of this decade, the company's targets may not incentivise urgent action.

Whereas some companies pursue high quality RE options to cover all or a substantial share of their energy demand, many others do not procure significant volumes of renewable electricity at all. Achieving 100% RE from high quality sources as soon as possible should be a clear ambition for any company and is a feasible measure to implement today. This is demonstrated by companies like Apple (p56) and Google (p76), which lead the way in pursuing high quality renewable energy options.

There seems to be a widespread lack of awareness on the limitations of RECs as a construct to claim the neutralisation of electricity-related emissions.

Most companies in this report use RECs to account for a substantial share of their electricity consumption. Of the 20 companies that disclose information on the use of renewable electricity, 17 procure RECs, either for partial or complete fulfilment of their renewable electricity procurement. Only three companies explicitly state to purchase bundled RECs, which means they buy their electricity and RECs from the same supplier.

The majority of companies using RECs claim a reduction in their electricity-based emissions, despite the limitations of this construct. RECs typically do not send a meaningful signal to the market that there is demand for additional renewable electricity capacity and unbundled RECs may lead to double counting renewable electricity (see Box A1 section 3.1.2). Similar risks arise when a company purchases power through a PPA without energy attribution certificates (see Accenture assessment p52), since the power plant operator could then rather sell unbundled RECs to other grid users, to claim the same renewable energy.

In contrast, some companies understand the limitations of renewable electricity supply constructs and aim for higher quality and innovative approaches.

There are promising signs among some corporate actors that there is a growing understanding of the nuances of renewable electricity procurement, as some companies reach for higher quality renewable electricity supply constructs. The renewable energy constructs of 13 out of the 25 analysed companies have at least a moderate level of integrity. These are companies where high-quality PPAs and self-generation makes up a major share of their renewable electricity procurement. Google states that it aims to establish PPAs with new generation facilities on the local grid where its electricity is being consumed, and that they always procure the energy attribution certificates as part of those PPAs, implicitly recognising the limitations of other potentially lower quality PPA constructs. Standards and labelling initiatives could provide clearer guidelines on the procurement of high-quality renewable electricity, and credible accounting approaches, to support companies to understand these complex nuances. For instance, RE100 initiative requires that actors have exclusive ownership of attributes for the renewable energy they claim to use, but does not distinguish between the potential climate impact of various procurement models.[26]

Companies are innovating to find new ways to improve the integrity of renewable energy procurement. Recognising the limitations of renewable energy supply constructs, Google monitors the extent to which their renewable energy procurement is matching their electricity consumption on an hourly basis. The company plans to employ technological solutions to ensure 24/7 matching, which would mean that their electricity consumption is matched by renewable electricity generated at the same time. Beyond improving the integrity of Google's renewable energy claim, the technology could be a useful innovation for the other grid users.

4 Climate contributions and offsetting

Most companies do not have the ability to immediately eliminate their entire GHG emissions footprint. While more and more companies are charting a pathway to complete decarbonisation and although far reaching reductions are possible and required in the next years, it will usually be many years or decades until they are able to entirely achieve this goal, even for the most ambitious companies. Corporate climate leadership includes both setting ambitious targets for emission reductions in the company's own value chain, as well as taking responsibility for unabated emissions in the meantime.

For some companies, taking responsibility for unabated emissions means making **climate contributions** to support climate change mitigation beyond the company's value chain without making a neutralisation claim, while for others it means **offsetting** and claiming to neutralise their emissions through carbon dioxide removals or emission reduction offset credits. Some companies pursue both approaches in parallel. This section assesses practices and trends related to these approaches.

Table 11 presents a summary overview of principles for good practice (section 4.1) as well as a summary trends, promising examples and bad practice identified from the company assessment (section 4.2).

Table 11: Summary of good practice and trends for climate contributions and offsetting

SUMMARY OF GOOD PRACTICE PRINCIPLES (SECTION 4.1) AND PERFORMANCE FROM THE COMPANIES ASSESSED

GOOD PRACTICE FOR CLIMATE CONTRIBUTIONS AND OFFSETTING		GOOD PRACTICE PERFORMANCE	
		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	✔ Provide an ambitious volume of financial support to climate change mitigation activities beyond the value chain, without claiming to neutralise the company's own emissions	VERY LOW | 0/25	VERY LOW | 0/25
OFFSETTING CLAIMS TODAY	✔ Clearly disclose whether or not the company makes an offsetting claim. If offsetting, avoid misleading claims, and procure only high-quality credits that lead to an additional climate impact that is permanent and accurately measured.	VERY LOW | 0/10	VERY LOW | 0/10
OFFSETTING PLANS FOR THE FUTURE	✔ Clearly disclose whether or not the company plans to offset emissions. If offsetting, avoid misleading pledges; commit to procuring only high-quality credits from ambitious projects; and ensure corresponding adjustments are applied to limit double counting risks.	VERY LOW | 2/25	VERY LOW | 0/24

SUMMARY OF TRENDS, ROLE MODELS AND BAD PRACTICE (SECTION 4.2)

CLIMATE CONTRIBUTIONS WITHOUT NEUTRALISATION CLAIMS
are pursued by at least 4 of the companies but often with insufficient volumes or a lack of transparency on objectives.

OFFSETTING:
10 of the 25 companies made offsetting claims in 2020 or 2021, but 19 of the 25 companies have offsetting plans for their future pledges, and only one company explicitly plans not to use offsets.

TRANSPARENCY
on the details of climate contributions and offsetting claims is very poor. None of the companies disclosed sufficient details to fully backup their current offsetting claims or climate contributions.

OVERALL RESPONSIBILITY:
11 of the 25 companies took no action to assume responsibility for unabated emissions in 2020 or 2021, through either climate contributions or offsetting.

PROMISING EXAMPLES

CLIMATE CONTRIBUTIONS
- **Maersk** will invest in nature based solutions to remove around 5 MtCO2 per year by 2030, apparently without claiming neutralisation of their own emissions.
- **Walmart** commit to protect or restore 50 million acres of land by 2030, without a neutralisation claim.

CREDIBLE OFFSETTING PLEDGES
- **BMW** plans to offset its emissions from 2022, but pledges to do so with high-quality credits that avoid the low-hanging fruits and ensure no double counting.

BAD PRACTICE

NON-CREDIBLE CLAIMS: All offsetting claims assessed lacked credibility due to limited information, permanence or additional climate impact associated with credit use.

CARBON NEUTRAL BRANDS: Some of companies claiming neutrality did so only for selected brands or products. Nestlé and Unilever state that they do not claim to offset their emissions, while in parallel they support their individual consumer-facing brands to do so.

NON-PERMANENT REMOVALS: At least two-thirds of companies plan to achieve pledges with non-permanent removals from nature based solutions, demonstrating widespread misunderstanding about the suitability of these activities for offsetting claims.

OFFSETTING WITHIN THE VALUE CHAIN: Nestlé and IKEA claim to offset emissions within their value chain, coined by Nestlé as "insetting". This can lead to double counting mitigation action or to claiming unverified carbon dioxide removal offsets.

POTENTIALLY MISLEADING CLIMATE CONTRIBUTIONS: Apple and Amazon frame financial support as philanthropic climate contributions, although the finance provided may generate credits for future offsetting claims.

SUPPORTING COMPANIES TO IMPROVE THEIR CLIMATE CONTRIBUTIONS AND OFFSETTING CLAIMS

- More good practice examples of climate contributions would help the replication of this constructive practice.
- Platforms are needed to identify high-quality projects that corporates can support through a climate contribution.
- Clear, science-based guidance is needed to clarify options for the credible use of offsets by corporates in the future.
- Standardised reporting guidelines for climate contributions and offsetting claims are needed.

The good practice performance scores refer to the number of companies that were assessed to have high transparency and high integrity, out of the 25 companies. Full details on the assessment methodology can be found in the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0, section 4.[27]

4.1 Principles for good practice

This section includes a summary of guiding principles and assessment criteria for climate contributions and offsetting claims from section 4 of the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0.[28]

4.1.1 Climate contributions without a neutralisation claim

In recognition of the limitations of offsetting and the need to ramp up financial support for climate action worldwide, some actors are moving away from the offsetting model to making a climate contribution without any neutralisation claim.

We define climate contributions as the financial support provided by a company to support climate change action beyond the company's own value chain, without claiming to neutralise its own emissions. A company can claim to contribute to climate change mitigation activities, without claiming ownership of the emission reduction outcomes and without subtracting associated reductions from their own GHG inventory or net-zero target. Climate contributions, which represent an alternative approach to offsetting, are a central feature of NewClimate Institute's *Climate Responsibility approach*[29] and the WWF-BCG *Climate Blueprint*.[30]

An internal carbon price on emissions can inform the volume of financial support. This way, climate contributions are linked to a company's responsibility for its own unabated emissions. The volume of financial contributions can serve as a key indicator of climate leadership. Ambitious companies could, for example, use the proceeds of an internal carbon price that is set at a high enough level to send a clear incentive for embarking on a 1.5°C-compatible decarbonisation trajectory.

Companies can channel their climate contributions towards a wide range of activities. Since they are not planning to claim to neutralise their emissions, companies making climate contributions are not tied to procuring carbon offset credits and enjoy far greater flexibility in the type of activities they can support to advance global decarbonisation. This could include, for example, support for carbon removals through nature-based solutions, which does not offer sufficient guarantees of permanence to truly neutralise emissions (see Box A3 section 4.1.2), but which is critical to addressing climate change and requires more financial support globally. Other examples include emerging technologies and measures for hard-to-abate sectors, where innovation and investment are needed to find new solutions. Uncertainties regarding the eventual emissions reductions delivered by more immature technologies and higher-risk investments may make them less attractive to project developers looking to generate offset credits, but a more suitable avenue for those channelling financial support in the form of climate contributions.

Climate contributions without neutralisation claims can provide a transparent, constructive and ambitious approach to take responsibility for unabated emissions:

- **More transparent:** Targets that are formulated independently from offsetting, without any netting-out of actual climate impacts, are more transparent and provide a clearer signal to decarbonise the company's own value chain.

- **More constructive:** Developing countries need more financial support to ramp up their mitigation action; voluntary action from companies is a vital channel of such support. A constructive environment is required, where this finance positively reinforces ambition raising, rather than one that provides perverse incentives to limit the ratcheting up of national climate commitments. In contrast to offsetting approaches, if the financial support from voluntary action results in emission reductions that are owned by the actors supported and the host country they operate in, this action will not conflict with the host country's GHG emission reduction target. Instead it can provide support for reaching and ratcheting up those targets.

- **More ambitious:** The contribution claim model is aligned with the concept of ratcheting ambition through a race to the top, a concept that underpins the Paris Agreement. If companies are free to self-determine their own ambition for their climate contributions – as countries do through Nationally Determined Contributions – this may result in a race to the top to demonstrate the highest ambition, without limits. This would mark a significant shift from the offsetting approach in which many companies race to the bottom and exploit loopholes to deliver a fixed target at the lowest cost.

Companies should disclose details on their climate contributions, including the basis for determining the volume of their financial contributions, the amount that they contribute each year, the recipients and the anticipated or measured impacts. It is critical that communication around these climate contributions avoids any implication that they serve to offset the actual emissions of the company.

4.1.2 Offsetting claims

Companies make an offsetting claim when they assert that unabated GHG emissions within their value chain are "neutralised", "netted-out", or "offset" through carbon dioxide removals or emission reduction activities outside of their value chain. The practice of offsetting has been afflicted by controversy and contention due to significant uncertainties in the real impact of offset credit use as well as the suitability of carbon dioxide removals for neutralising emissions. Accordingly, terminology for offsetting is highly sensitive and inconsistent. Many actors now avoid the term offsetting entirely; companies and initiatives more often refer to "neutralisation", "netting-out", "compensation", "reducing the footprint", while some actors use multiple terminologies to distinguish between offsetting in different circumstances and at different times. The *Corporate Climate Responsibility Monitor* assesses all claims that unabated GHG emissions within the value chain are offset as offsetting claims, including all synonymous terminologies and project types.

The environmental integrity of an offsetting claim has always been dependent on various factors, including but not limited to additionality, permanence, avoidance of double counting, leakage, and the accuracy of measuring impact.[31] In addition to these long-established principles, several new factors are now of key importance to the integrity of an offsetting claim, since the introduction of the Paris Agreement.

- **Corresponding adjustments:** Corresponding adjustments on offset credit transactions are a minimum basic requirement to limit the risk of double counting the emission reduction. Corresponding adjustments help ensure that the same emission reduction cannot be used towards multiple purposes, such as the national target of the project host country (referred to as "Nationally Determined Contribution", or NDC, under the Paris Agreement) as well as the NDC of another country, or in support of a corporate's climate claim or target. This accounting adjustment alone does not guarantee the environmental integrity of an offset credit, but is a minimum requirement to uphold integrity in combination with the following criteria.

- **High-hanging fruit mitigation projects:** In the context of the global governance framework of the Paris Agreement, offset credits can only provide an appropriate guarantee of environmental integrity if they are generated from high-hanging-fruit mitigation projects (see Box A2). The impact from offset credits cannot be considered additional to what could be achieved without the incentives of the offsetting programme if it presents credit-selling territories with a perverse incentive to limit the extent to which they ratchet up their own ambition during NDC revision cycles. The prospect of potential revenues from emission reduction credits presents a risk that, to maximise foreign investment, countries or subnational territories may limit their own national GHG reduction targets so that more of their mitigation potential can be tapped by international offsetting mechanisms. Integrity requires certainty that the project supported could not realistically have been implemented otherwise through unilateral ambition enhancements on the part of host-country governments. Companies could support new mitigation projects that focus on otherwise inaccessible technologies and practices; these projects can be considered the *high-hanging fruit* of climate change mitigation potential and for the most part contrast markedly to the low-hanging fruits targeted by mechanisms prior to the Paris Agreement which still account for the vast majority of offset credits available today.

- **Compatibility with net-zero emission technology and infrastructure:** To support the objectives of the Paris Agreement, financial support must be channelled to the identification and scaling of long-term solutions. Investments in bridging technologies that represent marginal emission reductions, but which are not compatible with zero-emission technologies, may result in stranded assets, and can further delay investment in the cleanest technologies. For sectors that should be fully decarbonised before 2050, the supported technologies and measures must be compatible with a zero-emission sector at the earliest possible point in time. For harder-to-abate sectors, the supported technologies should be compatible with other best available or emerging decarbonisation technologies within those sectors.

- **Carbon dioxide removals:** Carbon dioxide removal projects are rarely suitable for offsetting due to a lack of permanence, scarcity and other environmental damages (see Box A3). It may be credible for companies to claim to *neutralise residual emissions from hard-to-abate emission sources* through *permanent* carbon dioxide removals, although very few measures can guarantee such permanence. Scarce availability and environmental costs mean that CDR measures cannot be considered a credible neutralisation of *unabated emissions that are feasible to reduce*. CDR measures based on biological capture and storage (nature-based solutions) do not have the necessary degree of permanence, nor the additional potential, to offer a credible equivalent to emission reductions.

BOX A2

The high-hanging fruit of mitigation potential for offsetting projects

The global governance framework of the Paris Agreement represents a different context from the Kyoto-era, under which most existing offsetting mechanisms and standards were developed.

The prospect of offset credit revenue may present a perverse incentive for countries to limit their climate change mitigation ambition. To overcome this potential ambition pitfall, offsetting projects should be sufficiently ambitious that they avoid presenting any conflict with the host country's own ambition.

The high-hanging fruit of mitigation potential refers to the technologies and measures to decarbonise emission sources that remain otherwise entirely inaccessible to host country governments in the near- and mid-term future, on account of high costs or other insurmountable barriers to adoption.

An increasing number of crediting standards, companies and countries already advocate for high-hanging fruit mitigation projects as an attractive or even preferable option for offsetting mechanisms in the future. It is important that all crediting standards recognise targeting truly inaccessible mitigation options as the only credible option today. No other proposed safeguards for pursuing offsetting mechanisms can reliably overcome the perverse incentive ambition pitfall for host countries.

A shift to high-hanging fruit offsetting projects marks a significant transition from historical practices. Emission reduction projects registered under crediting programmes to date have been mostly developed in the context of cost-saving, rather than ambition-raising mechanisms. As such there are very few, if any, examples of existing credited projects that represent high-hanging fruits, and which could be considered truly in line with safeguarding and raising ambition in the context of the Paris Agreement.

Project developers that look to operate in today's offsetting mechanisms will need to move from up-scaling accessible mitigation technologies to developing and implementing more innovative technologies for harder-to-abate emission sources. As countries' climate ambition and capabilities increase over time the scope of technologies and measures that constitute high-hanging fruits is likely to represent a gradually decreasing niche of activities.

Given these considerations, it seems unlikely that high-hanging fruit mitigation projects can supply the high volumes of credible offset credits that some analysts have forecast for the coming decades, and which many companies appear to assume will be available to them to meet their targets. Ambitious companies should set their target pathways so that any offsetting of residual emissions plays an ever diminishing and niche role in their overall climate change mitigation strategies.

BOX A3

The suitability of carbon dioxide removals for offsetting

For further details see the accompanying methodology document, Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0, section 4.2.1.[32]

All scenarios consistent with a 1.5°C temperature increase include a major role for carbon dioxide removals, or "CDR".[33] This includes nature-based solutions for carbon sequestration in forests, soils, peatlands and mangroves, technological solutions such as bioenergy with carbon capture and storage (BECCS) and direct air carbon capture with storage (DACCS), and solutions with mineral storage. Finance is needed to scale up carbon dioxide removal efforts, and corporates could play a key role. It is more appropriate for corporates to channel support for carbon dioxide removals through climate contributions without neutralisation claims, due to the limited suitability of these solutions and technologies for offsetting purposes, in most circumstances.

Conditions for credible offsetting with carbon dioxide removals

Credible neutralisation of individual companies' GHG emissions through financing carbon dioxide removal initiatives must focus on storage options that provide a sufficient guarantee of **permanence**, and are not significantly constrained by technical or physical limitations on the storage **potential**. Credibility also depends the **source of emissions** that the corporate intends to offset.

CDR permanence: The permanence of a CDR outcome refers to the degree of certainty that the sequestered carbon will not be released at a later point in time. The release of previously sequestered carbon negates any accrued benefits of the sequestration. A sufficient guarantee of permanence requires a high likelihood that the captured carbon will remain stored over a timeframe of centuries to millenniums. Significant reliance on measures that have a reasonable likelihood of releasing captured carbon over a timeframe of decades present a risk of materially increasing atmospheric carbon concentrations either this century or in the next.

Scarcity of CDR potential: The maximum potential of most carbon dioxide removal measures is technically limited, and further restricted by environmental constraints. The scarcity of carbon dioxide removal measures is an important consideration when evaluating net-zero claims at the level of individual actors. Robust future use of scarce carbon dioxide removal options must be consistent with achieving net-zero and eventually net-negative emissions at the global level, which is required to avoid the most damaging effects of climate change over the coming decades. To align with 1.5°C compatible pathways at the global level, some sectors with the technical ability to fully decarbonise will need to reach zero emissions, while carbon dioxide removals are likely needed to balance out the residual emissions from other hard-to-abate sectors. Any allocation of rights of ownership to scarce carbon dioxide removals will require international oversight as well as detailed (and likely highly complex) considerations of fairness and appropriate use to ensure efficient and effective efforts to contain and then reduce the atmospheric stock of emissions. It is not appropriate for companies today to make climate pledges which assume they will have the right to use scarce CDR outcomes to offset their own emissions decades in the future (or the financial resources to pay for these).

Source of emissions to offset: The credibility of a neutralisation claim partly depends on whether removals are used to balance out residual emissions from hard-to-abate emission sources where no known feasible options remain for further decarbonisation, or against unabated emissions for which further emission reductions are technically feasible. CDR technologies and measures all entail some degree of uncertainty regarding permanence, scarcity and environmental damages. For residual emissions, CDR measures may be the only option available. However, for unabated emissions, CDR measures with uncertainties and environmental costs are not a credible equivalent alternative.

We conclude that it may be credible for companies to claim to neutralise their emissions under the specific conditions that they only offset *residual emissions from hard-to-abate emission sources* with carbon dioxide removals that have a *high likelihood of sufficient permanence*. However, companies should recognise the risks associated with relying on any such claims and will need to update their pledges over time to reflect the evolving landscape of options to decarbonise their emission sources. *Scarce potential* and *environmental costs* mean that CDR measures cannot be considered a credible neutralisation of *unabated emissions that could be feasibly reduced*.

Assessment of specific CDR measures and technologies (according to current best available information)

CDR measures based on biological capture and storage do not have the necessary degree of permanence, nor the additional potential, to be credibly considered an equivalent to emission reductions. These measures are also vulnerable to the displacement of emissions to other locations.

For BECCS and DACCS with underground storage, high storage permanence is possible, although uncertainty on the risk of leakage remains. The limited potential of these measures, which may be constrained by the considerable environmental concerns and energy system inefficiencies, mean that these measures are not a reasonable equivalent alternative to emission reductions for unabated emissions.

CDR measures with mineral storage have a reasonable likelihood to meet the criteria of permanence and additional potential to be considered a credible neutralisation of residual emissions from hard-to-abate emission sources. Uncertainties on the environmental limitations mean that the credibility of offsetting other unabated emissions remains contentious.

The *Corporate Climate Responsibility Monitor* assesses the integrity of offsetting claims that companies make today independently from offsetting plans that companies have for the future:

Integrity of offsetting claims today

The integrity of offsetting claims today is first and foremost hampered by the reality that there are currently no offset credits available from any markets that can meet all the criteria for robust environmental integrity (list above). Although the Paris Agreement is already in force, an accounting mechanism for corresponding adjustments is yet to be established under any international offsetting standard, though according to the decision of COP26 in November 2021, this will be possible through the procurement of authorised A6.4ER credits in the future.[34] There are also currently very few examples of existing offsetting projects that represent the high-hanging fruit of mitigation potential, given that offsetting markets to date have mainly focused on reaching the most cost-effective mitigation potential.

On account of the huge surplus of carbon offset credits available from existing projects and the low market prices for offset credits, among other factors, many available offset credits today may represent little-to-no meaningful climate impact. Emission reduction credits generated by existing and more easily accessible projects are generally sold at relatively low prices on both compliance and voluntary markets. Buyers paid an average USD $3/tCO_2$e for voluntary offset credits in 2018,[35] with the 99-percentile upper range outliers at a price of USD $16/tCO_2$e, substantially less than the carbon price range of USD $40\text{-}80/tCO_2$e which the High-Level Commission on Carbon Prices found to be consistent with the Paris Agreement 1.5°C temperature goal.[36] Such prices cannot sufficiently incentivise companies to make operational changes to further reduce their own scope 1, 2 and 3 emissions.

A small niche of higher-quality existing offset projects that rely on carbon revenues may represent a moderate chance of meaningful climate impact, but none of these projects carry a complete guarantee of additional action that can be considered equivalent to emission reductions and few, if any, send a meaningful signal for decarbonisation of the buyer's own emissions footprint.

To date, the voluntary carbon market has been highly fragmented and unregulated. The credibility of offset procurement for carbon neutrality claims today must be assessed on a case-by-case basis, considering primarily whether the offsetting revenue can drive additional emission reductions, but also taking note of other potential loopholes or environmental integrity concerns.

Integrity of offsetting plans for the future

Companies planning to offset their emissions in the future may not be able to identify specific projects today, but they can make an explicit statement of intent to restrict offsetting activity to high-hanging fruit projects with corresponding adjustments, along with other necessary conditions for environmental integrity.

It is also important that companies do not claim to meet a "net" emissions target by only offsetting their climate footprint in the year of the target, e.g. if the company were to claim it achieved a net-zero target for 2040 by offsetting its annual emissions in 2040, without taking equivalent responsibility for emissions in prior (or subsequent) years. This practice, which is a risk for all single-year targets, would likely mislead consumers, shareholders, regulators and other observers on the true impact of the company's overall contribution to the global stock of GHG emissions.

4.1.3 Good practice assessment criteria

The criteria for good practice in Table 12 forms the basis for the company assessments in section B. Full details on the methodology for rating companies' climate contributions and offsetting claims can be found in the accompanying methodology document, *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0, section 4*.[37]

Table 12: Good practice for climate contributions and offsetting claims

CLIMATE CONTRIBUTIONS AND OFFSETTING	CORPORATE CLIMATE LEADERS EXHIBITING GOOD PRACTICE...
CLIMATE CONTRIBUTIONS	✓ Provide support to projects for climate change mitigation beyond their value chains. ✓ Derive the volume of finance from an internal carbon price across all emissions at a price level commensurate with keeping global temperature rise below 1.5°C above pre-industrialised levels. ✓ Disclose full details on the volume of finance, the project recipients, and the expected impact. ✓ Claim only to make a contribution, without claiming ownership of the reductions for the neutralisation of emissions.

OFFSETTING CLAIMS
 	
Offsetting claims today
	✓ Transparently disclose whether or not the company offsets any of its emissions.
	If making offsetting claims:
	
	  ✓ Procure only high-quality credits that lead to an additional climate impact that is accurately measured and guarantees permanence, among other environmental integrity considerations.
	
	  ✓ Disclose full details on all offsetting activities including the volumes of offset credits, the details of the projects supported, the credit vintages and credit prices paid.
	
	  ✓ Prominently present transparent disclaimers on the dependence on offsets and the inherent uncertanties that this entails alongside neutrality claims.
	
	  ✓ Avoid misleading consumers through offsetting claims for only selected emission sources, divisions, or products.

Offsetting plans for the future	✓ Transparently disclose whether or not the company plans to offset any of its emissions in the future, e.g. in its target year
	If planning to make offsetting claims:
	
	  ✓ Commit to procuring only high-quality credits from high-hanging fruit projects.
	
	  ✓ Commit to pursuing corresponding adjustments for all credits procured.
	
	  ✓ Do not plan for the neutralisation of emissions through carbon dioxide removals, unless neutralising only residual emissions from hard-to-abate sectors with carbon dioxide removals that guarantee permanence and are not associated with high environmental damages.
	
	  ✓ Disclose full details on the planned volumes of offset credits, and the project types to support.
	
	  ✓ Prominently present transparent disclaimers on the dependence on offsets alongside pledges.
	
	  ✓ Avoid misleading consumers through offsetting claims for only selected emission sources, divisions, or products.

4.2 Trends, role models, and bad practice

Companies seem to be highly unsure about how to take responsibility for unabated emissions, and often do not do so.

11 of the 25 assessed companies take no action to assume responsibility for today's unabated emissions, either through climate contributions outside of the value chain or offsetting approaches. This limited degree of responsibility for the societal costs of emitting GHGs today is especially striking, given that all the companies assessed portray themselves as climate leaders through their bold net-zero or carbon neutrality pledges for the future.

Companies appear unsure about what a credible approach is. The broad spread of approaches from companies that did take some form of responsibility for unabated emissions in 2021 shows that there is limited consensus on good practice, and companies are scrambling to test different approaches. Approaches range from conventional offsetting to climate contributions without neutralisation claims, as well as various nuanced claims that fall somewhere between these contrasting approaches.

Carbon neutrality claims today are highly contentious, and increasingly viewed as such.

10 of the 25 assessed companies currently use offsets to claim to neutralise all, or part of, their actual emissions (see Figure 3).

All offsetting claims identified were found to be highly contentious, and sometimes misleading. We found that companies either used credits from nature-based solutions – which are in need of financial support but not suitable for claiming the neutralisation of emissions (see Box A3 section 4.1.2) – or that the additionality of the offsetting projects supported was highly questionable. Indeed, there are very limited, if any, options available on the current offsetting markets to substantiate a credible claim for neutralising emissions with high-quality credits that guarantee environmental integrity. This supply limitation should not justify moving the goalposts for the credibility of claims.

The limited credibility of carbon neutrality claims made today appears to be increasingly recognised by consumers, shareholders, civil society organisations, and companies themselves. Although 10 of the 25 companies assessed currently offset their emissions to make carbon neutrality claims in some form, most of the companies avoid any reference to the term "offsetting". Companies may be starting to see carbon neutrality claims delivered through offsets as a liability. Indeed, companies with poorly founded carbon neutrality claims may increasingly find themselves the subject of lawsuits and complaints to advertising standards authorities, as illustrated by the ruling against Shell's Drive CO$_2$ Neutral programme by the Dutch Advertising Code Committee in August 2021,[38] and the legal proceedings against Arla's carbon neutrality claims announced by the Swedish Consumer Agency in November 2021.[39]

Companies looking to improve on the transparency and constructiveness of their corporate climate responsibility approaches in 2022 could consider avoiding offsetting claims, or to be more outwardly cautious about the limitations and credibility of such claims. Companies that choose to avoid offsetting can still assume responsibility for unabated emissions through making climate contributions.

Figure 3: Use of offsets for carbon neutrality claims and net-zero pledges
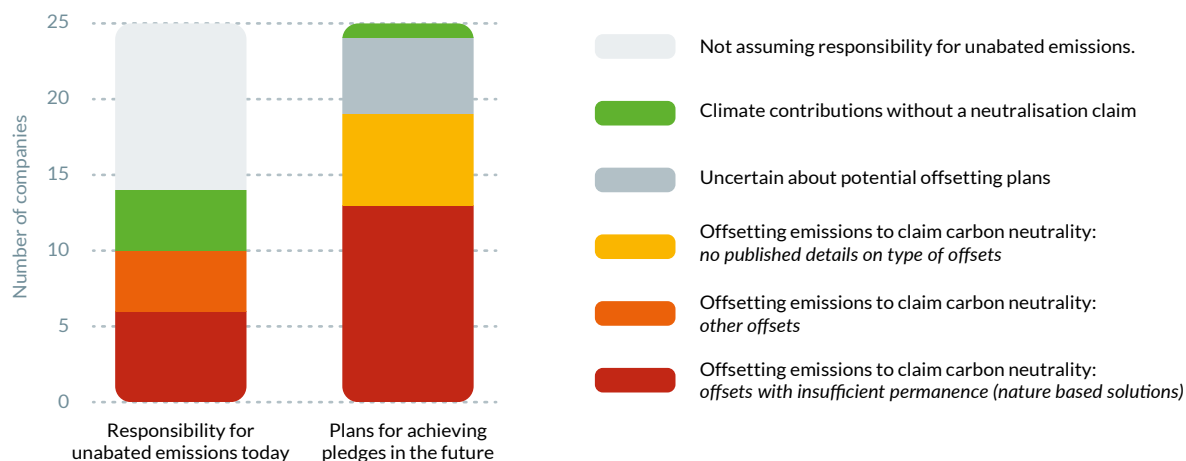
Companies plan extensively to achieve their future pledges by offsetting, often with unsuitable carbon dioxide removals from nature-based solutions.

24 of the 25 companies assessed have set headline climate targets that are likely dependent on offsetting through carbon dioxide removals or emission reduction offsets (see Figure 3). The contrast here to the more limited use of offsets today may be due to expectations for better regulated and more credible offsets in the future. It is also likely a function of the increasingly popular net-zero target terminology (see section 2) and seen as a lower risk option to committing to full decarbonisation of their own emissions.

Most companies misguidedly rely on removals from nature-based solutions to neutralise their emissions in the future, although issues with the permanence, leakage, and scarcity of these measures makes them unsuitable. This was observed across the spectrum of companies from climate laggards to climate leaders, demonstrating a widespread misunderstanding on the suitability of these measures to underpin neutralisation claims. Some companies acknowledge the limitations of these projects and set out their own principles and criteria for improving the quality of the projects and reducing the likelihood of non-permanence. These commendable efforts should be continued and upscaled through climate contributions without neutralisation claims, as carbon dioxide removals that do not provide a sufficient guarantee of permanence are not equivalent to the reduction of emissions, and should not be used to claim neutralisation (see Box A3 section 4.1.2).

Clear and science-based guidance is needed on options for the credible use of offsets for companies in the future, and how this links to the ambition raising mechanisms under Article 6 of the Paris Agreement. This should include clear and science-based guidance on the limitations of carbon dioxide removal projects and the suitability of nature-based solutions for offsetting.

"Real zero" emission targets may be the higher standard approach for companies to demonstrate ambition, if net-zero emission targets implicitly require offsetting. Current developments increasingly give companies the impression that "net zero" target terminology represents the gold standard for ambition: the UNFCCC's influential Race to Zero campaign was launched in 2019 to "mobilize a coalition of leading net zero initiatives"[40]; the Science Based Targets initiative which was originally established to promote sector-specific science based targets that are independent of offsetting, has now changed track to launch its own *Net-Zero Standard*;[41] various independent analyses of non-state actor climate ambition are focusing on net-zero targets exclusively. The momentum and pressure for companies to commit to net-zero targets could be counter-productive if this forces companies into a position of dealing with offsetting or creative emissions accounting. There may be more merit in encouraging companies to set ambitious but unambiguous emission reduction targets that go close to zero without implicitly depending on offsetting, and encouraging companies to remain transparent and take responsibility for the remaining unabated emissions through climate contributions without neutralisation claims.

Neutralisation claims are rife with misleading practices.

All of the 10 companies claiming carbon neutrality in 2021 did so only for selected scopes, products, brands or company divisions. This is presented in different forms:

- Some companies – including Nestlé and Unilever – explicitly distance themselves from the practice of offsetting at the level of the parent company, but do allow and encourage their individual brands the flexibility to pursue offsetting to sell carbon-neutral labelled products (see Box B4 p83 and Box B5 p90). In the case of Unilever this appears to be even partially facilitated by the holding company through centrally managing the necessary investments and development of projects. It can be misleading for a parent company to distance itself from a contentious approach, if it may in fact profit from supporting its consumer facing brands to pursue that approach.

- Some companies claim carbon neutrality for specific products and services that cover only a small portion of emissions while the consumer may be misled into believing that the company as a whole is carbon neutral. Deutsche Post claims carbon neutral deliveries in Germany, while less than 1% of the company's total emissions are offset (see Box B2, p67). Apple's carbon neutrality claim is delivered through offsets that cover only 2% of the company's GHG emission footprint in 2020 (see Box B1, p58). Such claims can mislead because the provision of a specific service is in some way dependent on other aspects of the business: a postal service's deliveries are dependent not only on the combustion of fuel in delivery vans, but also the full scope of emissions from logistics centres, administrative offices and suppliers.

Some companies claim to offset within their own value chain. Under the approach – implemented by IKEA for its Climate Positive claim, and termed by Nestlé as insetting (see Box A4) – companies claim the neutralisation of their operational emissions through emission reductions, avoided emissions or carbon removals connected to their value chain:

- This will lead to the double counting of a company's own emission reductions, if the company excludes certain emission scopes from their targets, so that they can claim that any emission reductions from those excluded emission scopes neutralise their other emissions.

- Forestry and land-based carbon removals within the value chain – such as the storage of carbon in wooden IKEA furniture, or the storage of carbon in the soils of Nestlé's agricultural suppliers – cannot be counted as a neutralisation of a company's emissions unless these activities result in permanent storage of the carbon, and unless this permanence is independently verified. These criteria are not fulfilled in the cases of IKEA and Nestlé where this practice was identified.

- Some companies claim to neutralise emissions through avoided emissions from the use of sold products. For example, IKEA's strategy for its 2030 Climate Positive target may give the impression that avoided emissions from customers' use of solar PV modules sold by the company can neutralise IKEA's own emissions. In reality, this transaction cannot lead to an additional avoided emission impact if the customer is purchasing these products rather than being supported to take a measure that they would not otherwise have taken. The company is simply serving the demand of an existing market. Even in the case that the use of sold products can be credibly proven to result in additional avoided emissions (including independent measurement and verification of the impact), any claims related to this should be reported seperately from a company's scope 1, 2 and 3 emissions, according to the GHG Protocol.[42]

BOX A4

The questionable concept of "insetting"

"Insetting" is a business-driven concept with no universally accepted definition. It is not officially recognised by any respectable standards or institutions. The approach can lead to low credibility GHG emission neutralisation claims and, in particular, the double counting of emission reductions.

The concept of insetting is promoted by some as a better alternative to offsetting, mainly for companies with links to agriculture and land-use sectors in their supply chains. Insetting is sometimes described as *offsetting within the value chain*. This can mean two different things, both of which are highly contentious:

- **Emission reduction projects in the value chain:** Here, an emission reduction project – similar to an offsetting project – is implemented within the company's value chain, rather than outside of it. Describing this as insetting is a false concept; this is simply a measure for the reduction of the company's own scope 3 emissions. In claiming that these measures neutralise the company's other GHG emissions, the company is either rejecting responsibility for those scope 3 emission sources and excluding them from its target coverage, or it is counting the emission reductions of those measures twice to claim reductions in scope 3 emissions *and* neutralisation of other emissions. The credibility of the claim is critically compromised in either case.

- **Carbon dioxide removals in the value chain:** In this case, measures are taken within a company's value chain to achieve carbon dioxide removal and storage. This may include carbon storage in agricultural soils, and carbon storage in harvested wood and wood-based products. Here, the same environmental integrity issues apply as for any other carbon dioxide removal offsetting projects (see Box A3, section 4.1.2): the suitability of these measures for claiming the neutralisation of GHG emissions is compromised by the lack of permanence of the carbon storage, as well as the scarcity of nature-based solutions for carbon dioxide removals. An apparent key difference here between carbon dioxide removals under an "insetting" approach, as opposed to carbon dioxide removals through certified offsets, is that the companies implementing an insetting approach may not seek independent measurement and verification of the carbon dioxide removals. As such, this is simply a weaker variation of an already non-credible offsetting approach.

Insetting is explicitly promoted by Nestlé, which confirms that it will only pursue insetting rather than offsetting to achieve its targets (see p88). While IKEA does not refer explicitly to the term "insetting", the strategy for its *Climate Positive* pledge gives the impression of being based on the same premise (see p81). The concept is not officially recognised by any respectable standards or institutions.

Nestlé implicitly recognises that its concept of insetting is currently not accepted as a legitimate approach, by stating that it advocates for standards that legitimise insetting as valid carbon compensation (ref Nestle net zero doc, p46).[43] Nestlé, as well as IKEA, hold key roles on both the advisory committee and technical working group of the GHG Protocol's *Guidance for corporate accounting of land sector emissions and removals*.[44]

Climate contributions without neutralisation claims are gaining traction, but more good practice examples are required to facilitate replication.

None of the companies assessed demonstrated good practice for climate contributions without neutralisation claims. Some companies disclosed details on philanthropic contributions, but most of these were either small in scale or it was uncertain whether those contributions really would be beyond the value chain without a neutralisation claim. Amazon's Right Now Climate Fund for nature-based carbon dioxide removals (p54) and Apple's Power for Impact programme for renewable energy (p56) are presented as philanthropic activities, but it is unclear whether these companies might use the programmes to claim the neutralisation of their emissions in the future. Deutsche Post (p65) supports the planting of over one million trees annually, but this represents a rather small contribution for a company with emissions of over 39 $MtCO_2e$ and revenues of USD 66 billion in 2020. Maersk (p86) will invest in nature-based solutions to remove around 5 $MtCO_2e$ per year by 2030, apparently without claiming neutralisation of its own emissions. Walmart (p107) commits to protect or restore 50 million acres of land by 2030, without a neutralisation claim.

More good practice examples for climate contributions would help companies to adopt this constructive practice. Companies should be supported to establish ambitious climate contribution approaches to serve as role models for others.

Platforms are required to help companies to efficiently identify high-quality projects that can be supported through a climate contribution approach. This approach can currently be more resource intensive to pursue than offsetting, for which many platforms and market intermediaries already exist to connect project developers with credit buyers.

Transparency on climate contributions as well as the use of offset credits is very poor.

None of the assessed companies demonstrate good practice with regards to the transparency set out in their climate contributions or offsetting claims. In many cases, information could not be found in the public domain to understand or assess the approaches. In other cases, disclosure is limited to marketing soundbites and superficial descriptions. Only in a small minority of cases is more detailed information identifiable, through the compilation of information from public project registries or third-party news outlets. Our in-depth analysis has revealed that it is very complex and time consuming for professional analysts to understand and assess the credibility of individual companies' approaches for offsetting and climate contributions. It is not reasonable to expect consumers, shareholders, regulators and other observers to readily do so with the currently limited degree of transparency. The accuracy of the information provided by platforms that attempt to aggregate and assess this sort of information for thousands of companies is also severely limited.

Guidance and standards for transparency is needed, including standardised reporting templates for climate contributions and offsetting. Detailed and standardised reporting templates can make it more difficult for companies to exploit loopholes and employ smokescreens when taking responsibility for unabated emissions. Transparent standardised disclosure that is easily understood is needed to reduce the damaging practice of greenwashing, and to encourage a race to the top for demonstrating constructive ambition when it comes to assuming responsibility for unabated emissions. The EU's proposed Corporate Social Responsibility Directive aims to introduce a standardised reporting template and data format for various aspects of climate change mitigation, but the Directive remains under development and would not come into force until 2023 at the earliest.[45]

SECTION B
Company assessments

The *Corporate Climate Responsibility Monitor 2022* assesses the integrity of high-profile climate change mitigation pledges from 25 of the world's largest companies.

We assess the **top-25 global companies** – according to their annual revenue in **2020**[46] – with the following criteria:

A. We only include companies that have **committed to high-profile climate change mitigation pledges**[47] under one of the main corporate climate action networks and initiatives.

B. To draw insights from a range of geographies and sectors, we limit the selection to a **maximum of 5 companies per country (of their headquarters) and 2 per economic sector.**

C. Due to their especially unique challenges, **we exclude companies whose main business activity is investment management** from this analysis.

An overview of the selected companies and our evaluations is presented in Table 2.

The 25 companies covered by this monitor account for approximately USD 3.18 trillion of revenue in 2020, approximately 10% of revenue from the world's largest 500 companies. Their total self-reported GHG emission footprints in 2019, including scope 3 emissions, amount to approximately 2.7 GtCO$_2$e. This is equivalent to roughly 5% of global GHG emissions.[48]

Our company-specific assessments include a rating of the **transparency** and **integrity** of their approaches across the key elements of corporate climate responsibility discussed in section A: *tracking and disclosure of emissions* (section A1), *setting specific and substantiated targets* (section A2), *reducing emissions* (section A3), and *climate contributions and offsetting* (section A4).

Transparency ratings are primarily based upon the extent to which a company publicly discloses the information necessary for an observer to fully understand the integrity of that company's approaches towards the various elements of corporate climate responsibility. **Integrity**, in this context, is a measure of the quality and credibility of those approaches. A full overview of the rating methodology for transparency and integrity of every indicator is presented in the accompanying methodology document, *Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets: Version 1.0.*[49]

The *Corporate Climate Responsibility Monitor* promotes transparency with the philosophy that consumers, regulators, shareholders and observers should be able to follow and assess the integrity of companies' claims. Accordingly, the company assessments in this section are based only on publicly available information that could be identified by the authors. Each rating represents the authors' understanding of the publicly available information. In some cases company information was scattered across different sources (e.g. annual reports, press releases and statements, webpages, and other marketing materials); it is possible in this process that information may have been misinterpreted, or that relevant information was overlooked. Companies should consider how to present information as transparently as possible, to ensure that observers are able to readily identify all the relevant information necessary to understand their climate strategies.

Table 13: Overview of companies assessed in the Corporate Climate Responsibility Monitor 2022

● HIGH INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
No companies achieved a high integrity rating				51

◔ REASONABLE INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
MAERSK	Net-zero by 2040	◔	◔	p. 86

◑ MODERATE INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
APPLE	Carbon neutral by 2030	◔	◑	p. 56
SONY	Zero emissions by 2050	◔	◑	p. 95
VODAFONE	Net-zero by 2040	◔	◑	p. 102

◕ LOW INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
AMAZON	Net-zero carbon by 2040	◕	◕	p. 54
DEUTSCHE TELEKOM	Net-zero by 2040	◔	◕	p. 68
ENEL	Net-zero by 2050	◑	◕	p. 70
GLAXOSMITHKLINE	Net-zero by 2030	◑	◕	p. 74
GOOGLE	Carbon-free 2030	◕	◕	p. 76
HITACHI	Carbon neutral by 2050	◕	◕	p. 79
IKEA	Climate positive by 2030	◔	◕	p. 81
VOLKSWAGEN	Carbon neutral by 2050	◑	◕	p. 105
WALMART	Net-zero by 2040	◔	◕	p. 107
VALE	Carbon neutral by 2050	◑	◕	p. 100

○ VERY LOW INTEGRITY	PLEDGE	TRANSPARENCY	INTEGRITY	PAGE
ACCENTURE	Net-zero by 2025	◔	○	p. 52
BMW GROUP	Carbon neutral by 2050	◑	○	p. 59
CARREFOUR	Carbon neutral by 2040	○	○	p. 61
CVS HEALTH	Net-zero by 2050	◕	○	p. 63
DEUTSCHE POST DHL	Zero / net-zero by 2050	◕	○	p. 65
E.ON SE	Carbon neutral by 2040	◕	○	p. 72
JBS	Net-zero by 2040	○	○	p. 84
NESTLE	Net-zero by 2050	○	○	p. 88
NOVARTIS	Carbon neutral by 2030	◕	○	p. 91
SAINT-GOBAIN	Net-zero carbon by 2050	○	○	p. 93
UNILEVER	Net-zero by 2030	◕	○	p. 97

RATINGS **5-point scale** ● High ◔ Reasonable ◑ Moderate ◕ Low ○ Very low . **See individual company analyses.**
Assessments were made based on public information identified by the authors. A poor rating may not necessarily be an indication that a company's climate strategy is weak, but could also indicate that the information was insufficient to confirm good practice. Ambitious companies can improve their ratings by ensuring that all aspects of their climate responsibility strategies are transparently and accurately disclosed, and in the public domain.

Accenture

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
IT services	USD 50.5 bn (2021)	0.86 MtCO$_2$e (2020)	Net zero emissions by 2025	◓ Reasonable	○ Very low

Accenture Plc – based in Ireland – is a global professional services company specialising in IT services and solutions, and consulting. **In 2020, Accenture pledged to reach net zero emissions by 2025.**

1 TRACKING AND DISCLOSURE OF EMISSIONS | TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
0.86 MtCO$_2$e in 2020

Major emission sources: Purchased goods and services (upstream scope 3, 48%), Business travel (upstream scope 3, 31%)

Summary of disclosure: Detailed information on scope 1 and 2 emissions. Some scope 3 emissions tracked and disclosed. Omissions of some scope 3 emissions are likely minor. Disclosure covers Accenture's subsidiaries. Both location and marked-based accounting scope 2 emissions disclosed, but only the latter (lower value) is used for GHG emission totals.

		Target coverage
Scope 1		0.02
Scope 2		0.21
Scope 3 upstream		0.93
Scope 3 downstream		0.00
Subsidiaries covered	●	

2 SETTING EMISSION REDUCTION TARGETS | TRANSPARENCY | INTEGRITY

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Net zero emissions by 2025*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Net zero target appears to cover all relevant emission sources	●	●
REDUCTION OF OWN EMISSIONS (for pledge year, compared to 2019 full value chain)	**5% BY 2025** Emission reduction target of 11% below 2016 levels by 2025; equivalent to 5% reduction from 2019 levels	◐	○
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	✕ No interim GHG target, but main headline pledge is for 2025.	N/A Headline target is for 2025	

3 REDUCING OWN EMISSIONS | TRANSPARENCY | INTEGRITY

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Few specific measures disclosed for scope 1 and especially scope 3 emissions; target for 90% of suppliers to set own emission targets.	◐	○
RENEWABLE ELECTRICITY PROCUREMENT	Unbundled RECs account for the major share of renewable energy consumption.	●	○

4 CLIMATE CONTRIBUTIONS AND OFFSETTING | TRANSPARENCY | INTEGRITY

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	— *No climate contributions identified* —	N/A	○
OFFSETTING CLAIMS TODAY	— *No offsetting claim in 2020/2021* —	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	Plans to offset all unabated emissions (~89% of 2016 emissions) with nature-based carbon removals that cannot guarantee permanence of carbon storage.	◐	○

Sources: Authors' interpretation of identified public documentation from Accenture. [50]

Accenture

Accenture's major emissions as an IT services and consulting company stem from purchased goods and services (48% of 2020 emissions) and business travel (31%). Accenture's target for net zero emissions by 2025 conceals a low level of planned emission reductions. The accompanying reduction target is equivalent to a reduction of only 5% compared to 2019 levels by 2025. Accenture claims to neutralise the majority of its emissions with nature-based carbon dioxide removals that are generally prone to permanence issues. We could not identify a significant emission reduction strategy, nor a means for the company to take responsibility for its current emissions.

Accenture tracks and discloses its entire scope 1 and scope 2 emissions, as well as relevant upstream scope 3 emission sources. The company does not track any downstream scope 3 emissions, stating their limited relevance for Accenture's IT services and consulting business practices.[51]

Accenture accompanies its net zero target for 2025 with specific emission reduction targets for the same year.

Alongside its net zero target for 2025, Accenture commits to reduce its emissions by 11%, compared to 2016 levels. These targets cover all emissions currently disclosed (scope 1, scope 2, and relevant upstream scope 3). The 11% emission reduction target implies that the company plans to claim to offset the remaining 89% of its emissions in 2025 using nature-based carbon removal solutions. Accenture's emission reduction target is equivalent to just a 5% reduction below 2019 emission levels by 2025; an annual emission reduction trajectory of less than 1% would even represent a deceleration of Accenture's recent average annual emission reduction trend of approximately 2.2% between 2016 and 2019. Accenture further commits to reduce 65% of scope 1 and 2 emissions by 2025 and emissions per unit of revenue intensity across all scopes by 40%, both compared to a 2016 baseline.

While Accenture claims that the nature-based carbon removals will be proprietary to the company, it currently provides limited information on volume, prices, and permanence of the offset credits it intends to procure. Accenture announced in September 2021 that it aims to remove more than 13 million tCO_2e over the next 20 years with projects registered under the 'SD VISta Standard'.[52] While nature-based solutions require more finance to support their important contribution to tackling climate change, such projects do not offer a sufficient guarantee to permanently remove emissions from the atmosphere to count as effective neutralisation of actual emissions (see Box A3 section 4.1.2).

Accenture could instead shift from making an offsetting claim for their residual emissions in 2025 to claiming a climate contribution, providing *support* to climate change mitigation projects without neutralising their own emissions. In this context, Accenture could build up on early examples, like their own voluntary cooperation with Climeworks from 2021, to develop a digital plant solution for their direct air capture carbon dioxide removal technologies.[53] For such a project to qualify as a climate contribution, however, it would require a substantial contribution of Accenture's own resources, not merely relying on voluntary contributions from its employees.

It is a stark contrast that Accenture tries to position itself as a climate leader with its net zero target for 2025 but takes no responsibility for its current emissions either through offsetting or climate contributions. Since Accenture's business model is not especially carbon intensive compared to other industries, the costs of assuming responsibility for unabated emissions—either through climate contributions or offsetting—would be far lower as a proportion of the company's revenue than for many other companies.

The company intends to procure 100% renewable electricity by 2023 through a mix of lower quality procurement arrangements. In 2020, Accenture procured 115 GWh of renewable electricity worldwide,[54] representing around 30% of their total electricity consumption in 2020. For this purpose, the company relies on two constructs considered of lower quality given their high risk of double counting (see Box A1 section 3.1.2). The first procurement approach is via Power Purchase Agreements (PPAs) for solar PV, wind, and hydro in India without energy attribution certificates. Without energy attribution certificates there is a high risk that the power producers can sell the same electricity with unbundled renewable energy certificates (RECs) to other customers. The second procurement construct used includes several unbundled energy attribute certificates in North America, Europe, and Japan (such as RECs, GECs, REGOs). These constructs again present a high risk of double counting and may not meaningfully incentivise the development of new, additional renewable generation capacity.

Apart from renewable electricity procurement, Accenture presents very few emissions reduction measures to address its remaining scope 1 and scope 3 emissions. These are mainly limited to a company fleet vehicle replacement programme and procurement of energy efficient heating, ventilation, and air conditioning equipment in India.[55] Accenture seems to mainly focus its efforts on renewable electricity procurement to achieve its committed reduction across scope 1 and scope 2 emissions of 65% by 2025 compared to 2016. We did not identify a comprehensive package of measures in place to tackle remaining emissions from other key sources of its overall GHG emission footprint.

Amazon

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Information tech services	USD 386 bn (2020)	60.6 MtCO$_2$e (2020)	Net-zero carbon by 2040	Low	Low

Amazon.com Inc. – headquartered in the United States – is a major platform for e-commerce worldwide, as well as a producer and provider of diverse information technology services and electronic devices. **In 2019, Amazon co-founded and committed itself to** *The Climate Pledge,* **which includes a commitment to reach net-zero carbon by 2040.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
60.6 MtCO$_2$e in 2020

Major emission sources: Scope 3 emissions account for the majority, but the specific sources are unclear due to poor granularity of data.

Summary of disclosure: The granularity of emission sources in the annual reporting is poor. Scope 2 emissions are only reported with the market-based accounting method. Amazon's subsidiaries are not clearly included in Amazon's tracking and disclosure.

Scope 1	9.6
Scope 2	5.3
Scope 3 upstream	26.3
Scope 3 downstream	19.5
Subsidiaries not covered	◯

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE — *Net-zero carbon by 2040*		
COVERAGE OF EMISSION SOURCES (in headline pledge) — Lack of clarity on scope coverage, and whether target refers to CO2 only, or all GHG emissions.	◯	?
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019) — ✗ The net-zero target is not currently substantiated with any specific GHG emission reduction target.	◯	◯
INTERIM EMISSION REDUCTIONS (compared to full value chain in 2019) — ✗ Currently no interim GHG targets.	◯	◯

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES — Major investments and commitments in new technologies for transportation; other emission sources unclear.	◑	◑
RENEWABLE ELECTRICITY PROCUREMENT — Extensive details on high quality RE projects but limited transparency in terms of aggregated data.	◑	◑

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS — Right Now Climate Fund: $100m to nature-based solutions. Unclear if related to future neutralisation.	◯	?
OFFSETTING CLAIMS TODAY — *No offsetting claim in 2020/2021*	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE — Unspecified plans to offset emissions with nature based solutions for 2040 target.	◑	◯

RATINGS

Overall 5-point scale ◐ High ◐ Reasonable ◐ Moderate ◐ Low ◯ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ◐ Moderate ◯ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Amazon.[56]

Amazon

As a major platform for e-commerce and IT services, as well as manufacture and retail, Amazon's footprint includes a broad range of emission sources, but the key drivers are unclear due to poor granularity of data.[57] Amazon is currently taking proactive steps to test a variety of decarbonisation technologies, especially for renewable electricity and transportation, but medium- and longer-term plans for other emission sources remain unclear. The company's *net-zero carbon by 2040* pledge remains unsubstantiated without any explicit reduction target for the company's own emissions, and with a significant role envisaged for offsets.

Amazon's net-zero carbon 2040 pledge currently remains unsubstantiated. Amazon announced its headline target as a co-founder of *The Climate Pledge*, an initiative that mobilises business to commit to net-zero carbon emissions by 2040. Amazon is in the process of developing more detailed targets under the SBTi process, which are due to be published in 2022.[58] In the meantime, there is neither explicit clarity on the coverage of its target – including whether it just refers to carbon dioxide emissions[59] or to all greenhouse gases – nor on the extent to which it plans to achieve the target through delivering actual emission reductions, as opposed to procuring offset credits.

Amazon's pledge is weakened by relying on offset credits from nature-based solutions. Amazon has a well-considered plan for the provision of long-term support to higher-quality forestry projects. Amazon played a major role in the mobilisation of finance for the *Lowering Emissions by Accelerating Forest finance* (LEAF) Coalition,[60] and since 2019 Amazon's USD 100 million *Right Now Climate Fund* provides financial support for the immediate implementation of nature-based solutions.[61] This could be a credible step towards taking responsibility for unabated emissions, if such support is provided as a climate contribution without an offsetting claim. But issues related to permanence and additionality of carbon dioxide removal projects with nature-based solutions (see Box A3 section 4.1.2) means such projects are not appropriate sources of credits to support claims to neutralise carbon emissions.

To reduce its emissions, Amazon is proactively testing a range of decarbonisation technologies, but the lack of granular data on GHG emission sources does not facilitate a thorough understanding of how sufficient these measures are. Amazon's proactive approach for addressing transport emissions include its agreement with *Rivian* to roll out 100,000 electric vehicles by 2030,[62] investments made in 2020 to test battery- and hydrogen-based trucking technologies for longer distance freight,[63] and Amazon's commitment to decarbonise shipping under the Cargo Owners for Zero Emission Vessels initiative.[64] These measures could significantly reduce transport-related emissions from scope 1 and scope 3. Amazon is also demonstrating technologies for energy efficiency on flagship sites and is investing in rooftop solar and energy efficiency measures for its fulfilment centres.[65]

Amazon's efforts to reduce emissions from electricity use appear comprehensive, although some aspects remain untransparent. Amazon claims to be the largest corporate procurer of renewable energy in the world; the company claims to have used 65% renewable energy in 2020 and aims to procure 100% renewable energy by 2025.[66] The development of a portfolio of high-quality renewable electricity procurement takes time, and it is commendable if Amazon does not reach for lower quality constructs in order to immediately claim all its electricity use is renewable today. Amazon's renewable electricity is derived mostly from high-quality renewable energy procurement options: PPAs with new off-site solar and wind farms, and from on-site rooftop solar. Nevertheless, despite their higher quality, PPAs cannot guarantee full decarbonisation of electricity supplies. It would be more transparent and constructive for Amazon to report scope 2 emissions with the location-based accounting method in addition to the market-based method used,[67] to ensure full disclosure around the emissions associated with its electricity use. Although Amazon publishes the location and capacity of all their renewable energy projects individually,[68] the lack of *aggregated* data regarding consumed and delivered energy from all renewable energy constructs leads to a lack of overall transparency and difficulty to assess the overall situation. Without complete aggregated information it is not clear whether the company also makes use of lower quality renewable energy procurement options in addition to the higher quality projects that are individually featured.

Amazon provides much less detail on how it plans to decarbonise downstream scope 3 emissions. Although several measures are being put in place to reduce material use, improve recycling and extend the lifetime of Amazon-branded products,[69] the limited breakdown of scope 3 emissions in its reporting makes it difficult to assess the significance and sufficiency of those measures, as well as the gaps that remain.

Apple

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Technology	USD 274.5 bn (2020)	23.5 MtCO$_2$e (2020)	Carbon neutral by 2030	◕ Reasonable	◑ Moderate

Apple Inc. is a US-based multinational corporation specialising in consumer electronics, software, and online services. **In 2020, Apple claimed carbon neutrality in their operations (scope 1 and 2 emissions) and committed to achieve carbon neutrality across its entire business by 2030.**

1 TRACKING AND DISCLOSURE OF EMISSIONS — TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
23.5 MtCO$_2$e in 2020

Major emission sources: Purchase of goods for product manufacturing (upstream scope 3; ~70%).

Summary of disclosure: Emissions disclosed in detail across all scopes. Scope 2 emissions reported to be zero under market-based accounting approach, while amounting to 0.89 MtCO$_2$e using a location-based approach. Only market-based emissions are prominently displayed.

		Target coverage
Scope 1	0.05	
Scope 2	0.89	
Scope 3 upstream	16.98	
Scope 3 downstream	5.57	
Subsidiaries covered	●	

2 SETTING EMISSION REDUCTION TARGETS

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Carbon neutral by 2030*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Full coverage of lifecycle emissions.	●	●
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	**62% BY 2030** 75% emission reduction by 2030 relative to 2015, or 62% reduction from 2019.	◑	◑
INTERIM EMISSION REDUCTIONS (compared to full value emissions chain in 2019)	✗ No interim targets reported, but headline pledge is for 2030.	○	○

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Emission reduction measures across all emission scopes, but limited information on potential impacts.	◑	◑
RENEWABLE ELECTRICITY PROCUREMENT	High-quality PPAs account for the majority of renewable electricity.	●	●

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	The Power for Impact programme supports RE projects in communities that need energy resources. Unclear if related to offsetting.	○	?
OFFSETTING CLAIMS TODAY	Carbon-neutral claim made for operations, business travel, and employee commuting in 2020 (representing ~1.5% of total emissions) by offsetting with nature-based solutions.	◑	○
OFFSETTING PLANS FOR THE FUTURE	25% of emissions relative to 2015-level will be offset with nature-based solutions by 2030.	●	○

Sources: Authors' interpretation of identified public documentation from Apple and SBTi [70]

Apple

Most of Apple's climate footprint (~70%) is from upstream scope 3 emissions, especially in the purchase of goods and services for product manufacturing; the company reduced these by 29% from 2016 to 2020.[71] Apple's emission reduction measures and renewable electricity procurement are reasonably comprehensive, but its targets and carbon neutrality claims are potentially misleading.

Apple's carbon neutrality claims have the potential to be misunderstood. Apple's headline on their environmental website reads "We're carbon neutral. And by 2030, every product you love will be too."[72] It could be misleading for Apple to describe itself as carbon neutral already, as carbon neutrality claimed for 2020 covers solely its operations (scopes 1 and scope 2), business travel, and employee commuting,[73] which together account for only 1.5% of the company's GHG footprint. Apple's main headline target for carbon neutrality by 2030 will address the remaining 98.5% of its emissions (see Box B1).

Apple's target for carbon neutrality by 2030 equates to 62% emission reductions between 2019 and 2030. Based on its 2030 carbon-neutral target, Apple set a 75% emission reduction target by 2030 compared to a 2015 baseline.[74] SBTi approved the translation of this target to a 62% reduction by 2030 from 2019 levels as 1.5 °C compatible.[75] While a 62% emission reduction between 2019 and 2030 represents a steep decarbonisation pathway, this is a long way from carbon neutrality; a continuation of this pathway would put Apple on track for significantly deeper decarbonisation by 2035 or 2040. Communicating a deep decarbonisation target for 2035 or 2040 might provide a more transparent representation of Apple's ambition and prospects than a carbon neutrality target for 2030. Apple reports no interim targets to guide its business towards the 62% emission reduction goal, but a continuation of the average yearly emission reductions achieved by Apple from 2017 to 2020 would put the company within ~3 $MtCO_2e$ of achieving the target by 2030.

Apple claims to source 100% renewable electricity since 2018 and offers information on its high-quality renewable electricity construct, but transparency issues on energy-based emissions accounting remain. The company's facilities procure 90% of their renewable electricity from different "Apple-created" renewable projects: 10% from projects that are directly owned renewable energy installations, for which the company is currently investing in electricity storage projects; 3% from projects in which they own equity and match energy generation with use; and 87% from local and newly installed PPAs.[76] Apple provides a list of all renewable energy projects that it has contributed to directly create. Apple procures the remaining 10% of total electricity demand through utility green energy programs, colocation facility vendors, and renewable energy credits. For these, it applies the same quality standards as for its "Apple-created" projects.[77] Renewable energy certificates (RECs) only account for around 1% of total supply.

Apple reports zero scope 2 emissions under a market-based accounting approach, although an independent assurance statement revealed scope 2 emissions of 0.89 $MtCO_2e$ using a location-based accounting method.[78] It would be more constructive to report location-based emissions, which show that there is still room for energy efficiency improvements to reduce the climate impact of Apple's electricity use.

Apple's emission reduction plans are reasonably comprehensive and already led to a significant decrease in emissions in recent years, although we did not identify far reaching solutions for downstream scope 3 emissions. Measures implemented include switching toward less emissions-intensive and recycled materials, designing energy-efficient products, operating facilities with renewable energy, financing research into new technologies for hard-to-abate processes, and directly investing in suppliers' renewable energy projects through the Supplier Clean Energy Program.[79] These measures appear to be successful at reducing emissions in recent years, although downstream scope 3 emissions from electricity use of devices are not thoroughly addressed by the measures that we identified and have not decreased.

Carbon offsetting fact checking | Apple's carbon neutrality for corporate emissions

Apple's carbon neutrality claim is delivered through offsets that cover only approximately 1.5% of the company's GHG emission footprint in 2020. Due to the scarcity and limited permanence of carbon dioxide removals through nature-based solutions, Apple's provision of support for these measures is not, from a climate perspective, equivalent to the reduction of the company's own emissions. The integrity of Apple's approach would be stronger if the company provided support for these projects in the form of a climate contribution, without claiming that their investments offset the actual impact of Apple's own emissions.

Apple's headline on their environmental website reads "We're carbon neutral. And by 2030, every product you love will be too."[80] Apple claims that it is already carbon neutral across all of its "corporate emissions" since 2020, through the use of offset credits to address unabated emissions. Apple's definition of *corporate emissions* account for just 1.5% of the company's total annual GHG emission footprint in 2020;[81] Apple's main headline target for carbon neutrality by 2030 will address the remaining 98.5% majority of emissions.

Apple has partnered with Conservation International to procure credits towards its carbon neutrality pledge. Through this collaboration, Apple has provided support to projects for micro-forestry and savanna restoration in Kenya, as well as mangrove restoration in Colombia and forest protection in China and the U.S.[82]

The removal and storage of carbon dioxide through nature-based solutions – such as the projects supported by Apple – are extremely important for global climate change mitigation, and often also have considerable benefits for local sustainable development. More finance is required to support projects such as these to fulfil and maintain the potential carbon sink function of natural landscapes.

While the provision of support to these projects may have a constructive impact, this does not give credibility to the claim that Apple's own emissions are neutralised (see Box A3 section 4.1.2). The storage of carbon removed through nature-based solutions cannot be guaranteed, and is unlikely to be permanent. Natural weather events or anthropogenic influences can at any point in the future cause the degradation or razing of forests, mangroves, soils, or savannas. When such damages occur, this leads to the re-release of captured carbon, potentially nullifying any accumulated emission removal impact that might have occurred through the protection or restoration of that land in the past. Carbon offset credits that are issued for the carbon captured by these projects in any given year do not fully take account of the fact that this impact may not be permanent, and that there is a reasonable likelihood some of the carbon is re-released into the atmosphere within the century. Moreover, the available land for nature-based carbon removals is scarce: there will not be enough land available on the planet to provide an offsetting service to all countries, companies and individuals planning to claim carbon neutrality in the future. On a pathway to global net-zero emissions by mid-century, we will need scarce natural resources for carbon removals to balance out the residual emissions that remain from the hardest to abate sectors, once the emissions from other sectors have been reduced to real-zero.

Due to the scarcity and limited permanence of carbon dioxide removals through nature-based solutions, the provision of support for these measures is not equivalent to the reduction of a company's own emissions, from a climate perspective. The integrity of Apple's approach would be stronger if the company provided support for these projects in the form of a climate contribution, without claiming that their investments offset the actual impact of Apple's own emissions. The same applies to Apple's Restore Fund, in which Apple plans to invest US$200 million in carbon dioxide removal projects to claim to offset its full GHG footprint up to 2030.[83]

BMW Group

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Transport	USD 112.4 bn [EUR 99.0 bn] (2020)	67.0 MtCO$_2$e (2020)	Climate neutral by 2050	◑ Moderate	○ Very low

BMW AG (BMW Group) is a German multinational company that manufactures vehicles under the BMW, Mini and Rolls-Royce brands, and motorcycles under the BMW Motorrad brand. **In 2020, the BMW Group set new emission intensity reduction targets by 2030, alongside the target to be climate neutral along the entire value chain by 2050.**

1 TRACKING AND DISCLOSURE OF EMISSIONS — TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE

67.0 MtCO$_2$e in 2020

Major emission sources: Energy use of sold vehicles (downstream scope 3, 70%); vehicle manufacturing (upstream scope 3, 25%)

Summary of disclosure: Most emissions across all scopes disclosed for 2020 and historical time series. Market-based scope 2 emissions used for aggregate data. Around 10% of total emissions is not reported (emissions from some buildings and offices under scopes 1 and 2; and franchises, among others, in scope 3).

		Target coverage
Scope 1	0.64	
Scope 2	1.25	
Scope 3 upstream	17.75	
Scope 3 downstream	47.35	
Subsidiaries covered	●	

2 SETTING EMISSION REDUCTION TARGETS
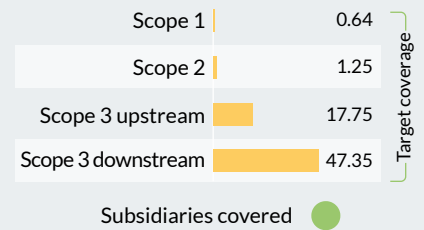
		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Climate neutral along the entire value chain by 2050*		
COVERAGE OF EMISSION SOURCES	The target covers emissions throughout the whole life cycle of products, for all subsidiaries.	●	●
REDUCTION OF OWN EMISSIONS	✗ No emission reductions target presented.	○	○
INTERIM EMISSION REDUCTIONS	✗ No interim absolute GHG targets. Interim intensity targets set for 2030 not aligned with a 1.5°C decarbonisation trajectory.	●	○

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Measures are focused on the most relevant scopes, but accelerated phase out of internal combustion engines is required.	◑	○
RENEWABLE ELECTRICITY PROCUREMENT	BMW's 100% renewable electricity claim is delivered mostly through unbundled RECs.	●	○

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	— No climate contributions identified —	N/A	○
OFFSETTING CLAIMS TODAY	Claim of carbon-neutral operations (scope 1 and scope 2) using offsets from 2022 onwards, while the 2050 target may also rely on offsets for scope 3 emissions. Committment to apply high-quality standards to purchased offset credits, but no specific information provided to date.	○	?
OFFSETTING PLANS FOR THE FUTURE		◑	◑

Sources: Authors' interpretation of identified public documentation from the BMW Group[84] and the Climate Action Tracker[85]

BMW Group

Most of the BMW Group's emissions arise in the use phase of its vehicles (~70%) and their manufacturing (~25%). The BMW Group has set targets and strategies that cover all emission scopes, aiming to be climate-neutral by 2050 and committing to apply high-quality standards to offsets. Its emission intensity targets, however, do not meet 1.5°C benchmarks for the automotive industry.

The BMW Group has set a climate-neutral target for 2050 covering the entire value chain of their business, but it does not define what the target entails in terms of emission reductions. Because BMW has not set a specific target for deep emission reductions,[86] it remains unclear what proportion of emissions the company intends to reduce and how it intends to offset. The lack of an explicit emissions reduction target alongside the headline climate neutrality pledge creates ambiguity and uncertainty on the potential impact that BMW's long-term vision can have on decarbonisation.

The BMW Group set several interim emission intensity targets to achieve by 2030, but they are not aligned with 1.5°C decarbonisation trajectories. These targets cover all emission scopes and are set against a 2019 baseline: reducing emissions in its locations and throughout the production process per vehicle by 80% (scopes 1 and 2), reducing emissions in the supply chain per vehicle by 22% (scope 3 upstream), and reducing emissions in the use-phase per vehicle per kilometre by 50% (scope 3 downstream).[87] The latter target is the most important target in terms of its mitigation potential, as use-phase emissions represented 70% of the company's emissions in 2020.[88] This target, however, falls short of what is needed for a 1.5°C-aligned decarbonisation trajectory for the transport sector. 75–95% of all light duty vehicles (LDV) sales should be electric—that is, have zero tailpipe emissions—by 2030 globally. 95–100% of light duty vehicle sales should be electric in BMW's main markets, such as the European Union and China.[89] The company has not yet committed to such targets as of January 2022. BMW Group opted out of a clean-vehicle pledge at COP 26 in November 2021, in which 11 competing automakers from several countries, including the US and Germany, committed to exclusively produce electric vehicles by 2035, or earlier, to support limiting global warming to 1.5°C.[90]

BMW's reasonably transparent disclosure of emissions reveals recent reductions in vehicle emission intensities and absolute emissions. Since 2020, the company integrated its financial and sustainability reports into one, giving the latter a more prominent role as part of BMW's business strategy. In the report, the company lays out its emissions across all scopes, including data from the last five years.[91] The data is granular and includes clarification on some methods used for the estimates. However, the BMW Group does not disclose around 10% of emissions across all scopes.[92] In BMW's disclosure to CDP, the company justifies the exclusion of these emission sources by their low relevance compared to the other 90% of emissions.[93] Reported location-based scope 2 emissions are around three times higher than market-based scope 2 emission estimates, but BMW gives more prominence to the latter in its official communications.[94]

The BMW Group claims to use 100% renewable electricity since 2020 but relies mostly on lower quality renewable energy procurement constructs. Although scope 2 emissions account for only 2% of BMW's emission footprint in 2020, the way in which the company procures renewable electricity will become increasingly important as the automobile industry transitions to electrified technologies in the coming years. The company mentions that it developed its own renewable installations, which it complements with storage, and that it acquires renewable electricity from third parties through contracts and renewable energy certificates.[95] Unbundled RECs accounted for approximately 75% of the total renewable energy procurement in 2020.[96] The climate impact associated with unbundled RECs is highly uncertain in many contexts due to the potential for double counting the renewable electricity (see Box A1 section 3.1.2).

BMW plans to use carbon offsets and appears to understand concerns about the integrity of this approach, but concrete plans are still not defined. From 2021, the company will claim carbon neutrality for its scope 1 and 2 emissions using offsets.[97] The company's plans to purchase carbon offsets remain unclear, although it has communicated concerns about the general quality of offset credits on the market.[98] Concretely, it intends to apply internal standards on additionality and permanence and further announced at COP 26 in November 2021 its plans to use credits that do not originate from "low-hanging-fruit" mitigation projects and that apply corresponding adjustments to limit double counting risks.[99] However, the carbon neutrality claim from 2021 could be misleading, as it covers only scope 1 and 2 emissions, which account for approximately 3% of the company's overall climate footprint in 2020.[100] It remains unclear if and when BMW will assume responsibility for unabated scope 3 emissions through this offsetting programme, or through making climate contributions.

Carrefour

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Retail	USD 82 bn [EUR 72 bn] (2020)	95.7 $MtCO_2e$ (2020)	Carbon neutral by 2040	◯ Very low	◯ Very low

Carrefour S.A. – headquartered in France – is a major global retailer, with over 13,000 convenience stores and supermarkets in 30 countries. **In October 2021, Carrefour communicated its new target for carbon neutrality by 2040.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
95.7 $MtCO_2e$ in 2020

Major emission sources: Supply chain for products and packaging account for ~72% of emissions (scope 3, upstream).

Summary of disclosure: Carrefour's Annual Report dicloses only 2% of the emissions reported in its CDP response. Scope 3 emissions are reported as 0.337 $MtCO_2e$, compared to 94.1 $MtCO_2e$ in the detailed CDP response. Reporting does not include emissions from administrative buildings, warehouses, head offices. Emissions from activities outside of the nine "integrated countries" (acounting for approximately 12% of Carrefour stores in 2020) could not be identified in any published datasets.

Scope 1	0.7
Scope 2	1.0
Scope 3 upstream	74.4
Scope 3 downstream	19.6

Headline pledge coverage

Subsidiaries coverage incomplete ◯

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE	*Carbon neutral by 2040*	
COVERAGE OF EMISSION SOURCES (in headline pledge)	Appears to cover only scope 1 and 2 emissions (<2% of emissions).	◯ ◯
REDUCTION OF OWN EMISSIONS (for pledge year, compared to 2019 full value chain)	? 70% emission reduction S1&2 by 2040, from 2019. Scope 1 and 2 account for less than 2% of company emissions. No scope 3 emission reduction commitment for the headline pledge year.	◐ ◯
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	**~29%** BY 2030 • S1&2: -50% by 2030 from 2019 • S3: -29% by 2030 from 2019	● ◯

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Lacking detail or limited to specific locations.	◯	?
RENEWABLE ELECTRICITY PROCUREMENT	No significant procurement of RE in 2020. Target for 100% RE by 2030.	N/A	◯

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	◯
OFFSETTING CLAIMS TODAY	—— *No offsetting claim in 2020/2021* ——	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	No disclosure on whether future targets rely on offsetting.	◯	◯

RATINGS
Overall 5-point scale ◯ High ◯ Reasonable ◐ Moderate ◯ Low ◯ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ◐ Moderate ◯ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Carrefour [101]

Carrefour

Carrefour is a major global retailer. Its major source of emissions is in its supply chain for products and packaging. Carrefour does not yet have a comprehensive climate strategy for most of its emission sources. The company is taking initial steps towards GHG emission reporting and target setting for selected emission sources and locations only, while other elements of the company's strategy remain shallow or speculative.

Carrefour's carbon neutral by 2040 target appears to cover far less than 2% of the company's emissions. Carrefour announced a new carbon neutrality target for 2040 on the eve of COP26 in October 2021, accompanied by the more specific target to reduce its scope 1 and 2 emissions by 70% by 2040, compared to 2019. This is a direct update of its existing SBTi approved 55% reduction by 2040 target. The significance of these targets is highly limited, since scope 1 and 2 emissions account for just 2% of Carrefour's emissions.[102] Carrefour's separate interim target of 29% emission reductions from scope 3 emissions by 2030 is a far more significant target, given that scope 3 emissions account for 98% of the company's footprint, but these emissions do not appear to be covered by the headline carbon neutrality target.[103] Moreover, it is unclear whether reported emissions and targets may exclude emissions from administrative buildings, warehouses, and operations outside of the nine countries that Carrefour refers to as its integrated countries, since these emissions are excluded from the company's GHG reporting in its annual report.[104] The inconsistent disclosure of emissions does not facilitate a clear estimate of how significant these potential exclusions are.

The inconsistent disclosure of GHG emissions does not facilitate a good understanding of the company's emissions. As with the targets set, Carrefour's disclosure of emissions in its 2020 Annual Report includes only a small subset of the company's emission sources and locations: emissions are reported for the company's integrated stores within nine integrated countries.[105] This includes less than 12% of Carrefour stores in France, and less than 20% of Carrefour stores worldwide; no other administrative buildings are included. All activities in the 21 other countries in which Carrefour operates are excluded. Although Carrefour acknowledges that scope 3 emissions account for 98% of the company's emissions,[106] and breaks these emissions down with reasonable detail in its CDP response, those emissions are not explicitly disclosed in the Annual Report GHG inventory.[107] Accordingly, Carrefour reports total company emissions of 1.66 $MtCO_2e$ in its 2020 Annual Report, although full value chain emissions reported to CDP amount to 95.7 $MtCO_2e$, excluding emissions data from activities outside of the nine "integrated countries" (21 other countries accounting for approximately 12% of Carrefour stores).

Emission reduction plans currently lack detail, or are limited to selected locations. Although Carrefour does not assume responsibility for scope 3 emissions in its GHG emission reporting or its headline carbon neutrality target, the company does have a separate target to reduce these emissions by 29% by 2030,[108] and outlines a handful of plans to achieve this. Carrefour will encourage its 100 largest suppliers to set their own climate targets, will improve the climate impact of its own-brand product lines,[109] and is implementing a strategy to reduce food waste throughout the value chain by 50% by 2025 compared to 2016.[110] The company also is testing the use of alternative fuels for transport in the Paris region.[111] For now, these plans do not contain sufficient details to determine whether they will contribute significantly to the reduction of scope 3 emissions across Carrefour's value chain worldwide. We did not identify any plans for the reduction of scope 1 and 2 emissions, aside from energy-related improvements in selected locations in France, and the reduction of F-gas emissions from refrigerants in line with EU regulation.[112]

Carrefour does not yet procure a significant volume of renewable energy but plans for 100% renewable electricity use by 2030, from higher quality sources. In 2020, Carrefour started to install solar PV on selected stores, supplying approximately 1.5% of the company's electricity demand in France.[113] Carrefour explicitly discloses that it does not prioritise the procurement of renewable energy through green tariffs currently, but rather plans longer-term to establish Power Purchase Agreements (PPAs) and to install more renewable energy capacity on its own sites, achieving 100% renewable electricity by 2030.[114] It is commendable that Carrefour plans to implement their renewable electricity target with higher quality constructs, but the company is a laggard regarding its lack of action on renewable energy to date, and could be more transparent about the barriers it faces to achieve this transition earlier than 2030.

Carrefour's plans for offsetting emissions and taking responsibility for unabated emissions are unclear. Carrefour does not currently procure carbon offsets to offset its own emissions. It may however intend to do so for its recently announced *carbon neutrality by 2040* pledge, which was accompanied by a 70% emission reduction target for the same year, but with no further details regarding the remaining emissions.[115] Carrefour also does not take responsibility for unabated emissions through making a climate contribution, although the activities of the Carrefour Foundation – which provides financial support for sustainable agriculture projects – may drive positive climate-related impacts.[116] It is unclear what these impacts could be, as well as whether that support goes beyond the Carrefour value chain, or would actually be leading to the reduction of Carrefour's own scope 3 emissions.

CVS Health

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Healthcare	USD 268.7 bn (2020)	12 MtCO$_2$e (2020)	Net zero by 2050	Low	Very low

CVS Health Corporation, based in the United States, mainly focuses on medical services, retail pharmacy and health insurance. **In October 2021, the company committed to reach net-zero emissions by 2050. By 2030, the company aims to reduce 47% of scope 1 and 2 emissions and emissions from purchased goods and services, compared to 2019 levels.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
12.04 MtCO$_2$e in 2019

Major emission sources: Purchase of goods and services (80%) (scope 3, upstream).

Summary of disclosure: Major emission sources are disclosed transparently, but scope 1 and 2 lack detail. Scope 2 emissions are reported using the market-based method only. Subsidiary coverage is unclear. More explanation is needed to understand the especially high emissions in 2019.

Scope 1	0.2
Scope 2	1.0
Scope 3 upstream	10.5
Scope 3 downstream	0.4

Target coverage

Subsidiaries coverage unclear ⬤

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE — *Net-zero emissions by 2050*

		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES (in headline pledge)	Coverage, year and scope of target are clear. Target covers full value chain.	⬤ (High)	⬤ (High)
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2018-2020)	**81-90% BY 2050** — Reduction target of 90% across value chain (2019 base year), prominent in headline pledge. Equals 81-84% reduction with base year in 2018 or 2020.	◑ (Moderate)	?
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2018-2020)	**?** — Reduction target of 47% for S1, S2 and S3 emissions from purchased goods & services, from 2019 to 2030. The target translates to no significant reduction requirement compared to emissions in 2018 or 2020.	⬤ (High)	○ (Low)

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Limited information on emission reduction measures: assessment not possible.	○ (Low)	?
RENEWABLE ELECTRICITY PROCUREMENT	No information on renewable energy constructs: assessment not possible.	○ (Low)	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	○ (Low)
OFFSETTING CLAIMS TODAY	—— *No offsetting claim in 2020/2021* ——	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	No disclosure on plans for offsetting in the future, but may be required to meet 2050 net-zero target.	○ (Low)	?

Sources: Authors' interpretation of identified public documentation from CVS Health and SBTi [117]

CVS Health

United States-based CVS Health provides medical care, retail pharmacy and health insurance. Roughly 80% of its total reported emissions, 12 $MtCO_2e$ in 2020, are from purchased goods and services. CVS Health's net-zero target reflects a step in the right direction, but still lacks substance. The company's 2030 targets may not commit to any further emission reduction beyond 2020; this apparent lack of direction is aligned with the insufficient identification of emission reduction measures.

CVS Health's net-zero target contains a specific but insufficient decarbonisation target. CVS Health is one of seven companies piloting SBTi's 2021-launched Net-Zero Standard, which requires that net-zero targets contain a commitment to at least 90% emission reductions.[118] Accordingly, the company's recently announced 2050 net-zero target under the SBTi Net-Zero Standard includes the commitment to reduce at least 90% of emissions by 2050, compared to 2019.[119] While this is a significant improvement on the ambiguity of most existing net-zero targets, the target is equivalent to only 81-84% emission reductions compared to 2018 or 2020 levels, due to extraordinarily high emissions reported in the base year 2019.[120] This level of emission reductions is not aligned with the Net-Zero Standard guidelines and a net-zero economy in 2050.

CVS Health's emission reduction targets for 2030 would result in higher emissions in 2030 compared to 2018 or 2020 levels. Alongside its recently announced 2050 net-zero target under SBTi, CVS Health committed to reduce scope 1 and 2 emissions and emissions from purchased goods and services by 47% compared to 2019 levels, by 2030.[121] Near-to mid-term emission reduction targets can substantiate a long-term target and encourage immediate climate action. However, the company's emissions from purchased goods and services accounted for over 20 $MtCO_2e$ in 2019,[122] nearly double the volume for the years 2018 and 2020. This means that CVS Health's target for 2030 would lead to an emissions level of over 11 $MtCO_2e$ in 2030 – only 10% lower than 2018 emission levels and almost 8% higher than its 2020 emissions from scope 1 and 2 and purchased goods and services (accounting for 10.6 $MtCO_2e$ in 2020).[123] Therefore, CVS Health's 2030 targets may not call for any immediate emission reductions.

We could not identify measures that CVS Health wants to implement to realise deep emission reductions. We only identified a small number of examples that illustrate what the company is doing and may continue to do, such as LED-lighting retrofits,[124] but these are unlikely to be sufficient to realise CVS Health's net-zero emissions pledge. Moreover, we did not find planned measures that aim for substantial emission reductions in CVS Health's main emission source – purchased goods and services.

Although CVS Health is on the right track, the company can provide more detail in its emissions reporting. The company presents its emissions footprint in an accessible appendix of its sustainability report, including historical data.[125] Scope 3 emissions reporting is done in a straightforward way, showing a breakdown of all relevant emission sources. However, it would be relevant to clarify the near doubling of scope 3 emissions in 2019 compared to 2018 and 2020 levels, as 2019 is the base year of the company's climate targets.[126] Based on the available reporting, this is related to the acquirement of Aetna, an insurance company,[127] but we did not find any explanation as to why Aetna's emissions are excluded from CVS Health's 2020 emissions disclosure. For scope 2 emissions, CVS Health could improve transparency by separating the emissions related to electricity, steam, and chilled water and including location-based energy-related emissions.

CVS Health claims to be committed to increasing the share of renewable energy it uses but does not elaborate on its plans. Electricity, steam, and chilled water accounted for roughly 1 $MtCO_2e$ of emissions in 2020 (market-based method, potentially higher with a location-based accounting method), or roughly 86% of total scope 1 and 2 emissions.[128] Although CVS Health says it wants to increase the share of renewable energy in its consumption, the company only refers to one solar energy project on its premises.[129] We could not identify further details of this plan, of the electricity-related emissions, nor on energy procurement constructs.

CVS Health describes that remuneration of leaders and managers is partially linked to the climate responsibility performance.[130] Such an accountability construct can incentivise target realisation. The company also describes who is responsible for guiding the climate strategy and responding to climate-related issues and challenges.[131] CVS Health could however increase the transparency related to these constructs; we could not identify any further description of the mechanisms, which limits the assessment of comprehensiveness and hinders any learning opportunities for peers. In addition, it remains unclear what impact the remuneration policy could have under the current near- to mid-term targets.

Deutsche Post DHL

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Logistics	USD 75.5 bn [EUR 66 bn] (2020)	39,1 MtCO$_2$e (2020)	Unclear: Zero or net zero by 2050	Low	Very low

Deutsche Post DHL AG – based in Germany - is the world's largest logistics provider. **The company uses the terms "net zero emissions" and "zero emissions" interchangeably to refer to its 2050 target.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
39.10 MtCO$_2$e in 2020

Major emission sources: subcontractor transport, especially from aviation (upstream scope 3, 64%).

Disclosure: Transparent disclosure of scope 1 and 2, but incomplete reporting of scope 3 emissions. Deutsche Post excludes 35% of its upstream scope 3 emissions from its total reporting, which makes it seem as if total reported emissions are 12 Mt lower than is actually the case.

Scope 1	6.58
Scope 2	0.67
Scope 3 upstream	31.85
Scope 3 downstream	?
Subsidiaries covered	●
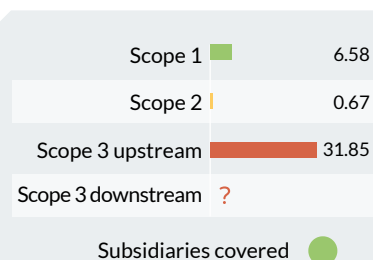
2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE — *Unclear: Deutsche Post uses the terms "net zero" and "zero" interchangeably. The target year for its headline pledge is 2050.*		
COVERAGE OF EMISSION SOURCES (in headline pledge) — Unclear: "all emissions" but no explanation of how Deutsche Post DHL defines this.	○	?
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019) — ✗ No reduction target accompanying the pledge communicated.	○	○
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019) — ? Unclear which emission sources are covered by the reduction target of 4 MtCO$_2$e for 2030. Interim targets for 2025 relate to carbon intensity and zero emission vehicles rather than absolute GHG emissions.	◐	○

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES — Range of measures are proposed.	◐	◐
RENEWABLE ELECTRICITY PROCUREMENT — On-site installations, considering PPAs, possible use of RECs. Detailed information is lacking.	◐	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS — Support for planting over a million trees annually.	◐	◐
OFFSETTING CLAIMS TODAY — Deutsche Post offers "climate neutral" delivery through GoGreen programme. Medium quality offset credits, but very low volume (See Box B2).	◐	○
OFFSETTING PLANS FOR THE FUTURE — No information on the intended use of offset credits towards the 2050 target.	○	?

RATINGS
Overall 5-point scale ○High ○Reasonable ○Moderate ○Low ○Very low . Average of sections 1-4.
Sections 1-4 3 point scale ●High ◐Moderate ○Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Deutsche Post DHL [132]

Deutsche Post DHL

Deutsche Post DHL Group is the world's largest logistics provider. Its main emission sources are from own and subcontracted transport (falling under scope 1 and scope 3, respectively). The company has offered "climate neutral" delivery of letters and packages since 2011, but the emissions that are offset amount to only 1% of total emissions. Deutsche Post DHL wants to be a net-zero emission company by 2050 and is pioneering efforts in the replacement of internal combustion engines. However, lack of information on what this implies in terms of real emission reductions and how to get there, make it difficult to judge the company's climate ambition.

While Deutsche Post DHL is transparent about using carbon offset credits to offer "climate neutral" delivery, customers could misunderstand the real climate impact of the company's activities. In 2020, Deutsche Post DHL offset 356 ktCO$_2$,[133] corresponding to 0.9% of its total emissions in that year. While the company makes clear that only certain deliveries are neutralised, the prominence of Deutsche Post DHL's climate neutrality claim is not in line with the emissions that it offsets. Despite efforts to procure higher quality offset credits, the climate impact associated with those credits is questionable (see Box B2).

Deutsche Post DHL has invested in alternatives to internal combustion engines for years, which will play a crucial role in reducing transport-related emissions to zero. Deutsche Post DHL states it will install on-site renewable energy installations to power its last-mile distribution centres; replace part of its fleet with e-vehicles and e-trikes and increase the share of renewable electricity; replace conventional aviation and maritime fuels with sustainable alternatives and shift a share of its long-haul transport to rail transport.[134] Provided that these alternative transportation modes are based on renewable electricity or other sustainable energy sources, they will significantly reduce scope 1 emissions. Deutsche Post DHL states they could shift from domestic flights in Germany to road or rail transport if the government would relax the mandatory delivery speed for letters.[135]

In its efforts to reduce emissions from subcontractors, Deutsche Post DHL launched a global "DHL Green Carrier Certification" programme in December 2021.[136] Through certifying subcontractors, Deutsche Post DHL aims to increase transparency on GHG emissions, identify those subcontractors that are already investing in low carbon technologies; and encourage emission reductions.[137]

Deutsche Post DHL omits 35% of upstream scope 3 emissions – 29% of total emissions – in its total reported annual GHG emissions, although these emissions are tracked elsewhere. In its ESG Statbook, Deutsche Post DHL prominently reports that its total market-based emissions in 2020 amounted to 27.38 MtCO$_2$e, of which 20.61 MtCO$_2$e scope 3.[138] Further down the same sheet, the company provides data on individual sources of scope 3 upstream emissions, which sum up to 31.85 MtCO$_2$e.[139] We interpret that Deutsche Post DHL includes only emissions from subcontracted transport and business travel in its main overview table, but we could not identify a clear explanation for this inconsistency. Assuming that scope 3 emissions amounted to 31.85 MtCO$_2$e in 2020, the company's total GHG footprint would be 39.10 MtCO$_2$e, using the location-based accounting method.[140]

Deutsche Post DHL changed from a tank-to-wheel to a well-to-wheel calculation approach to estimate its GHG emissions in March 2021. According to the company, this approach led to an increase of its total emissions in 2020 from 27.38 to 33.3 MtCO$_2$e, of which 8.0 MtCO$_2$e are scope 1, 0.2 MtCO$_2$e scope 2 (market-based) and 25.0 MtCO$_2$e scope 3 emissions.[141] A further breakdown of emissions is not yet available. The new estimates reported by Deutsche Post are lower than the sum of 39.10 MtCO$_2$e in the company's ESG Statbook, so it remains unclear whether all emission sources are included.

Deutsche Post DHL's headline target for 2050 is unclear – both in terms of emissions covered and whether the company aims for net-zero or real zero emissions by 2050. The company uses the terms "net zero", "zero emissions" and "zero-emissions logistics" interchangeably; and inconsistently in its German and English communications.[142] Deutsche Post DHL could substantially improve the clarity on its 2050 target by outlining whether the target is "net zero" or "real zero" and – in case of the former – set an accompanying deep emission reduction target.

Deutsche Post DHL claims that 86% of its electricity consumption in 2019 originated from renewable sources,[143] but provides limited details on its procurement approach. The company gives some examples of on-site renewable energy installations, but it is unclear if these generate a substantial share of Deutsche Post DHL's electricity consumption.[144] As the company states it may not purchase renewable electricity if the market does not offer "sufficient quality or quantities",[145] we assume Deutsche Post DHL purchases renewable energy certificates. These generally do not send a meaningful signal to the market and contribute little to additional renewable energy capacity development (see Box A1). However, without more information on the pursued renewable electricity procurement options, we cannot assess Deutsche Post DHL's approach on this issue.

Carbon offsetting fact checking | Deutsche Post's climate neutral delivery claim

Although Deutsche Post DHL is transparent about its use of carbon offset credits to claim 'climate neutral delivery', the share of emissions that the company actually offsets is not proportionate to the prominence of its climate neutrality claim. Deutsche Post goes through a thorough process to procure some of the higher quality carbon credits available on the markets today, but these are unlikely to have the same climate impact as a reduction of own emissions.

Since 2011, Deutsche Post DHL offsets all delivery emissions related to the shipment of parcels from private customers within Germany.[146] In January 2022, Deutsche Post DHL extended this service to emissions from the delivery of letters.[147] Private customers wishing to ship letters or parcels abroad, as well as corporate customers, can pay a premium, which Deutsche Post DHL uses to purchase carbon offset credits and neutralise emissions from those shipments.[148]

In 2020, Deutsche Post procured credits to offset 356 $ktCO_2e$, or only 0.9% of the company's total emissions in that year.[149] Although Deutsche Post is transparent that it offsets only a specific share of its emissions, the prominence of its neutralisation claim in public communications is not proportionate to the very small amount of GHG emissions compensated for.

Deutsche Post has looked for some of the higher quality credits available on the voluntary carbon markets. The company has five minimum criteria for credits, related to third-party monitoring and verification; transparency and the avoidance of double counting; permanence; sustainable development; and leakage. In addition, the company aims to prioritise projects that centre around renewable energy, waste disposal and household appliances; are small and with co-benefits for local communities; and located in developing countries in Asia, Africa and Latin America. Finally, Deutsche Post states that it prioritises credits with more recent vintage dates over older ones and avoids credits older than five years.[150]

Based on these criteria, Deutsche Post sourced offset credits from seven projects in 2020. Those include wind power projects in Aruba and in India, cookstove projects in Guatemala and Lesotho, a landfill gas project in Chile, and a biogas programme in Vietnam.[151] The cookstove project in Lesotho was solely funded by Deutsche Post DHL and all projects are Gold Standard verified.[152] All of these project types represent some of the higher quality ones available in recent years. Unlike the majority of projects that supply current voluntary carbon markets, there is a fair chance that these seven projects depend on revenue for continuation and that the support provided by Deutsche Post leads to some additional climate impact.

However, in the context global governance framework of the Paris Agreement, which requires all countries to set ambitious emission reduction targets, the additionality of these types of projects is contentious, as they may be accessible to host countries and could be part of host countries' own GHG emission abatement efforts. As such, the projects are not a credible equivalent to the reduction of Deutsche Post DHL's own emissions. The same is true for the eight projects that Deutsche Post DHL selected in early 2022.[153]

Deutsche Telekom

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Telecommunications	USD 114 bn (2020)	16.4 MtCO$_2$e (2020)	Net-zero emissions by 2040	Reasonable	Low

Deutsche Telekom AG – based in Germany – is one of the world's largest telecommunications companies. **The company committed to net-zero emissions by 2040 and to net-zero scope 1 and 2 emissions by 2025.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE

16.4 MtCO$_2$e in 2020

Major emission sources: Use of sold and leased products (scope 3 downstream, 38%) and purchased energy (scope 2, 14%).

Disclosure: All major emission sources are disclosed. Location-based accounting for scope 2 emissions could be highlighted more prominently in aggregated statistics. Smaller (potentially insignificant) sources of scope 3 emissions may be missing from Deutsche Telekom's reporting.

		Target coverage
Scope 1	0.235	
Scope 2	2.277	
Scope 3 upstream	8.221	
Scope 3 downstream	5.66	
Subsidiaries covered		

2 SETTING EMISSION REDUCTION TARGETS

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Net-zero emissions by 2040*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	All scope 1, 2 and 3 emissions are covered.	●	●
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019)	**~100%** BY 2040 — Explicit aim for "near zero", with offsetting of only residual emissions.	◐	●
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	**?** Intensity target — • S1&2: Net-zero by 2025. High reliance on RECs. • S3 (major sources): -25% emission intensity by 2030.	●	○

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Very limited information on pursued reduction measures.	○	?
RENEWABLE ELECTRICITY PROCUREMENT	Granular data on electricity through various constructs. RECs account for major share.	◐	○

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	*No climate contributions identified*	N/A	○
OFFSETTING CLAIMS TODAY	*No offsetting claim in 2020/2021*	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	5% of current emissions may be offset through nature-based solutions to achieve net-zero by 2025 (S1&2). No details on the share of offset credits for the 2040 target (S1, S2, S3).	◐	○

Sources: Authors' interpretation of identified public documentation from Deutsche Telekom [154]

Deutsche Telekom

Deutsche Telekom sets ambitious targets but provides insufficient information on emission reduction measures, especially on scope 3 upstream and downstream emissions, which account for 85% of the company's climate footprint.[155] This lack of clarity may undermine Deutsche Telekom's net-zero targets. Use of sold and leased products and purchased energy are the company's two main emission sources, accounting for 38% and 14% of total emissions in 2020.[156]

Deutsche Telekom outlines its targets in detail. The company aims for net-zero scope 1 and 2 emissions by 2025 and net-zero emissions across all scopes by 2040.[157] The company set itself a goal for 100% usage of renewable electricity by the end of 2021.[158] These targets apply to all subsidiaries.[159]

Deutsche Telekom plans to reduce its baseline emissions as close to zero as possible and offset residual emissions, but does not provide more details.[160] Deutsche Telekom could increase transparency on its headline target by being more specific about what it means by "as close to zero as possible" and what the maximum role for offsetting could be. To facilitate dialogue and solution-seeking for those residual emissions, Deutsche Telekom could outline what obstacles it anticipates in reducing the final share of baseline emissions and what it would need from suppliers, customers, or policy makers to overcome those.

Deutsche Telekom focuses on carbon dioxide removals with limited permanence to neutralise residual emissions. Although the company states it will critically consider which CDR options have a higher degree of permanence, it mentions "planting trees" as the "classical example".[161] Nature-based solutions such as reforestation cannot guarantee the permanence to be considered equivalent to emission reductions, and their use does not justify a net-zero claim (see Box A3 section 4.1.2). It would be more constructive for Deutsche Telekom to provide support to these nature-based solutions without making a neutralisation claim.

Renewable energy procurement is to play a large role in reducing scope 1 and 2 emissions. However, Deutsche Telekom is focusing on lower quality procurement options. Electricity-related emissions accounted for 90% of Deutsche Telekom's scope 1 and 2 emissions in 2020.[162] PPAs and on-site RE accounted for 2.63% of the company's electricity consumption in 2020, with RECs and renewable energy in the grid mix accounting for 18% and 25%, respectively.[163] It is unclear whether Deutsche Telekom accounts for the potential sale of RECs to other customers when it claims the renewable energy in the grid mix, or whether this represents a double counting

risk. Deutsche Telekom procures additional RECs to meet its 100% renewable electricity target and reduce scope 2 emissions.[164] However, RECs may not send a meaningful signal to the market for additional renewable energy investments, especially when they are not bundled with the electricity purchased. It is possible that Deutsche Telekom, through its procurement of RECs, may simply artificially shift allocation of more carbon-intensive electricity supplying the grid to other consumers without sending a meaningful signal to incentivise the construction of additional RE capacity (Box A1, section 3.1.2). Deutsche Telekom could make a stronger contribution to the decarbonisation of the electricity grid – and a more credible claim on the reduction of its energy-based emissions – by focusing on on-site renewable energy installations and higher quality PPAs.

Scope 3 emissions accounted for 85% of Deutsche Telekom's emissions in 2020, but details on how to bring those to near zero are lacking. Use of sold and leased products are the most important sources of scope 3 emissions, jointly accounting for 38%.[165] Deutsche Telekom will work with suppliers to produce more efficient phones and offer customers a "green tariff". These measures could reduce the emissions from the use of sold and leased products, but only if the green tariff is based on truly additional renewable electricity capacity and if efficiency increases are not negated by higher usage. More information on the proposed measures is needed to understand what their likely impact on Deutsche Telekom's emissions are. Deutsche Telekom also states it will reduce packing materials in the supply chain, but we could not identify clear details on measures addressing the remaining majority of scope 3 emissions, related to capital goods, procurement, upstream and downstream transportation, and the disposal of sold products.[166]

Deutsche Telekom transparently discloses its climate footprint, but takes no responsibility for unabated emissions. The company sets out the main emission sources across scopes 1 to 3 clearly. However, we found no evidence that Deutsche Telekom takes responsibility for those emissions, for instance through applying a Paris-aligned carbon price to make contributions to climate mitigation projects outside its value chain.

Enel

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Energy utility	~USD 73 bn [EUR 65 bn] (2020)	97.9 MtCO$_2$e (2020)	Net zero by 2050	Moderate	Low

Enel S.p.A. – based in Italy – is a multinational energy utility, active in the generation and distribution of electricity and natural gas across multiple continents. **In 2020, Enel pledged to reach net-zero emissions by 2050 and updated a range of interim emission targets.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
97.9 MtCO$_2$e in 2020

Major emission sources: Generation of electricity (scope 1, 46%), retail of third party generated electricity (scope 3 upstream, 26%), downstream gas combustion (scope 3 downstream, 22%).

Summary of disclosure: Major emission sources are disclosed transparently.Reporting includes partial but not complete coverage of subsidiaries, with limited information available to interpret the significance of this.

Scope 1	45
Scope 2	5
Scope 3 upstream	26
Scope 3 downstream	21
Subsidiaries not covered	

Target coverage

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE — *Net-zero by 2050*		
COVERAGE OF EMISSION SOURCES (in headline pledge) — Full coverage of Scope 1, 2, 3.	◐/●	●
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019) — **~58%** BY 2050 — Target for full decarbonisation of scope 1 emissions may be 1.5°C-aligned, but net-zero for scope 2 and 3 remains ambigious.	◐	◐
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019) — **~43%** BY 2030 — Detailed range of interim targets in 2023 and 2030. Targets for scope 3 emissions are inadequate. • S1: -60% by 2023; -80% by 2030 from 2017 • S3: -16% by 2030 from 2017	●	◐

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES — Strong emission reduction trend between 2018 and 2023 due to coal phase-out, but coal assets need to be permanently closed rather than sold to other companies; no clear phase-out plans for gas.	◐	○
RENEWABLE ELECTRICITY PROCUREMENT — Growing reliance on wholesale electricity markets with no disclosure of any measures to procure renewable energy.	○	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS — *No climate contributions identified*	N/A	○
OFFSETTING CLAIMS TODAY — *No offsetting claim in 2020/2021*	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE — No explicit plan to use offsets, but also no firm commitment.	○	?

RATINGS **Overall** 5-point scale ● High ● Reasonable ◐ Moderate ◐ Low ○ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ◐ Moderate ○ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Enel

Enel is an international energy utility. Its main emissions derive from electricity and heat generation, electricity retail, and gas retail. Enel is taking action in the near-term to phase out coal combustion, but the lack of clarity on longer-term targets and plans for addressing scope 3 emissions from electricity retail and gas may undermine the company's climate credentials.

Enel's climate-related targets are set out in detail, although the long-term goal and its sufficiency is unclear. Enel frequently refers to two different headline pledges for 2050: a target for "complete decarbonisation by 2050" refers only to scope 1 emissions, while a separate target for "net-zero by 2050" refers to the full value chain.[168] The important difference between these targets is not immediately obvious and can lead to confusion. The net-zero target is particularly ambiguous since this is not accompanied by a specific emission reduction target for all emission scopes. The ambiguity may reflect a lack of commitment on what the company aims for: Enel representatives have publicly speculated that the company may be out of gas by 2050, saying that Enel does not believe in technology that offsets CO_2 and has no expectations for carbon capture and storage,[169] but there is no firm commitment. The complete decarbonisation of emissions from own generated power sales by 2050 may be aligned with 1.5 °C compatible trajectories,[170] but the lack of an explicit emission reduction target for scope 2 and scope 3 emissions means that the overall sufficiency of the long-term vision is unclear, especially given the current trend of increasing power sales under scope 3 emissions.[171] Enel complements its long-term vision with scope 1 emission intensity reduction targets of 65% by 2023 and 80% by 2030, compared to 2017. For scope 3, Enel commits to a 16% absolute reduction of emissions between 2017 and 2030.[172] Combined, we estimate that these targets commit Enel to the reduction of its own full value chain emissions by a minimum of approximately 43% in 2030 and 58% in 2050, compared to 2019 emissions.

Enel's coal phase-out is rapidly decarbonising the company's footprint; carbon intensive infrastructure needs to be safely decommissioned rather than sold on to other companies. Measures to decarbonise emissions from most emission sources are set out, including at the subsidiary level in some cases. Clear targets for 2023 and 2030 are set out for individual renewable energy technologies, as well as specific demand-side decarbonisation technologies. Most importantly, having reduced the share of coal in the electricity generation mix from 25.7% in 2018 to 6.4% in 2020, Enel aims to further reduce the share of coal in its generation capacity from 10.6% in 2020 to 1% by 2023, and to phase-out coal completely by 2027.[173] This phase-out – which reflects the increasingly poor economic conditions and prospects for coal – is underpinning a strong decarbonisation trend:

Enel's absolute emissions and emission intensity by revenue decreased by an average of 22% p.a. and 16% p.a. respectively, between 2018 and 2020. However, while Enel is closing and safely decommissioning some of its coal power plants, some of its coal power generation assets are also being sold on to other companies. Passing carbon intensive infrastructure on to other companies can simply lead to a displacement rather than a real reduction in emissions. The phase-out of coal power can only lead to a meaningful decarbonisation impact if it entails the permanent closure of those assets.

Lack of clarity for the phase-out of gas and the procurement of renewable energy from third parties may undermine longer-term decarbonisation prospects. Enel's phase-out from coal has – to date – partly been facilitated by an increase in electricity generation from natural gas, and direct sales of natural gas to customers in Italy and Spain continue to account for 22% of the company's emissions in 2020.[174] Enel pursues a modest target to reduce gas retail emissions by 16% between 2017 and 2030, but we could not identify clear plans for the phase-out of gas in the future. This could seriously undermine Enel's 2050 pledge, given the time required to phase-out gas related infrastructure.

The procurement of third-party generated electricity – for which very limited information is available – accounts for a further 25.6% of the company's emissions.[175] The gap between Enel's electricity generation and its electricity sales has increased in the past years, as Enel phases out its own coal generation capacity.[176] Although Enel sets out a range of demand-side plans to improve customers energy efficiency, we could not identify a plan to address the supply side of this key emission source, for example through renewable electricity procurement contracts. In line with the major uncertainties for these emission sources, Enel's overall targets for 2030 indicate a far shallower rate of decarbonisation between 2023 and 2030, compared to the decarbonisation rates achieved primarily through the reduction of scope 1 emissions in the period from 2018 to 2023.[177]

Enel's presentation of current emissions is transparent, but the company could take more responsibility for unabated emissions through climate contributions. Although aspects of Enel's scope 2 and upstream scope 3 emissions could be clearer, the company's main emission sources are set out clearly. The clear disclosure of related activity data in the company's sustainability report represents good practice. Enel maintains the transparency of its disclosure by not using carbon offsets. However, beyond its obligations to a carbon price on scope 1 emissions under the EU Emissions Trading Scheme, Enel does not appear to provide any further contributions for climate change action outside of its supply chain, which should be expected from any corporate entity, in particular a company with Enel's financial capability and historic responsibility.

E.ON

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Energy utility	~USD 69 bn [EUR 60.9 bn] (2020)	116.3 MtCO$_2$e (2020)	Carbon neutral by 2040	Low	Very low

E.ON SE – based in Germany – is a major European energy utility, restructured between 2014 and 2019 to focus on downstream energy utility services including network infrastructure, energy retail and customer solutions. **In 2020, E.ON set a range of emission reduction targets headlined by the pledge to become carbon neutral by 2040.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
116.3 MtCO$_2$e in 2020

Major emission sources: Distribution of third party generated electricity (scope 3 upstream, 53%), downstream gas combustion (scope 3 downstream, 36%).

Summary of disclosure: Presentation of minor emission sources is transparent, but the major emissions sources (scope 3 from energy sales) are only partially covered, due to exclusion of electricity and gas sales to wholesale market and sales partners. This could significantly increase scope 3 emissions.

		Target coverage
Scope 1	3.6	
Scope 2	4.5	
Scope 3 upstream	66.4	
Scope 3 downstream	41.8	

Subsidiaries partially covered

2 SETTING EMISSION REDUCTION TARGETS

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Carbon neutral by 2040*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Scope 3 emissions (93%) excluded from 2040 pledge, though covered by other targets.	●	○
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019)	? Potentially ambitious targets may be undermined by exclusion of major sales markets.	◐	?
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	? Interim targets from 2030, also may be undermined by exclusion of major sales markets: • S1&2: -75% by 2030 from 2019 • S3: -50% by 2030 from 2019	●	?

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Limited information currently available on emission reduction measures: assessment not possible.	○	?
RENEWABLE ELECTRICITY PROCUREMENT	Very little published detail; procurement includes lower quality constructs.	○	○

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	○
OFFSETTING CLAIMS TODAY	Some scope 3 emissions are offset in 2020; no details on emission levels or the offsetting approach.	○	?
OFFSETTING PLANS FOR THE FUTURE	Unclear plans to neutralise scope 3 emissions in the future through nature-based solutions.	○	?

RATINGS **Overall** 5-point scale ●High ●Reasonable ◐Moderate ◑Low ○Very low . Average of sections 1-4.
Sections 1-4 3 point scale ●High ◐Moderate ○Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from E.ON [178]

E.ON

After a period of transformation between 2014 and 2019 in which E.ON spun-off and sold-off most of its large-scale power-generation infrastructure, E.ON is now focused on downstream energy utility services including network infrastructure and energy retail. The company's major emission sources derive from the retail of gas and third-party generated electricity. EON markets itself as a future-oriented low-carbon energy utility, but its targets and strategies lack substance. The company's current practices do not give a clear indication of real ambition to become a climate leader.

E.ON's headline climate targets may be severely undermined by the exclusion of major sales market segments. The headline pledge to become carbon neutral by 2040 refers to only scope 1 and 2 emissions, which accounted for only around 7% of the company's reported emissions in 2020.[179] It would be more transparent for the company to communicate primarily on their other more encompassing target to reduce scope 1, 2 and 3 emissions by 100% by 2050.[180] This could be a 1.5 °C aligned target, if it would cover all the company's sales markets, and if the trajectory to reach zero emissions by 2050 is as steep as indicated by the company's interim targets.[181] However, this potentially ambitious target is severely undermined by the uncertainty on whether energy sold to sales partners and wholesale markets is included in these targets. Emissions from these sales – which accounted for 41.2% of gas sales and 48.5% of power sales in 2020 – are explicitly excluded from the company's GHG emission reporting.[182]

E.ONs utilisation of offsets and intentions for the future is not transparent. Some upstream scope 3 emissions – including business travel and procurement – are not included in GHG emission reporting in 2019 and 2020 due to footnoted claims that they have been offset.[183] We could not identify further details about the offset credit procurement in the public domain. Potentially more significantly, it remains unclear whether and how offsets are relied upon to achieve the 2050 target to reduce scope 3 emissions. While no reference is made to offsetting alongside these targets in any major company communications, E.ON separately describes its support for the Lowering Emissions by Accelerating Forest finance (LEAF) Coalition, in which it claims that this support is intended to generate credits that will address unavoidable downstream scope 3 emissions from customers' gas consumption.[184] It is not clear whether this refers to achievement of the 2050 decarbonisation target, or to unabated emissions in the interim.

The company's emission reduction measures remain unclear, but further information is anticipated by 2022. Although E.ON describes examples of low carbon energy technologies that it intends to invest in and support its customers to adopt, and highlights demonstration projects for some of these technologies,[185] limited details could be found regarding concrete plans for such measures with regards to timings, investment sums, or the instruments to support their rollout. A clearer evaluation of E.ON's plans may be possible in 2022; the company reported in 2021 that their focus up to now was to integrate climate data and consolidate target trajectories, following the restructuring of the company, and that the translation of these targets to concrete measures will be a next step.[186]

E.ON recognises that it is well placed to support the decarbonisation of the European energy system, but does not yet demonstrate sufficient ambition to do so. E.ON and its subsidiary companies heavily publicise renewable energy, but fossil-fuels still underpin the majority the company's sales. We could not identify any clear targets or plans for the phase-out of gas. In some countries, renewable electricity is promised to all residential customers at no extra cost,[187] but the climate impact associated with some of those tariffs and claims is contentious. E.ON's renewable electricity comes from a variety of sources including own generation and PPAs but also the procurement of RECs, a construct with particularly contentious credibility (see Box A1 section 3.1.2). We could not identify sufficient details on the procurement of energy for E.ON's own operations to evaluate the comprehensiveness and credibility of the approach.

E.ON could take further responsibility for its unabated emissions. Aside from the purchase of a small quantity of offset credits for business travel and procurement,[188] and beyond its obligations to a carbon price on scope 1 emissions under the EU Emissions Trading Scheme, E.ON does not disclose details of any financial contributions to climate change mitigation projects outside of its value chain, which would be a reasonable model for E.ON to assume greater responsibility for its unabated emissions today.

GlaxoSmithKline

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Pharmaceuticals and consumer healthcare products	USD 45 bn (2020)	16.0 MtCO$_2$e (2019)	Net-zero carbon by 2030	Moderate	Low

GlaxoSmithKline Plc (GSK) is a pharmaceutical and consumer healthcare company based in the United Kingdom. **In November 2020, the company committed to a net-zero emissions target for 2030.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
16.0 MtCO$_2$e in 2019

Major emission sources: Purchase of goods and services (40%) and use of sold products (40%).

Disclosure: Major emission sources are disclosed transparently. Reporting both location-based and market-based for scope 2 emissions, but (lower) market-based method used for sum of emissions.

Scope 1		0.8
Scope 2		0.5
Scope 3 upstream		7.8
Scope 3 downstream		6.8

Target coverage

Subsidiaries appear to be covered but this is not explicit

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE — *Net-zero emissions by 2030*

		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES (in headline pledge)	GSK states that the target covers scope 1, 2 and 3 emissions, but it is unclear whether specific company divisions and emission categories are excluded, due to potential inconsistencies between documents.	◯	◑
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019)	? GSK's commitment to reduce scope 3 emissions 16% by 2030 from a 2017 base year translates to no significant further emission reduction compared to 2019 levels. Other documentation implicitly suggests plans for emission reductions of approximately 80% by 2030.	◯	◯
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	? • S1&2: -34% by 2025 from 2017 (eq. to -24% compared to 2019). • S3: No explicit interim target although other documentation implies significant emission reductions planned later in the decade.	◑	◯

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	High-level description of potentially high-impact emission reduction measures.	◑	◑
RENEWABLE ELECTRICITY PROCUREMENT	Very limited detail on renewable energy constructs. Assessment not possible.	◯	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	— No climate contributions identified —	N/A	◯
OFFSETTING CLAIMS TODAY	— No offsetting claim in 2020/2021 —	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	Net-zero 2030 target depends on offsets; 2.5 MtCO$_2$ to be offset with nature-based solutions.	◑	◯

RATINGS **Overall** 5-point scale ●High ●Reasonable ◑Moderate ◐Low ◯Very low . Average of sections 1-4.
Sections 1-4 3 point scale ●High ◑Moderate ◯Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from GlaxoSmithKline.[189]

GlaxoSmithKline (GSK)

United Kingdom-based GSK is a pharmaceutical and consumer healthcare company. Roughly 40% of the 2019 emissions are from purchased goods and services and another 40% from use of sold products, mainly from the use of metered dose inhalers. Although GSK's net-zero target for 2030 appears ambitious, the company may have the means to move much faster. The company plans to take little action for the first half of the decade. Taking more responsibility for unabated emissions today could provide a clearer incentive to accelerate the implementation of readily available measures.

GlaxoSmithKline (GSK) has a net-zero target for 2030 that is particularly ambiguous. GSK's SBTi targets are not in line with its *carbon reduction pathway*. In 2020, the company committed to net-zero emissions by 2030.[190] The company also has SBTi-approved emission reduction targets of 34% for scope 1 and 2 emissions by 2025 (2017 baseline; translates to a 24% reduction compared to 2019 levels) and 16% for scope 3 emissions by 2030 (2017 baseline; translates to just a 4% reduction compared to 2019 levels).[191] [192] However, GSK also published its *carbon reduction pathway*, in which the company presents more ambitious emission reductions between 2020 and 2030. Although the company appears to cover only 88% of emissions in its pathway, GSK seems to be committed to reduce these emissions by roughly 80% by 2030.[193]

GSK will use nature-based offsets to claim neutralisation for roughly 2.5 MtCO$_2$e of its emissions, but only in the target year.[194] According to GSK's *carbon reduction pathway*, which implies emission reductions of roughly 80% by 2030, GSK plans to offset about 2.5 MtCO$_2$e in 2030, using nature-based projects, associated with limited permanence.[195] The company's climate responsibility approach would be more robust if the target was presented this way, including the expected use of emission offsets, volume, and exact type of projects. Moreover, in its carbon reduction pathway, GSK shows that it plans to procure very few offsets before 2030; the company plans to claim net-zero emissions through offsetting only its 2030 emissions.[196] Net-zero claims that are based on single-year offsets are not credible and likely to mislead customers, shareholders, regulators and other observers.

With its *carbon reduction pathway*, GSK does not send signals for short-term climate action. While the 80% emission reduction plan implied by the *carbon reduction pathway* for 2030 may appear ambitious, the specific circumstances present doubt about whether this really would constitute an ambitious target, or whether meaningful action may be delayed. The pace of action foreseen by the *carbon reduction pathway* for the next five years is slower than GSK's recent trend of reducing emissions; the majority of planned emission reductions are foreseen for the end of the decade, and mostly through a single measure.[197] Between 2027 and 2030, GSK expects to reduce 4 MtCO$_2$e of its emissions from use and disposal of products.[198] These emission reductions are mainly related to replacing the type of medical inhalers that the company sells with a type that has a negligible impact on the climate.[199] GSK's *carbon reduction pathway* would show more ambition and leadership if it planned to implement these emission reductions in the first half of the decade. The company does not offer reasons for the delay;[200] based on the available information, deep emission reductions may be possible in the next few years.

GSK has a 100% renewable energy target for 2025[201] but we could identify only limited details on current and projected renewable energy supply constructs. With a target year of 2025, immediate and extensive action is required to increase the share of renewable energy. GSK describes that it wants to increase the share of renewable electricity through on-site generation and offsite purchase agreements and certificates.[202] However, the company does not specify the planned constructs. This lack of transparency hinders the assessment of the effectiveness of meeting its renewable energy target; it remains unclear whether GSK's procurement approach will encourage deployment of additional renewable capacity.

Google

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Information tech services	USD 182.5 bn (2020)	15.3 MtCO$_2$e (2020)	Carbon free and net zero by 2030	Low	Low

Google LLC – headquartered in the United States – is a provider of diverse information technology services and products, generating the majority of its revenue through online advertising technologies. **Google claims to be carbon neutral since 2007 with the goal to be carbon free and reach net-zero emissions by 2030.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
15.3 MtCO$_2$e in 2020

The distribution of scope 3 emissions between upstream and downstream sources is not disclosed; we estimated this based on available information.

Major emission sources: Electricity for data centres (in scope 2); use of products (in scope 3 downstream).

Summary of disclosure: The granularity of emissions reporting is limited for "business reasons", which limits transparency, especially for Scope 3 emissions which represent the majority. The company discloses both market-based and location-based scope 2 emissions but uses the lower value for total aggregated emissions.

Scope 1	0.04
Scope 2	5.87
Scope 3 upstream	2.53
Scope 3 downstream	6.85

All subsidiaries of Alphabet Inc. are included ●

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE — *"Carbon free by 2030" and "Net-zero emissions by 2030"*

		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES (in headline pledge)	Net-zero emission target explicitly covers the full value chain.	●	●
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	✕ The net-zero target is not substantiated with a specific target for the reduction of own emissions.	○	?
INTERIM EMISSION REDUCTIONS (compared to full value chain in 2019)	✕ No interim GHG targets before 2030 identified.	N/A	*Headline pledge is for 2030*

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Major flagship projects and measures across most emission sources. The emissions coverage of measures is unclear due to limited granularity of emission discosure, but scope 1 and scope 3 emissions have significantly reduced in recent years.	◐	◐
RENEWABLE ELECTRICITY PROCUREMENT	Mostly PPAs on the same grid; 2030 target for 24/7 matching.	●	●

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	— *No climate contributions identified* —	N/A	○
OFFSETTING CLAIMS TODAY	Carbon neutral claim since 2007, with low integrity (see Box B3).	○	○
OFFSETTING PLANS FOR THE FUTURE	The potential role of offsetting towards the net-zero emissions target for 2030 is unclear.	○	?

RATINGS

Overall 5-point scale ● High ● Reasonable ◐ Moderate ◐ Low ○ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ◐ Moderate ○ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Google and Alphabet [203]

Google

Google is a provider of diverse information technology services and products. Its major emission sources derive from product manufacturing and use, and electricity consumption in data centres. Google's plans for the decarbonisation of its electricity-related emissions are comprehensive and innovative, but it is unclear if the targets and measures for other emission sources are sufficient, especially for scope 3 emissions, which represent the majority of Google's GHG emission footprint.

Google's headline claim reads "*Carbon neutral since 2007. Carbon free by 2030*". These headlines are unclear. The carbon neutrality claim is derived through the procurement of renewable energy and offset credits, and covers only selected emission scopes. Major scope 3 emission sources that accounted for 60% of the company's GHG emissions in 2020 are omitted from the carbon neutrality claim.[204] For the emission scopes that are covered by offsets, the environmental integrity of the offset credits is highly contentious (see Box B3). The scope of the *carbon free by 2030* target is unclear, but this claim appears mostly alongside Google's description of its plans for renewable electricity,[205] and may only apply to renewable electricity generation and procurement. In 2021, Google included an additional target for *net-zero GHG emissions by 2030* in its updated Environmental Report.[206] The net-zero target applies explicitly to all emissions across the value chain, but we could not identify any further details, such as a specific target for emission reductions, or the potential role of offsetting.

Since 2017, Google continues to develop a comprehensive portfolio of renewable energy generation and procurement. Between 2017 and 2020, Google claims to have "matched" its energy consumption with renewable energy generation. In 2020, 80% of renewable energy procurement stemmed from PPAs within the same grid as the electricity consumption and on-site generation, while the remaining 20% was procured through RECs.[207] Google demonstrates a good understanding of the limitations of various renewable energy procurement options: although claiming to have matched 100% renewable energy, Google also notes that only 67% of their electricity use in 2020 was matched on an hourly basis with regional carbon-free sources.[208] In 2020 Google set a target to achieve *24/7 carbon-free energy by 2030*, meaning that it will ensure its consumption is matched by locally produced renewable energy, matched on an hourly basis.[209] This good practice approach has subsequently been adopted by other companies, and the innovative technologies that Google is developing to implement and monitor progress against this target may in the future support other actors and grid operators to optimise their own decarbonisation measures. Google reports both location-based and market-

based scope 2 emissions, but the latter is used to discount electricity emissions from high-level aggregated company-wide emission statistics.[210] This is somewhat inconsistent with Google's shrewd observation that purchasing enough renewable energy to match annual electricity use may reduce but not eliminate emissions.[211] More prominent reporting of location-based emissions would be more transparent and constructive, given the recognised limitations of its current renewable energy procurement.

Google implements a range of measures to reduce emissions across most emission sources, but more information is needed to judge if they are sufficient. Google reports on a range of emission reduction measures, particularly related to improving energy efficiency in datacentres and office buildings.[212] Flagship project investments for high-tech and data-driven efficiency in selected office locations can have a positive impact for demonstration purposes and enabling replication of good practice, but we could not identify whether Google has mainstreamed these measures across a large proportion of its locations. We could not determine the sufficiency of measures for scope 3 emissions due to the lack of information on the depth and breadth of measures as well as the poor granularity of GHG emission data on scope 3 emission sources; Google groups most scope 3 GHG emission sources – constituting the majority of the company's total GHG emission footprint – into a single data point, for "business reasons".[213] Google's measures have led to a reduction in absolute emissions in recent years, despite a marked increase in revenue and activity.

Carbon offsetting fact checking | Google's carbon neutrality claim

To fulfil its *carbon neutral since 2007* claim, Google has procured only enough offset credits to account for a small proportion of the company's full GHG emission footprint during this period, and from carbon offset projects with highly questionable environmental integrity.

Google's *carbon neutrality claim – Carbon neutral since 2007* – is based on the procurement of offset credits to neutralise the company's unabated GHG emissions. The claim covers only selected emission scopes, omitting some major scope 3 emission sources that accounted for at least 60% of the company's GHG emissions in 2020,[214] although this major omission may not be clear to Google's various stakeholders. Between 2016 and 2020, Google procured credits to offset 6.6 MtCO$_2$e, although the company reported total emissions of 42.7 MtCO$_2$e for the same period, excluding electricity-related emissions neutralised through PPAs.[215]

The environmental integrity of the procured credits is also highly contentious, although a thorough assessment is hindered by the lack of transparent information on the volume of credits purchased in which year, from which projects. Google has published brief information over the past decade in the form of short white papers, press announcements and blogs, outlining its approach to high-quality carbon offset procurement. The following analysis is derived from these communications, along with external news reports and the public information available in carbon offset registries.[216]

Most of the offset credits that Google has procured stem from projects in the United States that capture and utilise methane to avoid its release into the atmosphere; this includes methane from landfill sites and commercial livestock manure. Google notes that while these projects account for the majority of credit procurement, some offset credits are also procured from afforestation projects and projects to reduce emissions from forest destruction and degradation. Although Google has procured credits from over 40 different projects, information is only made available for a small number of higher profile projects.

The most prominently featured project is the Oneida-Herkimer Solid Waste Management Authority in New York state that has been supplying Google with offset credits since 2010.[217] In 2010, Google supported this waste management authority to capture and flare gas from one of its landfill sites. Shortly after this initial investment, the waste management authority started to use the captured gas to generate electricity, creating a revenue stream that has supported the expansion of facilities to capture and utilise more methane.[218] Data from the Climate Action Reserve registry shows that the verified emission reductions have increased from an average of 36.8 ktCO$_2$e per year in the first two years of operation an average of 156.3 ktCO$_2$e per year in 2019 and 2020, with an overall issuance to date of more than a million offset credits since 2010.[219]

The installation of methane capture technology is mandated by local or national government in several industrialised countries. Analysis for other countries where there is no policy mandate for the technologies shows that there is a high economic incentive to implement such projects without support, if conditions allow for the utilisation of the biogas for electricity generation, and even more so if conditions allow for that electricity to be sold.[220] Accordingly, the additionality of the offset credits from the initial investment on this type of project may be contentious. Google notes in a footnote of its carbon offsetting whitepaper that the credibility of offsets from these projects is contended, but that the company prefers to support projects that utilise captured gas.[221] Making use of the gas is indeed environmentally and economically attractive, and therefore good practice, but it is also the reason in this case why the credit revenue from Google may not lead to any additional climate action. Google again implicitly recognises the questionable additionality of their offsets when they report that without their support, the "additional cost for these community programs would have to be borne by local residents and businesses"[222]. It is not clear whether Google is claiming to have subsidised the waste treatment bills of local residents and businesses for projects that were going to happen anyway, or to have financed additional emission reductions from projects that would otherwise not have happened.

Another publicised project for landfill gas in Berkely County South Carolina[223] – also registered with the Climate Action Reserve – follows in a similar vein. It is not clear whether Google's other offset credits have also been sourced from the Climate Action Reserve, which offers by far the cheapest offset credits of the major voluntary carbon market offsetting standards, with an average credit price of USD 2.12 in 2021.[224]

For the forestry-related projects from which Google procures offsets, the credibility of these credits is severely undermined by the limited permanence of their mitigation impacts. Box A3 section 4.1.2 of this report explains how although more climate finance is needed to support forest protection projects, it is not credible to use the outcomes of these activities to claim the neutralisation of a company's greenhouse gas emissions in any circumstances. Rather, it is good practice for companies to support these types of projects as a climate contribution without claiming the neutralisation of their own emissions in return.

Hitachi

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Diversified industrial conglomerate	USD 75.57 bn (2020)	60.8 MtCO$_2$e (2020)	Carbon neutrality by 2050	Low	Low

K.K. Hitachi Seisakusho – based in Japan – is a major diversified industrial conglomerate offering products and services in the fields of IT, mobility, energy solutions, industry, smart life systems, measurement & analytical systems, construction machinery, and metals. **In 2021, Hitachi committed to become carbon neutral across its value chain by 2050.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
(Total reported GHG emissions 60.8 MtCO$_2$e in 2020)

Major emission sources: Use of sold products (downstream scope 3, 83%), Purchased goods and services (upstream scope 3, 9%).

Summary of disclosure: Most major emission sources are disclosed, but with limited detail. Only market-based accounting method disclosed for scope 2 emissions. Scope 3 downstream emissions from processing of sold products are not disclosed. Reporting covers 871 of 1,216 subsidiaries and no joint ventures.
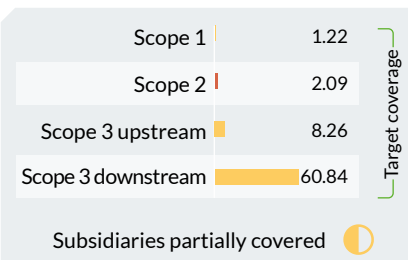
Scope 1	1.22
Scope 2	2.09
Scope 3 upstream	8.26
Scope 3 downstream	60.84

Target coverage

Subsidiaries partially covered

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE — *Carbon neutrality throughout value chain by 2050*

COVERAGE OF EMISSION SOURCES
(in headline pledge)

Target transparently covers all emissions 'throughout value chain' but could benefit from further clarification on whether emissions from processing sold products and all subsidiaries are included, despite their exclusion from GHG inventory.

REDUCTION OF OWN EMISSIONS
(for pledge year, compared to full value chain in 2019)

? BY 2050 — No reduction target is communicated alongside the 'carbon neutrality' pledge.

INTERIM EMISSION REDUCTIONS
(estimated compared to full value chain in 2019)

? BY 2030 — Interim targets for 2030 are supplemented by targets for each individual fiscal year:
- -50% emissions by 2030, from 2010 (data for 2010 not identified).
- "Business sites": 'Carbon neutrality' by 2030.

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY

EMISSION REDUCTION MEASURES — Limited information on a range of measures. Adequacy unclear. | | ?

RENEWABLE ELECTRICITY PROCUREMENT — Limited information provided; use of RECs to compensate for scope 2 emissions.

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS — *No climate contributions identified*	N/A	
OFFSETTING CLAIMS TODAY — *No offsetting claim in 2020/2021*	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE — No disclosure on whether future targets rely on offsetting.		?

RATINGS
Overall 5-point scale ● High ● Reasonable ● Moderate ● Low ○ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ● Moderate ○ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Hitachi [225]

Hitachi Ltd.

Hitachi is a diversified industrial conglomerate with major emissions form the use of sold products (83% of 2020 emissions) and purchased goods and services (9%). The company pledges 'carbon neutrality' throughout its value chain by 2050 and sets a series of interim targets towards this vision. The lack of information on what these targets imply in terms of real emission reductions, and how Hitachi intents to get there, hinders an assessment of the company's climate ambition.

Hitachi discloses most of its emission sources across scope 1, scope 2, and scope 3. The company provides a detailed breakdown of scope 2 emissions and underlying energy consumption but does not provide a similar level of detail for its scope 1 and scope 3 emissions. The disclosure of downstream scope 3 currently excludes emissions estimates from the processing of sold products (citing a lack of information available), which might be a relevant emissions source. Hitachi's disclosure covers emissions from 871 out of 1,216 subsidiaries; it does not seem to cover emissions from joint ventures.[226] The reporting on these emissions would make Hitachi's disclosure more transparent and comprehensive.

Hitachi provides no information on the intended role of offsets for unabated emissions either today or in the future to meet its targets. For future emissions, there remains high uncertainty on whether the carbon neutrality target for 2050 and the interim targets rely on offsetting claims, and if so, to what extent. Some independent sources indicate that the 2050 target indeed will rely on offset credits,[227] although do not provide further specific details on the volume, or type, of offsets purchased. We could not find evidence that Hitachi takes responsibility for most of its unabated emissions today, either through offsetting or climate contributions towards mitigation beyond the company's value chain.

The level of detail on specific measures to implement the intended emission reductions remains vague, especially for scope 3 emissions which represented 86% of all emissions in 2020. Hitachi specifies a range of measures and initiatives to reduce emissions at business sites without details on scope, timeline, and estimated emission reduction potential.[228] Hitachi introduced the Hitachi Internal Carbon Pricing (HICP) Framework in 2019.[229] External sources specify an internal carbon price level of around USD 127 per tCO_2e (or JPY 14,000) as of September 2021.[230] We could not identify any communication by Hitachi that provides further details on its internal carbon price levels and the HICP's specific

internal functioning, such as whether it leads to real internal costs, how it is integrated into decision-making and how widespread this is, and to what extent the company expects the carbon price to lead to a reduction of emissions over time. Given the limited information identified, it remains unclear how exactly Hitachi intents to meet its interim targets for 2030.

The company discloses limited information on the procurement constructs for renewable energy and electricity. Hitachi states that nine business sites already fully operate with renewable electricity as of 2021 but does not specify to what extent on-site renewable generation capacities supply those sites' demand.[231] Across the entire Hitachi Group, renewable energy generated by equipment installed at business sites accounted for 0.5% of the electricity consumed in 2020.[232] The company intends to increase this share to 2% by 2030. Total renewable electricity use accounted for 2.6% of total power consumption in 2020. The company currently buys renewable energy certificates (RECs) to compensate for scope 2 emissions that cannot be reduced through energy saving and renewable electricity generation equipment.[233] Under renewable energy procurement constructs, Hitachi mentions the use of a 'non-fossil fuel energy certificate system' and installation of own renewable electricity capacity, but further detailed information remains missing. RECs, especially if unbundled, generally face a high risk of double counting and may not meaningfully incentivise the development of new additional renewable capacity (see Box A1 section 3.1.2). Hitachi intends to "procure 100% of non-fossil electricity across all business sites" by 2030.[234]

IKEA

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Retail	USD 47 bn [EUR 41.9 bn] (2021)	26.8 MtCO$_2$e (2021)	Climate positive by 2030	◕ Reasonable	◔ Low

IKEA is the world's largest furniture retail brand, owned by Inter IKEA Holding B.V. (Inter IKEA Group) and franchised to Ingka Holding B.V. (Ingka Group), among others. Inter IKEA Group committed the IKEA brand – including all IKEA business of the franchisees – **to become climate positive by 2030.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
26.8 MtCO$_2$e in 2021

Major emission sources: Raw material extraction and processing (scope 3 upstream, 52%); product use (scope 3 downstream, 17%).

Disclosure: Major emission sources are clearly disclosed, along with methodological explanation.
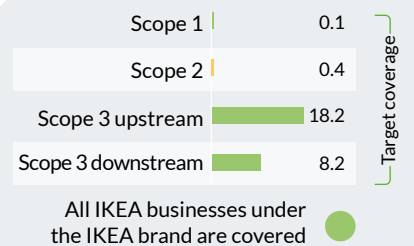
Scope 1	0.1
Scope 2	0.4
Scope 3 upstream	18.2
Scope 3 downstream	8.2

Target coverage

All IKEA businesses under the IKEA brand are covered ●

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE — *Climate positive by 2030*

		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES (in headline pledge)	The target covers all scope 1, 2 and 3 emissions	●	●
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019)	**14%** BY 2030 — Reduction of at least 15% across the value chain by 2030, compared to 2016 emissions.	◐	○
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	✗ No specific interim targets for GHG emissions before 2030.	N/A — Headline pledge is for 2030	

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Detailed presentation of reduction measures across most major emission sources, but limited indication of scale and potential impact.	◐	◐
RENEWABLE ELECTRICITY PROCUREMENT	Higher quality RE projects, but also use of renewable energy certificates.	◐	◐

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	*No contribution claim identified in 2020/2021*	N/A	○
OFFSETTING CLAIMS TODAY	*No offsetting claim in 2020/2021*	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	IKEA's climate positive 2030 pledge appears to rely on nature-based carbon removals, and contentious avoided emissions, to balance out up to 85% of unabated emissions.	◐	○

RATINGS
Overall 5-point scale ○ High | ◕ Reasonable | ◑ Moderate | ◔ Low | ○ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High | ◐ Moderate | ○ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

IKEA

IKEA is the world's largest furniture retail brand. Its main source of emissions stem from raw materials (52%), and product use (17%). IKEA pursues a broad range of emission reduction measures, and its net-zero target for 2050 includes a commitment to deep emission reductions. However, the integrity of IKEA's overall climate strategy is undermined by the company's potentially misleading headline pledge to be climate positive by 2030. This includes a commitment to reduce emissions by just 15%, while the remainder of this pledge would be realised with non-permanent removals and contentious avoided emissions.

IKEA headline climate pledge is to become "climate positive" by 2030, but this includes only a 15% emission reduction commitment.[236] IKEA defines climate positive as a state of reducing more greenhouse gas emissions than the value chain emits. Although the brand specifies "drastically reducing emissions across the value chain"[237] as its first priority, the company committed to reduce those emissions by only 15% by 2030, compared to 2016.[238] We understand that IKEA plans for non-permanent carbon dioxide removals and contentious avoided emissions in its value chain to outweigh the remaining 85% of its unabated GHG emissions (see Box B4). Although IKEA seeks to differentiate its climate positive approach from offsetting, observers may interpret the terminology climate positive to be almost synonymous with a climate neutrality pledge, albeit potentially going slightly beyond the neutral balance by an undefined amount. IKEA's approach appears to be similar to other companies' "insetting" plans, which we understand to be an unrecognised and contentious form of offsetting unabated emissions (see Box A4, section 4.2).

IKEA's net-zero target for 2050 includes a more credible commitment to emission reductions, but the relationship to the climate positive 2030 pledge may confuse observers. Given the potential for IKEA's climate positive 2030 pledge to mislead observers, it may be more transparent for the company to communicate primarily on its net-zero target for 2050, which includes a commitment to reduce at least 90% of the company's emissions.[239] Although the net-zero target includes a credible commitment to emission reductions, this target is not the focus of our assessment, since the headline pledge is to be "climate positive by 2030". This 2030 pledge could lead observers to interpret that the company will achieve net-zero emissions two decades earlier than actually planned.

Both the net zero 2050 and climate positive 2030 pledges remain unsubstantiated by a lack of significant emission reduction commitments in the short term. In addition to the commitment to 15% emission reductions by 2030, IKEA has committed to several sub-targets, but we could not identify targets for the two largest emission sources – materials and product use at home – which together account for almost 70% of IKEA's GHG emission footprint.[240] IKEA could substantially enhance its climate responsibility approach by complementing its net-zero target with more significant and unambiguous short-term emission reduction targets that cover all emissions across the value chain.

IKEA discloses its annual GHG emissions comprehensively and transparently. IKEA provides a detailed overview of emissions broken down into various emission sources, such as materials, food ingredients, production, IKEA retail and other operations, and product use at home. Methodological explanations for GHG accounting measures are provided,[241] which is particularly relevant for emissions from sourcing wood, since a standard on how to quantify and measure the impact of those activities does not currently exist, although IKEA is supporting WRI and WBCSD in developing one.[242]

IKEA presents emission reduction plans for most emission sources, but further information on scale and impact is required to understand if they are sufficient. These measures include the increased use of renewable and recycled materials, development of bio-based glues for use in particle board and supporting suppliers to use renewable energy sources, among others.[243] IKEA is also part of the coalition *Cargo Owners for Zero Emission Vessels* and committed to zero carbon shipping by 2040.[244] In its presentation of measures, IKEA transparently discusses some of the challenges it faces to decarbonise specific emission sources; this transparency is constructive, as it can facilitate the identification of solutions with partners. While these measures may contribute to IKEA's targets, the limited information on the scale and expected impact of those measures means that it is unclear whether they could lead to the substantial reductions that are needed to bring IKEA in line with Paris-compatible decarbonisation pathways.

IKEA pursues higher quality renewable energy procurement options. Franchisee Ingka, which runs a large majority of IKEA stores, owns 547 wind turbines and two solar parks, and has installed 935,000 solar modules on its sites.[245] IKEA used about 330,000 tonnes of wooden residues to power on-site biofuel installations in 2020.[246] As IKEA's own installations are unable to power all stores and distribution centres, the brand is looking into alternative options, such as PPAs.[247] In 2021, franchisee Ingka Group piloted the innovative approach of 24/7 matching for its renewable electricity generation and consumption (see section 3.1.2).[248] By 2025, IKEA wants to use 100% renewable energy in retail and other own operations.[249]

Although this points towards a positive impression for the integrity of IKEA's renewable energy procurement, we did not identify publicly available aggregated data on consumed energy from all renewable energy constructs; this hinders a comprehensive assessment of the quality of IKEA's pursued renewable energy constructs. Further, it is not clear if IKEA actively procures or withholds the energy attribution certificates associated with its off-site wind and solar parks, or if these are sold to other business outside of its supply chains who may claim the renewable electricity. In the latter case, IKEA's equity in RE installations should be seen as a business activity and the company should not count associated emission reductions to its own climate targets, especially where there is a risk other consumers claim ownership for the same renewable electricity.

IKEA aims for 100% renewable energy use across its entire value chain.[250] The brand supports its direct suppliers in procuring renewable energy, for example through Power Purchase Agreements or bundled framework agreements, which may not otherwise be a feasible option to pursue for individual suppliers. IKEA also supports suppliers with finance for the development of on-site renewable energy installations.[251]

Carbon offsetting fact checking | IKEA: climate positive through removals and avoided emissions

IKEA headline climate pledge is to become "climate positive" by 2030, but this includes only a 15% emission reduction commitment. Up to 85% of IKEA's climate positive target could be realised through non-permanent removals and contentious avoided emissions.

IKEA defines climate positive as a state of reducing more greenhouse gas emissions than the value chain emits. We understand that IKEA seeks to differentiate this approach from offsetting, but we believe that observers may interpret the terminology climate positive to mean that unabated emissions have been neutralised.

After the 15% emission reduction commitment, the brand describes removing and storing CO_2 emissions in products and forests as its second most important measure to realise climate positivity by 2030. IKEA will set a specific goal for this measure only when a standard for the reporting and accounting for removals and land use activities is finalised.[252] Carbon dioxide removals can only be considered a credible neutralisation of a company's emissions if the storage has a high certainty of permanence (over a timeframe of at least a century), and the removal potential is not scarce (see Box A3 section 4.1.2). IKEA recognises that by storing carbon in its products, it will delay their release into the atmosphere by on average just 20 years.[253] The release of stored carbon negates any climate impact from the original sequestration.

We interpret that IKEA's plan to counterbalance the final share of its unabated GHG emission footprint by enabling customers to generate renewable energy; supporting its suppliers to use renewable energy; and improving forestry and agriculture practices in IKEA sourcing areas.[254] In 2021, IKEA sold solar PV systems to customers in 11 markets and claims that this equates to avoided emissions of 187,000 tCO_2e over the lifetime of those panels.[255] If the sale of these PV systems constitute normal commercial transactions to supply an existing market demand, rather than investments from IKEA, it cannot be determined that these estimated avoided emissions are really additional to what may have occurred had IKEA not participated in this market. Data on the claimed avoided emissions from supporting suppliers will be disclosed at a later point in time.[256] Unless such measures lead to a direct reduction in IKEA's value chain emissions, other estimates of *avoided emissions* should be reported separately to the company's GHG emissions.[257] They cannot be recognised as a credible neutralisation of the company's GHG emissions.

JBS

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Food industry	USD 47 bn (2021)	est. ~287 MtCO$_2$e (2020)	Net-zero emissions by 2040	◯ Very low	◯ Very low

JBS S.A. – headquartered in Brazil – is a major meat processing company. In March 2021, JBS announced its **net-zero emissions target for 2040.**

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1 TRACKING AND DISCLOSURE OF EMISSIONS — TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE

6.8 MtCO$_2$e in 2020 disclosed
(~287 MtCO$_2$e estimated)

Major emission sources: Upstream scope 3 emissions, resulting from land-use change in the value chain. *Illustrative volume based on 2016 estimates presented in figure.*[258]

Disclosure: Annual reporting of scope 1, 2 and 3 emissions for three most recent years, but with limited detail. Location-based or market-based method for scope 2 emissions not specified. Gross underreporting of scope 3 emissions: no reporting on a large share of LUC emissions (e.g., non-JBS-owned farms and feedlots are not included).

		Target coverage
Scope 1	4.7	
Scope 2	1.6	
Scope 3 estimate	0.6 / 280	

Subsidiary coverage unclear ◯

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2 SETTING EMISSION REDUCTION TARGETS

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Net-zero emissions by 2040*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Unclear target coverage: high likelihood of omitting emissions from non-JBS farms and feedlots and deforestation.	◯	?
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2020)	✗ No emission reduction target as part of headline pledge.	◯	◯
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	? S1&2: -30% by 2030, from 2019. Unclear if absolute or intensity target.	◐	◯

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3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Limited information on reduction measures. JBS commits to put in place measures to end deforestation, although deforestation emissions may not be covered by net-zero target.	◯	?
RENEWABLE ELECTRICITY PROCUREMENT	Some mention of biogas and solar energy at production facilities, but insufficient information to assess quantity and quality.	◯	?

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4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	— No contribution claim identified —	N/A	◯
OFFSETTING CLAIMS TODAY	— No offsetting claim in 2020/2021 —	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	Net-zero 2040 target depends on offsets; limited information on plans.	◯	?

RATINGS **Overall** 5-point scale ◯ High ◯ Reasonable ◐ Moderate ◐ Low ◯ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ◯ High ◐ Moderate ◯ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

JBS

JBS is a meat processor headquartered in Brazil. Roughly two thirds of its reported emissions are from scope 1 – mainly resulting from enteric fermentation from animals on its own feedlots and farms. In their emission disclosure and their net-zero target for 2040 JBS fails to take responsibility for an estimated 97% of its emissions footprint, by neglecting emissions from farms and feedlots that are not owned by JBS and emissions related to deforestation. The company plans to continue growth in a GHG emission-intensive industry; we did not find evidence of any planned deep decarbonisation measures.

The scope of JBS's 2040 net-zero pledge is unclear and may omit major sources of emissions related to live animal operations and deforestation. In its sustainability report, the company states that it does not track enteric and manure emissions from live animal operations and only reports on enteric fermentation from animals on its *own feedlots and farms*,[260] omitting feedlots and farms that JBS does not own but are part of its supply chain. In addition, the company does not report on deforestation emissions resulting from its operations. JBS's entire emissions footprint is estimated at 280 MtCO$_2$e;[261] yet the company reports less than 3% of this.[262]

JBS states it wants to eliminate (illegal) deforestation but does not clarify whether this is part of its offsetting strategy or a measure for reducing supply chain emissions.[263] Although the company states its net-zero target covers the entire supply chain,[264] the lack of disclosure of its entire emissions footprint makes it questionable whether enteric fermentation of non-JBS farms and deforestation emissions – accounting for an estimated 97% of JBS's emission footprint – are covered under the net-zero target.

We could not find significant details on how JBS intends to achieve its target. Rather, JBS plans to continue growth in a GHG emission-intensive industry.[265] The company does not give much detail on how it wants to realise any further emission reductions.[266] Without major new innovations to drastically reduce the emissions footprint of meat production or diversifying away from this highly GHG emissions intensive industry, it is not credible for livestock agribusinesses to claim that they are on a path to deep decarbonisation. We did not find evidence that JBS intends to significantly innovate or diversify from its current activities.

JBS's 2030 emission reduction target for scope 1 and 2 emissions is ambiguous, as it is not clear if the company aims for absolute or intensity reductions. JBS says it wants to reduce scope 1 and 2 emissions intensity by at least 30% by 2030 compared to 2019,[267] but frames it as an absolute emission reduction target elsewhere.[268]

JBS does not specify what share of its net-zero target will rely on offsetting. In its communication on its net-zero target, JBS says that it wants to reduce direct and indirect GHG emissions, while offsetting residual emissions.[269] The company does not have a reduction target accompanying its net-zero headline pledge. It is therefore unclear what share of JBS's emissions footprint will be offset by 2040. Given the limited detail on emission reduction measures and the expected continuous growth of the company, this share could be significant. JBS does not specify any details regarding what kind of offsetting projects it will procure credits from, the potential volume of credits it envisages needing, nor general criteria for ensuring robust environmental integrity in any offsetting claims it may make.

JBS aims for 100% renewable electricity in its facilities by 2040 but provides little information about current and planned renewable energy supply constructs. The company claims that renewable electricity already accounts for the major share of its consumption.[270] JBS has some renewable energy generation on-site, using solar systems and residue biogas.[271] The company aims for 100% renewable energy by 2040.[272] To do so, on-site generation and high-quality energy procurement structures are necessary. However, the company does not specify what procurement constructs it currently uses and what it plans to use.

Maersk

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Shipping	USD 39.7 bn (2020)	53.2 MtCO$_2$e (2020)	Net zero by 2040	◔ Reasonable	◔ Reasonable

A.P Møller - Mærsk A/S is a Danish shipping company and has been the world's largest vessel operator for over two decades. In 2021, Maersk committed to **net-zero emissions activities across its value chains by 2040.**

1 TRACKING AND DISCLOSURE OF EMISSIONS
TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
53.2 MtCO$_2$e in 2020

Major emission sources: Shipping emissions from bunker fuels (scope 1, 63%).

Disclosure: Maersk does not provide a breakdown of scope 1 emissions, which account for the largest share of the company's GHG emissions. Some smaller scope 3 emissions sources are not reported.

Scope 1	33.9
Scope 2	0.3
Scope 3 upstream	17.1
Scope 3 downstream	1.8

Target coverage

Subsidiaries covered ●

2 SETTING EMISSION REDUCTION TARGETS
TRANSPARENCY   INTEGRITY

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Net-zero emissions by 2040*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	All emission scopes are covered by the net-zero target.	●	●
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	**90-95%** BY 2040 — No separate reduction target communicated in the press release, but mentioned in press interview.	◐	●
INTERIM EMISSION REDUCTIONS (compared to full value chain in 2019)	Intensity target — • Shipping emissions: -50% emissions intensity by 2030 from 2020. • Emissions from terminals: -70% absolute emissions by 2030 from 2020.	●	◐

3 REDUCING OWN EMISSIONS
TRANSPARENCY   INTEGRITY

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Comprehensive plans presented for scope 1 emissions, which account for 65% of 2020 emissions. Various examples of measures to address scope 3 emissions.	◐	●
RENEWABLE ELECTRICITY PROCUREMENT	Limited details on electricity supply constructs.	○	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING
TRANSPARENCY   INTEGRITY

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	Maersk will invest in nature based solutions "to build a portfolio that generates around five million tonnes of CO$_2$ savings per year by 2030". More details are lacking.	◐	◐
OFFSETTING CLAIMS TODAY	*No offsetting claim in 2020/2021*	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	5%-10% of current emissions may be offset to achieve net-zero by 2040.	◐	?

RATINGS **Overall** 5-point scale ● High ● Reasonable ◐ Moderate ◑ Low ○ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ◐ Moderate ○ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Maersk [273] and a Financial Times interview with Maersk's chief executive [274]

Maersk

Maersk positions itself as a leading actor in the transport sector through its proactive efforts to decarbonise shipping emissions, mainly emissions from bunker fuel, which account for 63% of total emissions.[275] However, the company does not yet provide a clear trajectory to decarbonise emissions from electricity demand and supply chains, the relative importance of which is likely to grow with the shift to alternative fuels.

In January 2022, Maersk announced its commitment to net-zero emissions across its entire business and all scopes by 2040.[276] This is an enhancement of its initial target to realise net-zero emissions from just shipping activities by 2050, both in terms of scope and end year. In a newspaper interview, Maersk's CEO stated that the company will likely need to offset 5-10% of baseline emissions.[277] Acknowledging that Maersk only recently committed to its enhanced net-zero target, the company could substantially increase transparency on its new target by providing more details on its intended use of carbon offset credits, including any conditions the company would apply.

Maersk set emission reduction and intensity reduction targets for 2030.[278] These likely imply very steep emission reductions between 2030 and 2040. In order to achieve net-zero emissions by 2040, Maersk committed to reduce absolute emissions from terminals by 70% between 2020 and 2030; and the emission intensity of shipping activities by 50% in the same period.[279] Shipping activities are Maersk's main emissions source, accounting for about 70% of total emissions.[280] If freight volumes increase between 2020 and 2030, reducing the emissions intensity by 50% implies a decrease in absolute emissions from shipping activities of less than 50% by 2030. This would mean that Maersk would need to achieve most of its absolute emission reductions in the period between 2030 and 2040. Considering that zero-carbon fuels are not yet available at scale, this is a realistic trajectory. However, depending on the increase of Maersk's ocean activities in the next decade, it is possible that the company's absolute emissions could increase in the interim if growth outpaces reductions in emissions intensity. Maersk could improve the strength of its interim target for emissions from ocean activities by committing to absolute emission reduction targets for the interim period. This would provide an even stronger signal to realise deep emission reductions in the near to medium term.

Maersk set targets for zero carbon fuel use and will not use transition fuels such as liquified natural gas (LNG), but rather leapfrog to net-zero fuels.[281] Maersk aims to transport 25% of its ocean cargo using low- or zero-carbon fuel and at least 30% of air cargo with sustainable aviation fuels; and at least 90% of its operations in contract logistics (warehouses and depots) and cold chain logistics to be "green".[282] The company defines "green" energy and fuels and those that have "low or very low greenhouse gas emissions on a life cycle basis".[283] Maersk considers various alternative fuels, including e-ammonia, e-methanol, biodiesel and lignin fuels,[284] but rules out LNG as a transition fuel.[285] This is positive, as the use of LNG could increase international shipping's climate impact, rather than reduce it. This is because lifecycle emissions of LNG technologies are higher than those of conventional marine fuel.[286]

The availability of low-carbon fuels is currently limited and needs to be scaled up to power all of Maersk's fleet at competitive costs. Further, all options for low-carbon shipping fuels that Maersk currently considers come with sustainability- and/or safety-related issues that need to be overcome. To this end, Maersk provided a start-up donation of 60 million USD (DKK 400 million) to the *Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping*.[287] We found no information on whether Maersk provides funding on an annual basis to the centre.

In 2021, Maersk announced it had ordered eight carbon neutral vessels that will sail by 2024. These vessels can operate on e-methanol or bio-methanol, as well as on fossil fuels.[288] This helps Maersk avoid carbon lock-in, as more alternative fuels become available. Maersk is also investing in the synthetic fuel supply chain.[289] For instance, in 2021, the company announced it had partnered with a Danish renewable energy company that will establish a new facility to produce e-methanol for Maersk.[290]

The company is also a major advocate for more action in the shipping industry. For example, in 2021, the company called on the IMO member states to implement a global carbon levy for the shipping sector.[291]

In contrast to the detailed information on alternative fuels for shipping, Maersk does not outline clear plans to reduce scope 2 and 3 emissions, which account for 36% of the company's climate footprint in 2020. As Maersk transitions to alternative fuels, such as e-methanol and ammonia, the relative proportion of its scope 2 (in case of own production) and upstream scope 3 emissions for electricity generation in e-fuel production will increase. Yet, we could not identify plans to ensure there is sufficient renewable energy available to produce these fuels, other than a statement that Maersk "continues to engage in partnerships and collaborations with relevant players".[292] Although the company reports on some initiatives to reduce scope 3 emissions in press releases, we did not identify a clear plan addressing most scope 3 emission sources.

Nestlé

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Food & beverages	USD 91.8 bn (2020)	113.0 MtCO$_2$e (2018)	Net zero by 2050	◯ Very low	◯ Very low

Nestlé S.A. – headquartered in Switzerland – is a major food and beverages company. The company has a **net-zero emissions target for 2050** and aims for various of its brands to be carbon neutral in the coming decade.

1 TRACKING AND DISCLOSURE OF EMISSIONS — TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
113.0 MtCO$_2$e in 2018

Major emission sources: Sourcing of ingredients (upstream scope 3, 52%).

Disclosure: Upstream and downstream scope 3 emissions related to LUC reported relatively well. Other emissions reporting lacks detail. Unclear whether location-based or market-based method was applied to scope 2 emissions.

		Target coverage
Scope 1	3.3	
Scope 2	2.5	
Scope 3 upstream	65.6	
Scope 3 downstream	41.7	

Subsidiaries covered ●

2 SETTING EMISSION REDUCTION TARGETS — TRANSPARENCY — INTEGRITY

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Net-zero emissions by 2050*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Target covers S1 and S2 and most S3 emissions.	●	◐
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain)	✗ No emission reduction target in headline pledge.	◯	◯
INTERIM EMISSION REDUCTIONS (compared to full value chain in 2019)	? Unclear whether interim emission reduction targets are compared to 2018 emissions or a BAU scenario. Those targets also cover only selected emission sources.	◯	◯

3 REDUCING OWN EMISSIONS — TRANSPARENCY — INTEGRITY

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Reduction measures presented with limited detail and compared to business-as-usual scenario. Some major emission sources are covered, but other emissions sources will remain largely unabated.	◐	◐
RENEWABLE ELECTRICITY PROCUREMENT	Very little detail on pursued renewable electricity constructs.	◯	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING — TRANSPARENCY — INTEGRITY

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	◯
OFFSETTING CLAIMS TODAY	Nestlé does not claim to offset today, but some of its brands do (see Box B4).	◯	◯
OFFSETTING PLANS FOR THE FUTURE	Net-zero 2050 target depends on offsets and so-called "insetting" (see Box A4 section 4.2) with focus on nature-based solutions.	◯	◯

RATINGS **Overall** 5-point scale ● High ● Reasonable ◐ Moderate ◑ Low ◯ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ◐ Moderate ◯ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Nestlé [293]

Nestlé

Switzerland-based food and beverage company Nestlé reported 113 MtCO$_2$e emissions in 2018, with 58% from sourcing ingredients and 37% from downstream emissions. Despite identifying measures to reduce emissions from several important sources, Nestlé's targets and offsetting claims are inconsistent and misleading. These issues significantly undermine the integrity of Nestlé's long-term vision and overall strategy.

Nestlé's interim emission reduction target of 50% by 2030 may really mean only an 18% reduction compared to its entire 2018 emissions footprint. Nestlé's SBTi-certified targets include emission reduction targets for 20% by 2025 and 50% by 2030, compared to a 2018 base year. This is not clearly consistent with the information that Nestlé presents in its own net-zero roadmap publication: close analysis of Nestlé's planned trajectory and targets for specific emission sources lead us to interpret that Nestlé's 50% by 2030 target may be compared to a business-as-usual (BAU) scenario, and covers only selected emission sources.[294] For each emission source, Nestlé presents the emission reduction potentials of its proposed measures compared to forecasted emissions under this BAU scenario.[295] This presentation includes the share of emissions resulting from company growth and the targeted emission levels. Comparing these targeted emission levels to 2018 emission levels gives a reduction in emissions of only around 23% for the emissions that are covered by Nestlé's targets by 2030,[296] or an emission reduction of just 18% compared to Nestlé's full emissions footprint in 2018.[297]

Nestlé's target for net-zero emissions by 2050 remains ambiguous due to incomplete scope coverage and no defined target for own emission reductions.[298] In its Net Zero Roadmap, Nestlé presents its net-zero emissions target for 2050, complemented with the interim targets previously mentioned.[299] As for the interim targets, the net-zero target covers only selected emission source categories, excluding emissions from the use of sold products (12.7 MtCO$_2$e in 2018) and emissions from purchased services, leased assets, capital goods and investments (8.6 MtCO$_2$e in 2018).[300] For the emission sources covered by the target, we could not identify a specific commitment to reduce the company's own emissions after 2030. Although Nestlé describes emission reduction measures planned for this decade with quite some detail, the company provides little information on emission reduction measures planned for after 2030.[301]

The role of carbon removals and offsetting in Nestlé's targets remains unclear. The company states that it wants to remove 13 MtCO$_2$e of emissions from the atmosphere by 2030 but does not specify how.[302] Furthermore, the company refers to emission removals within its supply chain as "insetting". Nestlé frames these measures as crucial for realising the 2050 net-zero emissions target and its interim emission reduction targets.[303] Many of these insetting measures planned for 2030 are related to biological carbon removals.[304] Although it is positive that Nestlé considers options for carbon dioxide removals within its own supply chain, the large dependence on carbon dioxide removals with biological storage comes with great uncertainty regarding their permanence and long-term impact (see Box A3 section 3.1.2). Furthermore, details regarding, for example, the volume and technologies such as direct air capture and carbon storage for further offsetting in the period up to 2050 remain unclear.[305] Further clarification is needed to understand whether the 2050 target is credible and comprehensive.

Nestlé uses potentially misleading terms regarding current and future offsetting claims. The company's position on offsetting remains undefined. While Nestlé publicly states that offsetting is not pursued on a company-level, it does pursue emission removals and "insetting" (an undefined term which is likely to either reflect a form of offsetting or simply directly reducing its own emissions footprint – see Box A4 section 4.1.2).[306] Moreover, individual, consumer-facing Nestlé brands are already claiming carbon neutrality, based on carbon offsets.[307] Both practices, "insetting" and carbon offsets on a brand-level, are potentially misleading (see Box B4).

Nestle says that it wants to use more renewable electricity and commits to 100% renewable energy in 2050, without specifying the procurement constructs.[308] Nestlé expects to reduce emissions by 2.7 MtCO$_2$e in 2030 by increasing the share of renewable electricity, committing to 100% renewable electricity by 2025.[309] These emission reductions are outweighed by the expected increase in emissions from company growth.[310] Nestlé does not describe current and planned renewable energy procurement constructs that are needed to decarbonise all of its energy needs by 2050. Nestlé currently describes different renewable electricity constructs interchangeably, without acknowledging the shortcomings of some.[311] Although it is complicated to determine what kind of renewable energy supply constructs would be most appropriate given Nestlé's broad global activity, the company could commit to only high-quality constructs, based on regional circumstances.

Carbon offsetting fact checking | Nestlé's carbon neutral brands

At the holding company level, Nestlé claims to rule out offsetting, but this is inconsistent with the company's plan to encourage its individual consumer-facing brands to offset and claim carbon neutrality. The near-term nature of these plans leads to a major role for offsetting in many cases, usually with carbon dioxide removals from nature-based solutions.

There is a disparity between the corporate climate targets that Nestlé sets out for itself, and the climate targets it proposes for its brands. Nestlé's Net Zero Roadmap states that, at the corporate level, "[o]ffsetting is not allowed"[312] to achieve net zero emissions by 2050, whereas the same report says that Nestlé's brands are allowed to claim carbon neutrality through offsetting.[313]

Under the slogan "Moving toward carbon-neutral brands", Nestlé's sustainability approach includes a plan for more brands to move towards carbon neutrality in the near future:[314]

Nestlé declares that it "will make its global water category carbon neutral by 2025".[315] All of Nestlé's water brands operate under the subsidiary company Nestlé Waters, which controls 17% of the global bottled water market through international brands like *Vittel*, *San Pellegrino*, *Acqua Panna*, *Perrier*, *Ready Refresh*, and *Essentia*. While the immediate goal of Nestlé Waters is to achieve complete carbon neutrality by 2025, a significant share of its brands even aim to reach this by 2022. The brands disclose limited information on the way they plan to achieve carbon neutrality. *Ready Refresh* finances landscape and forestry projects[316] and *Essentia* supports "low carbon sustainable development and renewable projects in the US, Mexico, and Brazil".[317] Both brands partner with Natural Capital Partners to obtain the carbon offsets credits.

Starbucks, *Nescafé*, and *KitKat*, which are part of the company Nestlé Professional, rely solely on nature-based offsets to fulfil their claims of carbon neutrality. These projects include afforestation, forest conservation, and regenerative agriculture schemes. KitKat already aims for carbon neutrality by 2025, Starbucks commits to "carbon neutral green coffee" by 2030 and company-wide "resource positivity" in the future.[318] Nescafé does not set itself a target for the near future and declares that it will "neutralise" all emissions by 2050.[319]

Garden of Life, *Wunda*, and *Mindful Chef* already claim to be carbon neutral today. The meal-kit company Mindful Chef states that it has been climate neutral since 2020. *Mindful Chef* is one of a few brands that discloses information about the projects from which it procures offset credits. Through the company ClimatePartner, Mindful Chef supports a forest conservation project in Brazil and an initiative for clean cookstoves in Ghana.[320] The baby food brand Gerber sets out to reach overall carbon neutrality by 2035 but aims to produce organic and natural pouches as well as glass jars with a carbon neutral certificate already in 2022. One of *Gerber's* flagship projects to reduce its carbon footprint is a reforestation project in the US where Gerber planted one million trees by the end of 2021.[321]

Biological-based offsets are contentious as their durability and efficacy are not guaranteed thus, they are deemed as uncertain carbon removal projects and are a serious issue for integrity (see Box A3 section 4.1.2). Communicating to customers and other stakeholders that the production and use of certain products has no impact at all on the climate, i.e. "climate (or carbon) neutral", is a very bold claim. It is misleading, especially if such marketing claims rely on offsetting their actual emissions with credits that lack environmental integrity.

The timing of many of these carbon neutral pledges gives brands only limited time to reduce emissions within their operations before claiming carbon neutrality. For example, Nespresso plans to reduce its emissions by only 5% and to pursue offsetting approaches to achieve its carbon neutrality pledge for 2022.

Novartis

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Pharmaceuticals	USD 49 bn (2020)	7.1 MtCO$_2$e (2019)	Carbon neutral value chain by 2030	Low	Very low

Novartis AG is an American-Swiss pharmaceutical company, headquartered in Switzerland. In September 2020, the company set the target to achieve **carbon neutrality across its value chain by 2030.**
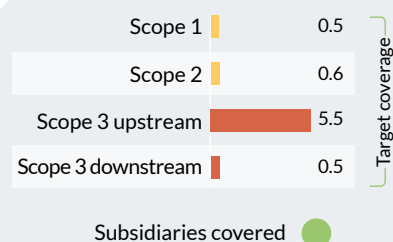
1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
7.1 MtCO$_2$e in 2019

Major emission sources: Purchased goods and services (upstream scope 3, 64%).

Disclosure: Reporting of scope 1 and 2 is reasonable, but lacks some detail. Location-based and market-based method are both used for scope 2 emissions, but (lower) market-based method is used for the sum of emissions. Scope 3 reporting is inconsistent: only business travel emissions covered in main public documentation (0.3% of all scope 3 emissions reported elsewhere).

	Target coverage
Scope 1	0.5
Scope 2	0.6
Scope 3 upstream	5.5
Scope 3 downstream	0.5
Subsidiaries covered	●

2 SETTING EMISSION REDUCTION TARGETS

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Carbon neutral value chain by 2030*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Clear scope and target year; target covers all GHG emissions.	●	●
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	**~40%** BY 2030 — 35% reduction by 2030, compared to 2016 year. Equates to -40% compared to 2019 emissions.	◐	○
INTERIM EMISSION REDUCTIONS (compared to full value chain in 2019)	**?** S1&2: carbon neutral by 2025; includes an unclear offsetting share. The headline pledge is for 2030.	○	Headline pledge is for 2030

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Some scope 1 and 2 measures presented. Scope 3 covered in supplier contracts, but measures unclear.	◐	◐
RENEWABLE ELECTRICITY PROCUREMENT	Mixed use of PPAs, RECs and green tariffs. Renewable electricity procurement does not cover the majority of consumption.	●	◐

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	*No climate contributions identified*	N/A	○
OFFSETTING CLAIMS TODAY	Forestry-based offsets since 2016; 30 - 72 ktCO$_2$/a, to offset parts of S1&2 emissions. No details on specific projects; formulation potentially misleading.	○	○
OFFSETTING PLANS FOR THE FUTURE	Carbon neutrality will be achieved by offsetting 65% of emissions (2016 baseline): 4.3 MtCO$_2$e. Highly likely to continue with forestry offsets and no evidence for high-hanging fruit projects.	◐	○
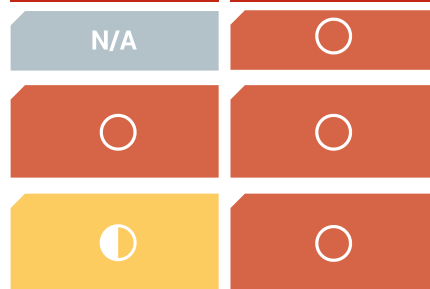
RATINGS

Overall 5-point scale ● High ● Reasonable ◐ Moderate ◐ Low ○ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ● High ◐ Moderate ○ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Novartis.[322]

Novartis

Novartis is a Swiss-American pharmaceutical company. It reported emissions of 7.1 MtCO$_2$e in 2019, of which roughly 64% are from purchased goods and services. Novartis's carbon neutrality pledge is potentially misleading, as the company does not commit to deep emission reduction targets and aims to offset 65% of its emissions footprint with projects associated with limited permanence. While the company implements some good practices, such as PPAs for renewable energy procurement constructs, it is not transparent about the magnitude of its supply chain emissions.

Novartis may offset, rather than reduce, 65% of its emissions,[323] making its carbon neutrality claim for 2030 contentious. Novartis states that carbon offsets are required to neutralise its emissions footprint. In its *Environmental Sustainability Strategy*, the company says it will purchase carbon offsets to neutralise 65% of its emissions (2016 baseline).[324] This is in line with its SBTi-approved emission reduction target, with which the company has committed to emission reductions of 35% by 2030, compared to 2016 levels (scope 1, 2 and 3).[325] Carbon neutrality claims that are based extensively on offsetting have the potential to mislead and their integrity is highly contentious (see section 4.1.2).

Novartis continues to use nature-based solutions to offset emissions.[326] In a publication from 2017, Novartis describes the nature-based solutions it used to claim carbon neutrality for a share of its emissions footprint.[327] The company will continue to use nature-based solutions to offset emissions.[328] This further compromises the integrity of the carbon neutrality claim, since these projects are associated with scarcity and uncertain permanence (see Box A3 section 4.1.2).

In its main consumer-facing reporting, Novartis includes less than 20% of its emissions.[329] Novartis aims for a carbon neutral value chain, including scope 3 emissions, but the company fails to consistently illustrate the magnitude of the value chain emissions in its public reporting. The company only includes business travel emissions in its *Environmental Sustainability Strategy*[330] and presents the remaining 99% of scope 3 emissions for 2020 in less-accessible supplementary material.[331] We could not identify Novartis's reasons to exclude almost all scope 3 from its main environmental, social and governance report and we found only a brief reference to the supplementary data in the main publication.[332] Novartis gives a complete overview of emissions in its CDP disclosure,[333] but the inconsistency in emissions reporting across publications could mislead readers.

Despite the lack of transparency on scope 3 emissions, Novartis is taking steps to engage suppliers. Novartis has published its *Green Expectations from Suppliers*, a guide in which the company urges upstream suppliers of goods and services to disclose emissions data and set climate targets in line with Novartis's carbon neutrality target for 2030, among other criteria.[334] The possible impact of these measures remains unclear, due to the voluntary nature of participation for suppliers.

Novartis procures some renewable electricity from potentially high-quality sources and could scale this up to match its full electricity demand. The company describes virtual power purchase agreements in the United States and Europe.[335] These constructs may have potential to lead to a meaningful impact for reducing emissions; in the landscape of renewable energy procurement constructs, PPAs are generally among the most effective options. However, Novartis also pursues some potentially lower quality constructs such as the procurement of RECs, and overall its renewable electricity procurement does not yet account for the majority of electricity consumption.[336]

Novartis describes detailed climate-related governance structures. Novartis communicates the individuals who are responsible for the company's climate approach,[337] and describes a shadow carbon price of 100 USD per tonne CO$_2$ which it uses to internally estimate the climate impact of investments with a value over 20 million USD. Novartis uses this carbon price to consider the risks of future governmental regulations on its emissions.[338] The effectiveness of this price signal could be increased if it would lead to real costs through a form of internal taxation, and if the applicable investment threshold would be reduced from its currently very high value.

Saint-Gobain

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Building materials	USD 43 bn (2020)	27.8 MtCO$_2$e (2020)	Net zero carbon by 2050	◯ Very low	◯ Very low

Compagnie de Saint-Gobain S.A. is a French multinational, founded as a manufacturer of mirrors. Today, it designs and manufactures materials and solutions for construction, mobility, healthcare and other industrial application markets. Saint-Gobain has **a net-zero carbon target for 2050.**

1 TRACKING AND DISCLOSURE OF EMISSIONS — TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE

27.8 MtCO$_2$e reported in 2020

Major emission sources: Product use and purchased goods and services (shares unclear due to limited reporting and variations in reported magnitude). *Dashed line for scope 3 downstream is illustrative.*

Summary of disclosure: Annual reporting of scope 1 and 2 emissions, but with limited detail. Location-based or market-based method unspecified. Poor public reporting on scope 3 emissions.

Scope 1
Scope 2
Scope 3 upstream
Scope 3 downstream
Subsidiary coverage unclear ◯

2 SETTING EMISSION REDUCTION TARGETS

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Net zero carbon by 2050*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Emissions coverage of net zero target unclear.	◯	?
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	✗ No emission reduction target alongside headline net-zero pledge.	◯	◯
INTERIM EMISSION REDUCTIONS (compared to full value chain in 2019)	? Transparent interim targets, but limited depth and coverage. S1 and S2 target for 2030 is equivalent to 19% reduction of those emission sources compared to 2019. S3 targets are unclear due to uncertain definition and coverage of S3.	◑	◯

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	High-level descriptions of emission reduction measures, including some innovative approaches.	◯	◑
RENEWABLE ELECTRICITY PROCUREMENT	Very limited information on renewable energy procurement; assessment not possible.	◯	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No contribution claim identified* ——	N/A	◯
OFFSETTING CLAIMS TODAY	—— *No offsetting claim in 2020/2021* ——	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	Net-zero carbon 2050 target depends on offsets, but with no details specified.	◯	?

RATINGS
Overall 5-point scale ◉ High ◉ Reasonable ◉ Moderate ◔ Low ◯ Very low . Average of sections 1-4.
Sections 1-4 3 point scale ◉ High ◑ Moderate ◯ Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Saint-Gobain and CDP. [339]

Saint-Gobain

Saint-Gobain, based in France, mainly produces building materials. The major share of Saint-Gobain's emissions is from purchased goods and services and use of sold products (such as building materials), but the company's scope 1 and 2 emissions are also substantial. Saint-Gobain's short-term targets are relatively ineffective compared to recent emission trends. The coverage and role of offsetting for its 2050 carbon neutrality target remains unclear. Scattered information on emission reduction measures and limited detail on current emissions further undermine the transparency of Saint-Gobain's overall climate strategy.

Saint-Gobain has a net-zero carbon target for 2050 but details regarding the use of emission offsets and target coverage remain unclear. Saint-Gobain states it "will reduce its carbon emissions to a maximum by 2050 and employ measures to absorb any residual emissions",[340] and that it will explore options for carbon capture and sequestration.[341] Although the company has emission reduction targets for 2025 and 2030, Saint-Gobain does not further specify the share of emission reductions under its 2050 carbon neutrality target. In addition, the coverage of Saint-Gobain's carbon neutrality target remains unclear. In its *carbon neutrality roadmap*, the company states it acts upon all three emissions scopes.[342] The coverage of scope 3 emissions is especially unclear, given the different magnitude in emissions reporting (see below).

Saint-Gobain's interim emission reduction targets are not in line with its recent emissions trends. Saint-Gobain's first interim target is for 2025, by which time the company aims to reduce 20% of its 2017 scope 1 and 2 emissions. By 2030, Saint-Gobain wants to reduce these emissions by a third, and reduce its 2017 scope 3 emissions by 16%.[343] Under its 2025 target, Saint-Gobain's total scope 1 and 2 emissions would be roughly equal to 2019 and 2020 emission levels – potentially requiring no further significant emission reductions up to 2025. Its 2030 emission reduction target translates to emission reductions of 19% compared to 2019 levels.[344] Neither the 2025, nor the 2030 target are aligned with Saint-Gobain's long-term carbon neutrality vision, and do not even reflect recent emission reduction trends: Saint-Gobain already realised emission reductions of 20% in scopes 1 and 2 between 2017 and 2020.[345] The quality of Saint Gobain's 2030 scope 3 emissions target cannot be assessed, due to the lack of credible scope 3 emissions data.

Saint-Gobain's public reporting of emissions has limited detail. Although Saint-Gobain discloses to CDP and publishes the responses on its website, emissions disclosure in consumer-facing publications lacks granularity. This includes a further breakdown of scope 1 and 2 emissions.

Saint-Gobain started to publicly report scope 3 emissions in 2020, but with a limited level of detail. Publicly reported scope 3 emissions differ significantly from the values reported in Saint-Gobain's CDP disclosure, due to a different scope selection. In its CDP disclosure, Saint-Gobain proactively reports on emissions from the use of its products.[346] However, not all emissions from product use necessarily lie within Saint-Gobain's direct or even indirect control, and some of these emissions may lie outside of the normal scope 3 emission source categories. A more detailed breakdown of all emissions would help defining the company's scope of impact and identifying opportunities for reducing emissions. In addition, a breakdown is needed to determine the integrity, robustness and potential impact of targets and planned emission reduction measures.

Saint-Gobain could elaborate on its CO_2-roadmap and provide more detail on planned emission reduction measures. Saint-Gobain presents information on its climate responsibility approach scattered across various publications, with limited level of detail. A complete, comprehensive strategy with detailed descriptions of planned emission reduction measures would improve transparency. The company could elaborate its CO_2-roadmap, in which it presents first steps towards a comprehensive strategy.[347] Limited transparency can also conceal good practices. For example, Saint-Gobain plans to take innovative approaches for several technologies, such as carbon capture and utilisation in building materials and low-carbon mortar, but these are not highlighted prominently.[348]

Saint-Gobain describes the use of some renewable energy constructs but does not provide sufficient detail to assess their quality and does not have a renewable energy target. Saint-Gobain states that 18.9% of its electricity consumption in 2020 was based on renewable sources but does not provide any details on the related procurement constructs.[349] The company signed a power-purchase-agreement for a US wind farm in 2020.[350] Despite these positive developments, Saint-Gobain has not set a target for renewable energy consumption. A commitment to 100% renewable energy use from high-quality procurement models is a key component of a credible decarbonisation pathway.

Saint-Gobain could take further responsibility for its unabated emissions. Beyond its obligations to a carbon price on some of its emissions under the EU Emissions Trading Scheme, Saint-Gobain does not disclose details of any financial contributions to climate change mitigation projects outside of its value chain, which would be a reasonable model for the company to assume greater responsibility for its unabated emissions today.

Sony

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Technology	USD 77.5 bn [JPY 8999 bn] (2020)	18.5 MtCO$_2$e (2020)	Zero GHG emissions by 2050	◗ Reasonable	◑ Moderate

Sony Group Corporation is a Japanese multinational company that produces electronic products and media. **In 2020, the Group updated its Road to Zero environmental plan, originally announced in 2010. The plan includes a target of zero GHG emissions by 2050.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
18.5 MtCO$_2$e reported in 2020

Major emission sources: Use of sold products (downstream scope 3, 62%); raw materials and parts for manufacturing of products (20%).

Summary of disclosure: All emission sources are disclosed transparently. Scope 2 emissions reported using the market-based accounting method, although the difference to location-based accounting is marginal due to limited RE procurement.

Scope 1	0.2
Scope 2	1.2
Scope 3 upstream	5.5
Scope 3 downstream	11.5
Subsidiaries covered	●

Target coverage

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE — *Zero greenhouse gas emissions throughout the life cycle of products and business activities by 2050*

		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES (in headline pledge)	The target covers the environmental footprint throughout the whole life cycle of products.	●	●
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	**?** 100% emissions reduction target is the headline pledge, but Sony leaves open a potential unspecified role for offsets.	◑	?
INTERIM EMISSION REDUCTIONS (compared to full value emissions chain in 2019)	**~42% BY 2035** Interim targets are frequent and in line with the company's vision: • S1&2: -72% by 2035 from 2018 • S3: -45% by 2035 from 2018.	●	●

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Measures target all emission sources, but expected emission reductions are not disclosed and emissions have flattenned in recent years.	◑	◑
RENEWABLE ELECTRICITY PROCUREMENT	Only 7% of electricity consumed from renewable sources with various mixed quality procurement constructs.	◑	○

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	——— *No contribution claim identified* ———	N/A	○
OFFSETTING CLAIMS TODAY	——— *No offsetting claim in 2020/2021* ———	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	The zero-emission 2050 target may depend on offsets; no details disclosed.	○	?

Sources: Authors' interpretation of identified public documentation from the Sony Group.[351] [352]

Sony Group

Sony is a producer of electronic devices and media. The majority of Sony's emissions are scope 3, for electricity consumption in the use of its products, and their manufacturing. The Sony Group aims to be a zero-emissions company by 2050, although it will use offsets to an undisclosed extent. The company set new interim targets in 2020 and reviews its strategy every five years. Its transparent disclosure of emissions shows that it may need to implement more innovative measures to tackle product use emissions.

The Sony Group's environmental strategy – *Road to Zero* – includes a zero-emissions target for the life cycle of its products and business operations by 2050, but lacks clarity on its policy on the use of offsets. Sony's target covers all scopes and it is pledged as a 100% emissions reduction goal,[353] but the company is not fully clear on how it plans to achieve it. Sony states that it will investigate ways to offset emissions that might remain, without indicating a maximum role for offsets.[354] We did not identify any details on the company's strategy for either offsetting or making climate contributions beyond its value chain.

As part of the *Road to Zero* strategy, the Sony Group sets a new Green Management strategy every five years, setting new interim targets to guide the company in achieving its overall goal. Frequent interim targets like these are good practice because they help the company hold itself accountable to short-term, verifiable goals and improve measures as necessary to increase ambition. In 2020, the company disclosed the results of the strategy it set for the 2015-2020 period, describing the targets and their achievement.[355] In parallel, Sony also launched the Green Management Strategy 2025, for which it set new emission reduction targets for the 2020-2025 period: 5% in scopes 1 and 2 from a 2020 baseline, and 10% in logistics (scope 3) from a 2018 baseline.[356] Sony has also submitted two medium-term emission reduction targets to the SBTi to achieve by 2035 from a 2018 base year: 72% fewer emissions in scopes 1 and 2, and 45% fewer scope 3 emissions from product use.[357]

The Sony Group publishes its emissions for all scopes, including historical data.[358] The data show that, despite the company's emission reduction measures, both absolute emissions and emission intensity have remained largely the same since 2017.[359] Emission reduction measures implemented at Sony include improving energy efficiency, procuring renewable energy, conserving resources, innovating in product design, partnering with suppliers, shipping more efficiently, recycling, among others.[360] Only scope 1 emissions have notably decreased since 2017. Downstream scope 3 emissions, which include most of the company's emissions (especially in the use of sold products), were higher in 2020 than in 2017.[361] This increase is due to a higher demand for electronic and media products during the COVID-19 pandemic; Sony points toward an increase in the sales of bigger, more power-consuming TVs and the newly released PlayStation 5.[362] While trends for revenue and absolute emissions are closely correlated during the past years, the company's emission intensity has not significantly changed. This indicates that Sony may need to find more innovative ways to sell products that are less emissions-intensive to achieve its new interim targets. Although the company gives an overview of some emission reduction measures, we could not identify details on what these innovations could be.

In 2018, the Sony Group joined RE100, committing to use only renewable electricity by 2040.[363] It has, however, only achieved a 7% share of renewable electricity consumption to date,[364] with doubts over the quality of its supply constructs. Sony exhibits its renewable electricity strategy in several of its locations, highlighting initiatives in China, Japan, Thailand, Europe, and North America. To operate with renewable electricity at these locations, Sony produces it on-site, procures it through PPAs, and buys renewable energy certificates (RECs, which it uses to offset a share of its reported scope 2 emissions). The specific shares of the company's electricity demand covered by each of these methods is not specified at each site, or globally. It is clear, however, that the company heavily relies on RECs: it is the only procurement method used in China and the most significant in Japan and North America.[365] The impact from the procurement of RECs is in some places contentious, due to the high risk of double counting the same renewable electricity, or simply shifting the allocation of more emissions-intensive electricity to other consumers. Moving forward, Sony could prioritise high-quality renewable electricity constructs, such as on-site generation with storage or new, local PPAs.

Unilever

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Consumer goods	USD 57.4 bn [EUR 50.7 bn] (2020)	~32 MtCO$_2$e (2020)	Net zero by 2039	Low	Very low

Unilever Plc is a UK-based multinational consumer goods company that produces a wide array of products, including food, home care and personal care. **In 2020, Unilever committed to achieve company-wide net zero emissions by 2039 by implementing a Climate Transition Action Plan.**
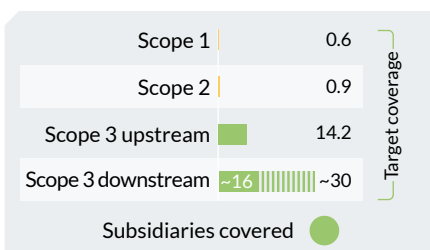
1 TRACKING AND DISCLOSURE OF EMISSIONS
TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
~32 MtCO$_2$e in 2020

Major emission sources: Raw materials and manufacturing (upstream scope 3, ~35%).

Summary of disclosure: Unilever reports on all emission sources, but the transparency of the company's footprint may be distorted by over-reporting of scope 3 emission sources which fall outside of the company's normal reporting scope. Scope 2 emissions are reported using the market-based accounting method only.

Scope 1	0.6
Scope 2	0.9
Scope 3 upstream	14.2
Scope 3 downstream	~16 ~30
Subsidiaries covered	

Target coverage

2 SETTING EMISSION REDUCTION TARGETS
TRANSPARENCY | INTEGRITY

HEADLINE TARGET OR PLEDGE — *Net zero by 2039*

		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES (in headline pledge)	Unilever includes all mandatorily reported emission scopes in the target.	●	●
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	✗ The company does not specify what portion of its 2039 target will be achieved through reduction of its own emissions.	○	○
INTERIM EMISSION REDUCTIONS (compared to full value chain in 2019)	? Absolute emission reduction targets cover only scope 1 and 2 emissions. Intensity target for scope 3 includes indirect use-phase emissions and may not require any reductions from the normal scope. • S1 & 2: -100% emission reduction by 2030 • S3: -50% emission intensity by 2030 from 2010	●	○

3 REDUCING OWN EMISSIONS
TRANSPARENCY | INTEGRITY

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Unilever's new supplier engagement programme could have a significant impact but details are limited. Impacts of zero-de-forestation commitment are unclear. Detailed measures for scope 1 and 2 emission sources.	◑	?
RENEWABLE ELECTRICITY PROCUREMENT	Unilever claims to use 100% renewable electricity but approximately 60% of this comes from unbundled RECs.	●	○

4 CLIMATE CONTRIBUTIONS AND OFFSETTING
TRANSPARENCY | INTEGRITY

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	○
OFFSETTING CLAIMS TODAY	Unilever distances itself from offsetting but supports its individual brands to claim carbon neutrality.	○	○
OFFSETTING PLANS FOR THE FUTURE	The net-zero 2039 target depends on nature-based carbon removals.	○	○

RATINGS
Overall 5-point scale ●High ●Reasonable ◐Moderate ◑Low ○Very low . Average of sections 1-4.
Sections 1-4 3 point scale ●High ◐Moderate ○Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Unilever

Unilever is a producer of consumer goods. Its largest emission sources are from procuring ingredients and packaging. Unilever's 2039 net-zero target is not substantiated with specific emission reduction targets for its major emission sources. Unilever's over-reporting of indirect use-phase emissions could distract from action to reduce the company's upstream scope 3 emissions. Unilever distances itself from the practice of offsetting in some communication materials, but plans to offset its emissions to reach its future net-zero target, and it already supports individual brands to claim carbon neutrality today.

Unilever set a net-zero target by 2039 that covers all emission scopes, but does not have specific emission reduction targets covering its upstream and downstream emissions. For the 2039 net-zero target, the company has not clarified what share it intends to achieve by reducing its own emissions and what share will be offset.[367] The company sets clear interim targets to reduce its scope 1 and 2 emissions: a 70% reduction by 2025 and a 100% reduction by 2030, based on a 2015 baseline.[368] By 2020 the company had already achieved a 60% reduction in scope 1 and 2 emissions compared to 2015, and so it appears on track to achieve its 70% target by 2025.[369] Unilever also pledged to halve its emissions intensity per consumer use[370] throughout the whole value chain by 2030, compared to levels in 2010.[371] We could not identify public emissions data from 2010, and so are unable to evaluate the progress on this target. This target also includes indirect scope 3 use-phase emissions, such as the energy use from washing machines operated with Unilever washing detergent,[372] with the argument that its detergent can be used at lower temperatures and therefore saves electricity. Although driving down emissions in the indirect use-phase is commendable, reporting these emissions is not mandatory according to the GHG Protocol Corporate Standard. Their inclusion in the intensity target could lead observers to wrongly believe that the company is achieving reductions in the company's other emission sources. Given that 65% of the reported carbon footprint of Unilever's products is made up of emissions in the use-phase,[373] Unilever could claim to have achieved major improvements in its emissions intensity due to the actions taken by other actors to decarbonise the electricity grid and improve the energy efficiency of appliances. To more credibly address scope 3 emissions, Unilever should set separate targets for the normal scope 3 emission categories as defined by the GHG Protocol.[374]

Unilever outlines a wide array of policies to reduce emissions, but has not achieved significant reductions in the emission intensity of its products in recent years. The company provides information on the emission reduction measures that it is implementing for all its emission scopes.[375] For many emission sources, it details the emission reductions it expects to achieve in the future. Measures include improving energy efficiency; procurement of renewable energy; criteria for supplier selection; research and development of less emission-intensive products; reducing the use of plastic; reducing the emissions intensity of logistics vehicles; and a commitment to decarbonise shipping under the Cargo Owners for Zero Emission Vessels initiative.[376] Although absolute emissions have reduced on average 1% a year since 2017,[377] this is in line with decreasing revenue and the emission intensity has remained largely the same. These findings indicate that the company's existing emission reduction measures have not yet had a sufficient impact to put the company on a deep decarbonisation pathway.

Unilever's *Climate Promise* and *Climate Support* programmes aim to address scope 3 emissions through encouraging suppliers to decarbonise. The *Climate Promise* programme, launched in 2021, "invites" suppliers to commit to halving their emissions by 2030 and to disclose their GHG emission data. It remains to be seen whether the programme provides sufficient incentive for significant participation. Unilever could advance on this positive programme by *requiring* climate-related disclosure and defining emissions-related criteria that its suppliers need to meet. Unilever's *Climate Support* programme targets a subset of 300 suppliers to work with more proactively on their own climate strategies.

Since 2019, Unilever claims to use "100% renewable grid electricity",[378] but electricity is sourced mostly through lower quality constructs. Unilever provides transparent details about the company's various renewable electricity procurement constructs around the world, which include direct PPAs, grid based PPAs with and without energy attribution certificates, capacity expansion premiums and unbundled RECs, in addition to its own on-site generation. Unbundled RECs accounted for approximately 60% of total renewable energy procurement in 2020.[379] The climate impact associated with unbundled RECs is highly uncertain in many contexts due to the potential for double counting the renewable electricity (see Box A1 section 3.1.2). Scope 2 emissions are reported using both the market- and location-based accounting method but only the former (which is the lower of the two values) is prominently displayed.[380]

Unilever's position on offsetting is unclear and inconsistent. While Unilever distances itself from the practice of offsetting, it also proactively supports its own brands to make use of offsets towards their carbon neutral and climate positive claims, and Unilever plans to use offsets to achieve its 2039 net-zero target (see Box B6).

Carbon offsetting fact checking | Unilever's carbon neutral and climate positive brands

At the holding company level, Unilever states that "[t]he focus of [its] targets is emissions reduction, not balancing emissions with carbon credits, sometimes known as offsetting".[381] In contrast, many of Unilever's brands are encouraged and supported by Unilever to use offsets from nature-based solutions to claim carbon positivity, through a centralised fund.

Unilever's emission mitigation strategy, laid out in its Climate Transition Action Plan, does not convey the same message that is communicated through the climate action plans of individual Unilever brands.

At the corporate level, Unilever states that the company will focus on emission reductions rather than setting interim net-zero targets, recognising that net-zero targets can create a potentially counterproductive tension between delivering GHG emission reductions and offsetting.[382] Unilever emphasises that offsetting can pose an active threat to limiting temperature increase to 1.5°C if it leads to delayed action.[383]

Despite Unilever's position on offsets, the company allows its brands to widely make use of carbon offset credits to claim *carbon positivity* (a term which it uses to refer to a more 'positive' outcome for the climate and not increasing its carbon footprint). Unilever centrally funds and manages the projects used for the claims of its brands, through its Climate and Nature Fund.

Lifebuoy, *Dove*, and *Rexona/Sure* – three of the world's fifty most frequently bought brands[384] – all claim "carbon positivity". The soap brand *Lifebuoy* aims for carbon positive manufacturing by 2030. *Dove* and *Rexona* both aim to become carbon positive by 2030.[385] None of these brands communicate the strategy with which they plan to reach their 'carbon positivity' targets, nor do they transparently declare the details of offset projects used.

To support Unilever's brands to use offsets towards their climate pledges in the next decade, Unilever established its EUR 1 billion *Nature and Climate Fund* in 2020. Unilever states that projects funded through the Climate and Nature Fund will be nature-based projects including programmes for reforestation, forest conservation, and restoration of wildlife habitats.[386] The brands will be able to procure carbon offset credits through projects financed by this fund. Since the projects supported through the fund are nature-based solutions for carbon storage with limited permanence, the suitability of these projects for claiming the neutralisation of emissions is contentious (see Box A3 section 4.1.2).

Through this approach, consumers, regulators, shareholders and other observers are presented with branding that suggests purchasing the product can lead to overall benefits to the climate, despite the underlying emissions associated with their production and use. The carbon positive branding is delivered through Unilever-funded offsets, while at the holding company level, Unilever distances itself from this approach.

Vale

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Mining	USD 40 bn (2020)	490.8 MtCO$_2$e (2020)	Carbon neutral by 2050 (scope 1 & 2)	Moderate	Low

Vale S.A., based in Brazil, is the world's largest mining company, in terms of revenue. Vale mines iron ore, pellets, nickel, coal, copper, and manganese. **The company has committed to become carbon neutral by 2050.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE
490.8 MtCO$_2$e in 2020

Major emission sources: processing, transport and use of sold products (95%).

Disclosure: Vale reports on aggregated scope 1, scope 2 and scope 3 emissions. The company provides an overview of the activities that contribute to scope 1 and 2 emissions and their relative importance.

Scope 1	9.6
Scope 2	0.6
Scope 3 upstream	15.9
Scope 3 downstream	465
Subsidiaries covered	●

Target coverage

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE	*Carbon neutral by 2050*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	The target does not cover scope 3 emissions (98% of Vale's climate footprint)	●	○
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019)	✗ No specific emission reduction target communicated	○	○
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	~7% BY 2030 — Absolute emission reduction targets: • S1&2: -33% by 2030 from 2017 • S3: -15% by 2035 from 2018	●	○

3 REDUCING OWN EMISSIONS

	TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Vale provides some information on specific measures across all scopes, including implementation of some innovative decarbonisation technologies.	◐	◐
RENEWABLE ELECTRICITY PROCUREMENT	PPAs, own assets, investment in battery storage systems. Unclear whether Vale retains any RECs from its own assets or whether other consumers may also claim ownership of the renewable electricity.	◐	◐

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

	TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	○
OFFSETTING CLAIMS TODAY	—— *No offsetting claim in 2020/2021* ——	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	Vale plans to use nature-based solutions to offset its emissions and fulfil its 2035 and 2050 targets.	◐	?

RATINGS **Overall** 5-point scale ●High ●Reasonable ◐Moderate ◐Low ○Very low . Average of sections 1-4.
Sections 1-4 3 point scale ●High ◐Moderate ○Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Vale [387]

Vale

Vale SA is one of the world's largest mining companies and presents itself as a climate frontrunner in the sector. Although Vale's renewable energy strategy is reasonably comprehensive, we could not identify significant measures to address the company's major emission sources, and its target could be misleading. Vale's carbon neutrality target for 2050 covers only 2% of current emissions and depends on the use of carbon offset credits.[388] Rather, Vale could consider communicating more comprehensive and nuanced targets that transparently portray the realistic prospects for its emissions-intensive sector.

Vale's carbon neutrality pledge for 2050 covers scope 1 and 2 emissions, which contribute to only 2% of its climate footprint.[389] The company commits to an interim reduction target of 33% by 2030, compared to 2017, for these emission scopes.[390] In addition, Vale aims to reduce its scope 3 emissions by *net* 15% by 2035 and plans to rely to some extent on carbon dioxide removals from nature-based solutions to meet this goal.[391]

Vale plans to use offsets from nature-based solutions to reach both the 2050 carbon neutrality target and the 2035 scope 3 target, although it is unclear what share of unabated emissions it will offset.[392] While nature-based solutions need to be scaled-up, such projects are inappropriate for claiming the neutralisation of unabated emissions. Removals sequestered in trees or soils are at high risk of future disturbance, which would negate any benefits of carbon storage (see Box A2, section 4.1.2).

Vale implements a range of reduction measures across all emission scopes, some of which are innovative and could lead to substantial emission reductions, if rolled out at scale. However, a comprehensive overview of Vale's emission reduction strategy is lacking, and the likely abatement impact of proposed measures remains unclear. Scope 3 emissions – mostly processing, transport and use of sold products - account for 98% of Vale's GHG footprint.[393] In its Integrated Report 2020 and slide decks on the company's climate change strategy, Vale mentions various examples of measures to reduce scope 3 emissions, such as developing low-carbon iron ore agglomeration products, investing in rotor sails to reduce shipping emissions, and "customer engagement to promote new emission-reduction technologies".[394]

Further, Vale states that it considers a range of emission reduction measures for scope 1 and 2 emissions such as the use of biofuels in base metals, energy efficiency and mine and railroad electrification.[395] For example, the company has recently invested in electric vehicles for underground operations in its Canadian mines.[396]

While the examples above indicate that Vale takes an aggressive stance at reducing its GHG footprint, a more comprehensive overview of the scale at which measures are implemented, is needed to understand their likely abatement potential. Further, it remains unclear how Vale plans to reduce fugitive methane emissions and emissions from land use change.

Vale seems to pursue higher quality renewable energy options, but more information is needed for a comprehensive assessment. The company aims for 100% self-production of renewable electricity in Brazil by 2025 and 100% renewable electricity consumption in other countries by 2030.[397] Vale has signed PPAs with wind and hydropower projects; and owns renewable electricity assets. It is not clear if Vale retains any renewable energy certificates from its own assets or whether the green electricity could potentially be claimed by other consumers too. The electricity that Vale consumes is generated by a combination of wind, solar and hydropower installations, but the company does not provide an overview of the relative importance of each of these sources. While solar and wind energy are truly low carbon, hydropower installations in Brazil may generate substantial methane emissions.[398] In addition to investments in power supply, Vale also invests in battery storage systems, to help ensure self-sufficiency.[399]

Vodafone

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Telecommunications	USD 44.9 bn (2020)	11.97 MtCO$_2$e (2020)	Net zero emissions by 2040	Reasonable	Moderate

Vodafone Group Plc – based in the United Kingdom and mostly active in Africa and Europe – is one of the world's largest telecommunications companies. **The company committed to net-zero emissions by 2040.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE

Total reported GHG emissions 11.97 MtCO$_2$e in 2020

Major emission sources: purchased goods and services (upstream scope 3, 31%); investments in joint ventures (downstream scope 3, 24%); use of sold products (downstream scope 3, 17%).

Disclosure: Transparent reporting. Breakdown of most relevant emission sources. The market-based method for scope 2 emissions accounting is used in aggregated data.

		Target coverage
Scope 1	0.3	
Scope 2	2.2	
Scope 3 upstream	4.6	
Scope 3 downstream	5.0	
Subsidiaries covered	●	

2 SETTING EMISSION REDUCTION TARGETS

			TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE		*Net zero by 2040*		
COVERAGE OF EMISSION SOURCES (in headline pledge)		The target covers all emissions across the value chain	●	●
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019)	**95-100%** BY 2040	A near 100% reduction in emissions across scopes 1, 2 and 3	◑	●
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	**~64%** BY 2030	Emission reduction targets for 2030: • S1&2: Net zero by 2030 (with seemingly high reliance on RECs) • S3: -50% by 2030 from 2020	●	◑

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Limited information on pursued reduction measures.	○	?
RENEWABLE ELECTRICITY PROCUREMENT	RECs account for the major share of renewable electricity consumed. Some on-site installations and PPAs.	◑	○

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	○
OFFSETTING CLAIMS TODAY	Climate neutral services advertised in some markets, using low-quality credits (see Box B6).	◑	○
OFFSETTING PLANS FOR THE FUTURE	Future targets depend on up to 5% offsets, with no details.	◑	?

RATINGS **Overall** 5-point scale ○High ○Reasonable ◑Moderate ◑Low ○Very low . Average of sections 1-4.
Sections 1-4 3 point scale ●High ◑Moderate ○Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Sources: Authors' interpretation of identified public documentation from Vodafone[400]

Vodafone

Vodafone commits to deep decarbonisation across all emission scopes by 2040. However, the company does not have a clear and comprehensive plan to bring scope 3 emissions – which account for 80% of the company's climate footprint - to zero and relies on RECs to reduce electricity-related emissions in the mid-term future.

Vodafone aims for deep decarbonisation across all emission scopes and may use offset credits to neutralise a maximum of 5% of baseline emissions.[401] Vodafone states that it aims to reduce all emissions by 2040 and sees offsetting as its least preferred option.[402] Vodafone could further substantiate its 2040 target by setting interim emission reduction targets for all scopes within the next five years. Currently, the company has committed to reduce scope 1 and 2 emissions by 95% and scope 3 emissions by 50% by 2030.[403] Further, to facilitate dialogue and solution-seeking, Vodafone could outline what obstacles it anticipates in reducing the final 5% and what support it would need from suppliers, customers, or policymakers to overcome those.

Vodafone plans to offset 5% of baseline scope 1 and 2 emissions to meet its target of net-zero own emissions by 2030.[404] The company states it will use "certified greenhouse gas removals" but offers no further explanation of what this means.[405] Removals that are used for neutralisation purposes must be permanent (and meet other standard criteria for high-quality credits) and should only be used to neutralise residual emissions from hard-to-abate sectors (see Box A3 section 4.1.2).

To reduce electricity-related emissions, Vodafone relies on RECs, which may not incentivise additional renewable electricity generation capacity or lower emissions levels. Vodafone will implement energy efficiency measures and switch to renewable electricity to reduce operational emissions.[406] While Vodafone has some on-site renewable energy installations (e.g. solar PV on car parks) and has signed two PPAs in Spain and the United Kingdom, the procurement of RECs is currently the main instrument for claiming the use of renewable electricity.[407] Vodafone claims to prioritise bundled RECs and, where possible, source RECs from installations not older than five years, but provides no further details on the RECs it procures in various markets.[408] While some RECs may result in truly additional renewable energy capacity, most do not send a meaningful signal to the market and may simply artificially shift allocation of more carbon-intensive electricity supplying the grid to other consumers (see Box A1 section 3.1.2).

Vodafone provides no information on concrete measures to reduce scope 3 emissions, which account for 80% of total emissions.[409] The company states to work with suppliers and joint ventures and associates but provides very little information about specific reduction measures.[410] This lack of information undermines Vodafone's headline climate pledge and needs to be addressed.

Vodafone takes no responsibility for most of its unabated emissions today, although in some European markets, the company and its joint ventures offer 'climate neutral' services, based on the procurement of RECs and carbon offset credits. Vodafone Germany offers its business customers a "climate neutral tariff" and the Dutch joint venture VodafoneZiggo claims to have operated climate neutral since 2019.[411] Both subsidiaries rely on renewable energy and carbon offset credits to make their claims.[412] Whereas VodafoneZiggo provides no information on its procurement of carbon offset credits, Vodafone Germany sources credits from wind power projects in Chile and Bulgaria.[413] The additionality of these projects at the time of registration is highly contentious. This makes these credits unsuitable for any neutralisation claims (see Box B6).

BOX B7

Carbon offsetting fact checking | Vodafone subsidiaries offer climate neutral services

Vodafone Germany offers a 'climate neutral' tariff to its business customers and the joint venture VodafoneZiggo (Netherlands) claims all its services are climate neutral, both based on the use of RECs and carbon offset credits. The procured carbon offset credits are unlikely to justify Vodafone Germany's claim that the provision of their services has no impact on the climate. Due to a lack of transparency, it is not possible to assess VodafoneZiggo's claim.

The joint venture VodafoneZiggo claims to be fully climate neutral, based on renewable electricity procurement, energy efficiency measures and carbon offset credits. The venture purchased carbon offset credits to neutralise at least 10,000 tCO$_2$e in 2020 but gives no details on the projects supported.[414] This lack of transparency makes it impossible to assess the integrity of VodafoneZiggo's claim and is particularly critical to address, given there is an abundant supply of low-quality offset credits issued by both international standards, such as the Clean Development Mechanism, as well as a number of unregulated standard-setting bodies.

Vodafone started offering its German business customers a 'climate neutral' tariff in November 2021, based on REC procurement and carbon offset credits issued to wind power projects in Chile and Bulgaria.[415] These represent the lower end of credit quality available on the voluntary carbon markets. The Bulgarian Saint Nikola Wind Energy Project came online in 2012 and was registered by Verra in 2014.[416] At the time of registration, Bulgaria had domestic emission reduction and renewable energy targets, as part of the EU's 20/20/20 package. Similarly, the El Arrayán wind farm in Chile came online and was registered under the CDM in 2014.[417] A year earlier, the Chilean government set itself a 20% renewable energy generation target by 2025 (Law 20698).[418] Given that both Bulgaria and Chile had domestic renewable energy targets when the wind farms were registered under Verra and the CDM, their additionality at that time is highly contentious.

The carbon credits that Vodafone Germany purchased are not an equivalent to reducing its own emissions and should therefore not be used to claim "climate neutrality".

Volkswagen Group

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Transport	USD 252.0 bn [EUR 222.9 bn] (2020)	376.1 MtCO$_2$e (2020)	CO$_2$ neutral by 2050	◑ Moderate	◔ Low

Volkswagen AG (Volkswagen Group), headquartered in Germany, was the world's second-largest manufacturer of motor vehicles in 2021, and the biggest in Europe. **In 2019, Volkswagen announced a 'carbon neutrality' target for 2050 across all ten companies that are part of the Volkswagen Group, including the Volkswagen, Audi, and Seat brands.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE

376.1 MtCO$_2$e in 2020

Major emission sources: Use-phase of vehicles sold (downstream scope 3, 76%); purchased goods and services (upstream scope 3, 17%)

Disclosure: Volkswagen comprehensively discloses emissions across all relevant scopes. Volkswagen does not specify the accounting method used for scope 2 emissions.

Scope 1		4.3
Scope 2		2.8
Scope 3 upstream		76.2
Scope 3 downstream		292.7
Subsidiaries covered	●	

Target coverage

2 SETTING EMISSION REDUCTION TARGETS

	TRANSPARENCY	INTEGRITY

HEADLINE TARGET OR PLEDGE — *CO$_2$ neutral by 2050*

		TRANSPARENCY	INTEGRITY
COVERAGE OF EMISSION SOURCES (in headline pledge)	The target covers the entire Volkaswagen Group, including all emission scopes.	●	●
REDUCTION OF OWN EMISSIONS (for pledge year, compared to full value chain in 2019)	✗ No emission reduction target in the headline pledge.	○	○
INTERIM EMISSION REDUCTIONS (estimated compared to full value chain in 2019)	✗ • -30% life-cycle emission intensity of vehicles by 2025 (2015 baseline) • -30% absolute emissions from production and use-phase by 2030 (2018 baseline)	●	○

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Relevant measures for key emission sources including major investments in electrifying vehicles, but unlikely sufficient to align with a 1.5°C compatible decarbonisation path.	◑	◑
RENEWABLE ELECTRICITY PROCUREMENT	Volkswagen provides limited information on its renewable electricity procurement constructs meaning a full assessment is not possible.	○	?

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	—— *No climate contributions identified* ——	N/A	○
OFFSETTING CLAIMS TODAY	Volkswagen claims two electric vehicle production lines are carbon neutral as well as some facilities, using nature-based carbon offsets.	◑	○
OFFSETTING PLANS FOR THE FUTURE	The carbon neutrality target for 2050 target depends on offsets, but little information is available.	○	?

Sources: Authors' interpretation of identified public documentation from the Volkswagen Group[419] and the Climate Action Tracker.[420]

Volkswagen Group

Emissions from the Volkswagen Group are mostly in the use-phase of its sold vehicles (76% of 2020 emissions) and purchased goods and services (16%). The entire Volkswagen Group pledges to become carbon neutral by 2050. It already claims carbon neutrality for specific vehicle production lines by buying nature-based offset credits that are not suitable for this purpose due to permanence issues. Although it has set interim emission reduction targets, the Group has not committed to phase out internal combustion engine vehicles in line with a 1.5°C compatible decarbonisation trajectory.

Volkswagen Group's headline climate target is unsubstantiated and not 1.5°C aligned. The company's pledge reads "We are committed to the 2°C target of the Paris Climate Agreement. By 2050, we want our whole Group to become net carbon neutral."[421] Referring to the 2°C target fails to acknowledge the grave consequences that such an increase in world temperature would have and could be interpreted as an implicit rejection of the Paris Agreement's objective to limit global warming to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C that many governments and corporates are working towards. The headline carbon neutrality target is expressed more as an aspiration than a firm commitment and is not complemented by a deep emissions reduction target. There is therefore no clarity on the extent to which Volkswagen will pursue direct emission reductions throughout its value chain in the long-term.

The company sets two main interim targets: reducing the total life-cycle emissions intensity of vehicles by 30% between 2015 and 2025; and reducing emissions in vehicle production and their use-phase by 30% between 2018 and 2030.[422] The first target is especially ambiguous, as it depends on carbon offsets. These targets fall short of what is needed for a 1.5°C-aligned decarbonisation trajectory for the transport sector. 75–95% of all light duty vehicles (LDV) sales should be electric—that is, have zero tailpipe emissions—by 2030 globally. 95–100% of light duty vehicle sales should be electric in the Volkswagen Group's main markets, such as the European Union and China.[423]

In November 2021 at COP26, Volkswagen opted out of a declaration committing to a totally electric fleet by 2035 to support achieving the 1.5°C target of the Paris Agreement, despite competing manufacturers in the US and Germany, among others, signing up to it.[424]

The Volkswagen Group has implemented measures to reduce emissions, but they still fall short of what a Paris Agreement-aligned trajectory demands. The Volkswagen Group claims to aggressively drive the transition of the automotive industry towards electric vehicles. The company is making large investments in a range of electric vehicles, as well as supporting charging infrastructure and battery technology development.[425] These measures are important and should be replicated and scaled-up, but Volkswagen's commitments for the complete

phase-out of internal combustion engines fall short of Paris-compatible benchmarks. The subsidiary Volkswagen brand has committed to phase-out internal combustion engines from sales in Europe between 2033 and 2035 but has not set any dates for China and the US;[426] while Audi has committed to launch the last model of a combustion-engine vehicle in 2026 with sales continuing thereafter until the early 2030s.[427] Other measures mentioned by the Group cover different scopes and include increasing energy efficiency, transitioning to renewable energy, electrifying its own vehicle fleet, requiring suppliers to use renewable energy, and increasing transport and distribution efficiency.[428] The Group mentions the existence of an internal financial mechanism to steer decarbonisation: a CO_2 abatement price of USD 22.5 (EUR 20) per tonne subject to annual revision.[429] Although it is good practice to set an internal price for carbon, the level is relatively low and there remains a lack of clarity on its internal set-up and functioning.

The company discloses little detail on its renewable energy procurement strategy, which hinders an independent evaluation of its integrity. In its sustainability report, the Volkswagen Group only provides general remarks on how it procures renewable energy.[430] Volkswagen is building renewable energy projects on their own facilities, which constitutes good practice. For the majority of its renewable electricity procurement, Volkswagen purchases renewable energy from third-party providers, or uses energy attribute certificates, a practice that often has dubious impact (see Box A1 section 3.1.2). The company claims that 46% of its electricity use is from renewable sources, but it does not disclose the amount procured or produced through each method.[431]

The Volkswagen Group currently offsets 1.24 MtCO$_2$e of its emissions with nature-based solutions, claiming to sell two carbon-neutral vehicle lines as well as operating some carbon-neutral facilities.[432] Although the company does not claim to be carbon-neutral across the entire value chain, claiming neutrality only for these areas of its business can be misleading for consumers. Volkswagen procures offsets from funding nature-based carbon removal projects like the Katingan Mentaya forestry project in Indonesia.[433] While carbon removals through nature-based solutions will require more financial support to reach the scale required globally to limit the most damaging effects of climate change, such projects do not offer the permanence to count as a neutralisation of emissions (see Box A3 section 4.1.2). The Volkswagen Group could rather follow good practice by shifting from today's offsetting claim towards making a climate contribution, supporting ambitious climate action without claiming to offset its own GHG footprint.

The Volkswagen Group communicates little information on its offsetting strategy for its 2050 carbon neutrality target.[434] Uncertainty remains on the extent to which the target relies on offsets, and whether and how the Volkswagen Group intends to apply any quality standards.

Walmart

SECTOR	REVENUE	EMISSIONS	PLEDGE	TRANSPARENCY	INTEGRITY
Retail	USD 559.2 bn (2020)	203.1 MtCO$_2$e (2019)	Zero operational emissions by 2040	Reasonable	Low

Walmart Inc. is a US-based multinational corporation that operates a chain of hypermarkets, department stores, and grocery stores. Walmart is the world's largest corporation both by revenue and number of employees (~2.3 million). **In 2020, it committed to reduce its operational emissions to zero by 2040.**

1 TRACKING AND DISCLOSURE OF EMISSIONS

TRANSPARENCY & INTEGRITY

TRACKING AND DISCLOSURE

203.1 MtCO$_2$e in 2019

Major emission sources: Procurement of goods (upstream scope 3, 71%)

Disclosure: Scope 3 includes most of Walmart's emissions, but it does not report those in its public climate strategy. Scope 2 emissions disclosed using the market-based method. Subsidiaries appear to be included but this could benefit from more transparent communication.

Scope 1	6.5
Scope 2	12.2
Scope 3 upstream	152.1
Scope 3 downstream	32.3

Target coverage

Subsidiaries appear to be covered

2 SETTING EMISSION REDUCTION TARGETS

		TRANSPARENCY	INTEGRITY
HEADLINE TARGET OR PLEDGE	*Zero operational emissions by 2040*		
COVERAGE OF EMISSION SOURCES (in headline pledge)	Scope 3 emissions are not covered in the target.	●	○
REDUCTION OF OWN EMISSIONS (in headline pledge, compared to full value chain in 2019)	**~9%** BY 2040 — The headline pledge is a 100% GHG reduction target, but excludes all scope 3 emissions (91%).	●	○
INTERIM EMISSION REDUCTIONS (compared to full value emission chain in 2019)	**~5%** BY 2030 — Interim GHG targets also exclude scope 3 emissions: • S1&2: -35% emissions by 2025 from 2015 • S1&2: -65% emissions by 2030 from 2015	●	○

3 REDUCING OWN EMISSIONS

		TRANSPARENCY	INTEGRITY
EMISSION REDUCTION MEASURES	Plans to address upstream scope 3 emissions through fostering supplier targets but uncertainty on emission reductions impact.	◐	◐
RENEWABLE ELECTRICITY PROCUREMENT	Walmart targets higher-quality RE constructs on its path to 100% RE by 2035, but the share of procured renewable electricty remains low and transparency could be improved.	◐	◐

4 CLIMATE CONTRIBUTIONS AND OFFSETTING

		TRANSPARENCY	INTEGRITY
CLIMATE CONTRIBUTIONS	Walmart commit to protect or restore 50 million acres of land by 2030, without a neutralisation claim.	◐	◐
OFFSETTING CLAIMS TODAY	*No offsetting claim in 2020/2021*	N/A	N/A
OFFSETTING PLANS FOR THE FUTURE	*Walmart will achieve its target without offsets*	●	N/A

RATINGS
Overall 5-point scale ○High ◔Reasonable ◑Moderate ◕Low ○Very low . Average of sections 1-4.
Sections 1-4 3 point scale ●High ◐Moderate ○Low . See methodology document for rating criteria.
Transparency refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Walmart

Most of Walmart's emissions (71% of 2019 emissions) originate from the procurement of goods (upstream scope 3). Walmart has set a credible target and strategy to take responsibility for all its operational scope 1 and 2 emissions. Its strategy for upstream scope 3 emissions, which account for most of the company's overall climate impact, is less robust: it sets no emissions reduction target, but rather builds on a programme to engage with suppliers to voluntarily reduce emissions themselves.

Walmart's headline target is to reduce its scope 1 and 2 emissions to zero by 2040 aligned with interim targets for 2025 and 2030. Walmart follows good practice by committing to reduce its scope 1 and 2 emissions (referred to as "operational emissions") to zero by 2040,[436] and does not seek to offset any remaining emissions. The company has set interim emission reduction targets for its scope 1 and 2 emissions: reductions of 35% by 2025 and 65% by 2030 respectively, compared to a 2015 baseline.[437] With the first interim target in five years, the company will be accountable for immediate action on its operational emissions and gives itself time to correct course if necessary. However, Walmart's targets only cover scope 1 and 2 emissions, which represent around 9% of the company's total GHG emission footprint.[438] The company sets a 2015 baseline for these targets. The targets translate to approximately a 24% emission reduction from scopes 1 and 2 by 2025 and 54% by 2030, from a 2019 baseline.

In 2017, Walmart launched *Project Gigaton* to address upstream scope 3 emissions, which account for 75% of the company's climate impact, although the potential impact of the measures remains unclear. Project Gigaton is a proactive way of engaging suppliers, offering them guidance to avoid their emissions in six areas: energy; product use and design; waste; forestry; agriculture; and packaging.[439] Suppliers can sign up to the programme and receive access to resources and training that help them setting their own targets and design strategies to tackle their emissions. In cooperation with HSBC, Walmart announced at the end of 2021 that it would offer financial credit support to suppliers that reduce emissions in line with so-called "science-based" targets as part of the Project.[440] Participating in the project is currently voluntary for suppliers.[441] Around 23% of Walmart's 10,000 suppliers have joined the program since 2017,[442] but it remains uncertain whether the existing benefits such as public recognition by Walmart and financial credit support are sufficient to convince the remaining 77% to join. Walmart could make suppliers' participation mandatory, offer better incentives to participate, and define specific emission reduction targets for its suppliers. Walmart has not reported on measures to address downstream scope 3 emissions (~30 MtCO$_2$e).

Walmart can improve its GHG emissions reporting to ensure transparency and accountability. In its public climate change strategy, the company does not disclose its scope 3 emissions, which account for 91% of the company's total emissions in 2020.[443] Furthermore, its main reporting of emissions from energy procurement (scope 2) uses a market-based accounting approach. This reduces energy procurement emissions by around 1 MtCO$_2$e in 2020 compared to a location-based accounting approach. Scope 3 and location-based scope 2 emission estimates are included in Walmart's disclosure to CDP, which the company publishes on its website,[444] but this may not be immediately apparent to readers of other Walmart documentation. To ensure transparency, Walmart could share estimates on its complete climate footprint as well as a historical time series in its headline reporting.

Walmart commits to use 100% renewable electricity for its operations by 2035 but does not provide clarity on its current renewable electricity use. In its climate change strategy, Walmart says that it met 36% of its global electricity demand with renewable energy in 2020.[445] Based on the available information, the quality of Walmart's limited renewable electricity portfolio is reasonably robust and of high quality. The company produces around 60% of its renewable electricity with its own installations, procures around 35% through PPAs, and procures only 4% through lower quality RECs, which may be more prone to issues of double counting.[446] Given the current relatively low proportion of renewable energy use, Walmart could further improve transparency by providing information on the challenges it faces to achieve its 100% renewable energy goal earlier than 2035.

Walmart commits not to use offsets to reach its target for zero operational emissions while pledging to make a climate contribution to support nature-based solutions without claiming to neutralise its emissions. Walmart explicitly plans to reduce scope 1 and 2 emissions to zero by 2040, without the use of offsets.[447] In parallel, Walmart and Walmart Foundation have committed to protect or restore 50 million acres of land by 2030, without linking this contribution to a neutralisation claim.[448] This is a credible approach to supporting nature-based solutions for climate change mitigation outside of its value chain. Walmart could improve its transparency on these contributions by disclosing further information on how it determines the volume of support. It remains unclear whether this is linked to assuming responsibility for unabated emissions, particularly given that scope 3 emissions are not included in Walmart's main climate targets.

Glossary and abbreviations

Additional potential (of CDR)	See "Scarcity (of CDR)"
Biological capture and storage	See "Nature based solutions".
Climate contribution	We define climate contributions as the financial support provided by a company to support climate change action beyond the company's own value chain, without claiming the neutralisation of its own emissions in return.
Carbon dioxide removals (CDR)	All scenarios consistent with a 1.5°C temperature increase include a major role for carbon dioxide removals.[449] This includes nature-based solutions for carbon sequestration in forests, soils, peatlands and mangroves, technological solutions such as BECCS and DACCS with underground storage, and solutions with mineral storage.
Carbon offset credit	A carbon offset credit is a certified unit of a reduction of GHG emissions, or a removal of carbon dioxide (see Carbon dioxide removals), which is used to balance out GHG emissions elsewhere. The practice of offsetting is often contentious (see section 4.1.2).
CDP	Formerly the Carbon Disclosure Project: Many companies report emissions as well as other details of their climate strategies to CDP. CDP provide companies with a certified rating of their level of climate transparency, which is often used in company's marketing materials.
GHG Protocol	The GHG Protocol is an initiative driven by the World Resources Institute and World Business Council for Sustainable Development, that provides international guidance and standards for GHG emissions accounting.
High-hanging fruit	The high-hanging fruit of mitigation potential refers to the technologies and measures to decarbonise emission sources that remain otherwise entirely inaccessible to host country governments in the near- and mid-term future, on account of high costs or other insurmountable barriers that cannot reasonably be overcome.
Insetting	"Insetting" is a business-driven concept used by a limited number of actors with no universally accepted definition. Insetting is often described as offsetting within the value chain. The approach can lead to low credibility GHG emission offsetting claims and presents a significant risk of double counting the same emission reductions. (see Box A4 section 4.2)
Integrity (rating)	The Corporate Climate Responsibility Monitor assesses the transparency and integrity of companies' climate pledges. Integrity, in this context, is a measure of the quality, credibility and comprehensiveness of a company's approaches towards the various elements of corporate climate responsibility.

Location-based method (for scope 2 emissions accounting)	The location-based method for scope 2 emissions accounting reflects the average emission intensity of the electricity grid from which the consumer's energy is delivered.
Market-based method (for scope 2 emissions accounting)	The market-based method for scope 2 emissions accounting reflects the emissions from electricity generation specifically procured by the consumer (which may not reflect the electricity they actually consume from a grid that features multiple buyers and sellers). It derives emission factors from contractual renewable electricity procurement instruments.
Nationally determined contributions (NDCs)	Nationally determined contributions (NDCs) are the pledges made by national governments to the United Nations Framework Convention on Climate Change to mitigate climate change. The Paris Agreement requires all Parties to submit and regularly update their NDCs to represent their possible highest level of ambition. Recognising the insufficiency of climate change mitigation commitments in existing NDCs, the Glasgow Pact from COP26 urged all Parties to update their NDCs again ahead of COP27.
Nature-based solutions	Nature-based solutions refer to measures for carbon dioxide removal that involve biological carbon capture and storage in natural ecosystems, such as soils, forests, peatland and mangroves.
Neutralisation	Neutralisation of emissions is usually a term that is synonymous with offsetting and refers to the balancing out of emissions released into the atmosphere with the avoidance, or removal from the atmosphere, of an equivalent volume of emissions elsewhere. Many actors now avoid the term offsetting entirely; companies and initiatives more often refer to "neutralisation", "netting-out", "compensation", "reducing the footprint", while some actors use multiple terminologies to distinguish between offsetting in different circumstances and at different times. We define all claims that unabated GHG emissions within the value chain are offset as offsetting claims, including all synonymous terminologies and all project types.
Non-GHG climate forcers	Non-GHG climate forcers include the emission of gases and aerosols, and processes that change cloud abundance, leading to radiative forcing. Radiative forcing is a change in the balance of radiation in the atmosphere, which contributes to global warming. For example, the non-GHG climate forcers are estimated to increase the climate impact of GHG emissions from the aviation industry by a factor of approximately 3.[450]
Offsetting	See carbon offset.
Permanence (of CDR)	The permanence of a CDR outcome refers to the timescale and degree to which sequestered carbon remains stored and not released into the atmosphere.

Power purchase agreement (PPA)	A PPA is a long-term contract between an electricity provider and an electricity consumer, usually spanning 10-20 years. The consumer agrees to purchase a certain amount of electricity from a specific asset under a pre-determined pricing arrangement. PPAs are generally signed with new renewable energy installations and form part of the project investment decision.[451] PPAs can also be signed for existing installations, in which case it is less likely the PPA results in additional renewable electricity capacity. However, it may be that existing installations would cease operations if the operator cannot sign a new PPA.
Renewable energy certificate (REC)	Renewable Energy Certificates (RECs) are also known under various names, such as Guarantees of Origin (GOs) or Energy Attribute Certificates (EACs). RECs can be bundled or unbundled with the electricity that a company consumes: **Unbundled RECs:** the consumer purchases RECs from a third party, separately from their procurement of electricity from another supplier. **Bundled RECs – third-party generated:** the consumer purchases electricity and RECs from the same supplier, but this supplier has procured the RECs from a third party. In this situation, the supplier may sell electricity generated using fossil fuels but market it as 'low-carbon' electricity by bundling an equivalent volume of RECs into the sale. **Bundled RECs – supplier generated:** the consumer purchases renewable electricity and associated RECs from the same supplier.
Residual emissions	Residual emissions are the remaining GHG emissions from hard-to-abate emission sources where no known feasible options remain for further decarbonisation. (See also unabated emissions)
Scarcity (of CDR)	The maximum potential of most carbon dioxide removal measures is technically limited, and even further restricted by environmental constraints. Due to issues such as land requirements, high water consumption, high energy consumption, land degradation and pollution, among other environmental costs, carbon dioxide removal technologies can only be scaled-up so far without significantly endangering sustainable development goals, including food security. The scarcity of carbon dioxide removals measures – in terms of their maximum absolute or annual technical potential – is an important consideration when evaluating the feasibility of net-zero claims at the level of individual actors. Robust future use of scarce carbon dioxide removal options must be consistent with achieving net-zero and eventually net-negative emissions at the global level, which is required to avoid the most damaging effects of climate change over the coming decades.
Science Based Targets initiative (SBTi)	SBTi reviews and certifies the climate targets of companies who join the initiative as members. Companies' climate targets are certified as 1.5°C or 2°C compatible if they align with SBTi's own methodology and benchmarks.

Scope (of GHG emissions)	The GHG Protocol Corporate Standard classifies a company's GHG emissions into three 'scopes' :[452]
Scope 1 emissions	Scope 1 emissions are direct emissions from owned or controlled sources.
Scope 2 emissions	Scope 2 emissions are indirect emissions from the generation of purchased energy (see also *location-based method* and *market-based method*).
Scope 3 emissions	Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.[453]
Upstream scope 3 emission sources	Upstream emissions are indirect GHG emissions related to purchased or acquired goods and services.[454]
Downstream scope 3 emission sources	Downstream emissions are indirect GHG emissions related to sold goods and services.[455]
Normal scope 3 emission sources	The GHG Protocol's Scope 3 Standard identifies 15 distinct reporting categories for scope 3 emission sources, and requires companies to quantify and report scope 3 emissions from each category.[456]
Optional scope 3 emission sources (indirect use-phase emissions)	*Indirect use-phase emissions* are described by the GHG Protocol Scope 3 Standard[457] as an optional reporting component. In contrast to direct use-phase emissions from products, such as the energy consumption of vehicles and appliances, indirect use-phase emissions refer to the emissions that occur indirectly from the use of a product. For example, apparel requires washing and drying; soaps and detergents are often used with heated water.
Transparency (rating)	The Corporate Climate Responsibility Monitor assesses the transparency and integrity of companies' climate pledges. Transparency ratings refer to the extent to which a company publicly discloses the information necessary to fully understand the integrity of that company's approaches towards the various elements of corporate climate responsibility.
Unabated emissions	Unabated emissions are GHG emissions from emission sources for which further emission reductions are technically feasible at that point in time. (See also *residual emissions*)
Value chain emissions	A company's full value chain emissions refers to the entirety of scope 1, scope 2, and scope 3 emissions.

Companies assessed in this report

We assess 25 companies in this report. We refer to them using shortened names (see left column) but assess the company and all subsidiaries covered by the full name (see right column).

Accenture	Accenture Plc
Amazon	Amazon.com Inc.
Apple	Apple Inc.
BWM	BMW AG
Carrefour	Carrefour S.A.
CVS Health	CVS Health Corporation
Deutsche Post DHL	Deutsche Post DHL AG
Deutsche Telekom	Deutsche Telekom AG
E.ON	E.ON SE
Enel	Enel S.p.A.
GlaxoSmithKline	GlaxoSmithKline Plc
Google	Google LLC
Hitachi	K.K. Hitachi Seisakusho
IKEA	Inter IKEA Holding B.V. and Ingka Holding B.V.
JBS	JBS S.A.
Maersk	A.P. Møller-Mærsk A/S
Nestlé	Nestlé S.A.
Novartis	Novartis AG
Saint-Gobain	Compagnie de Saint-Gobain S.A.
Sony	Sony Group Corporation
Unilever	Unilever Plc
Vale	Vale S.A.
Vodafone	Vodafone Group Plc
Volkswagen Group	Volkswagen AG
Walmart	Walmart Inc.

References

- Accenture (2020) 'CDP Climate Change Response 2020'. Dublin, Ireland: Accenture. Available at: https://www.accenture.com/_acnmedia/PDF-138/Accenture-CDP-2020.pdf.

- Accenture (2021a) 'Accenture Helps Climeworks Filter More CO_2 from the Air and Inspire One Billion People to Be Climate Positive', 1 July. Available at: https://newsroom.accenture.com/news/accenture-helps-climeworks-filter-more-co2-from-the-air-and-inspire-one-billion-people-to-be-climate-positive.htm (Accessed: 18 January 2022).

- Accenture (2021b) CDP Climate Change Response 2021. Dublin, Ireland: Accenture. Available at: https://www.accenture.com/_acnmedia/PDF-166/Accenture-CDP-2021.pdf.

- Accenture (2021c) United Nations Global Compact: Communication on Progress 2020. Dublin, Ireland: Accenture. Available at: https://www.accenture.com/_acnmedia/PDF-149/Accenture-United-Nations-Global-Compact-Communication-Progress-2020.pdf#zoom=40.

- Accenture (2022a) Nature-based carbon removal. Available at: https://www.accenture.com/nl-en/about/responsible-business/nature-based-carbon-removal (Accessed: 6 January 2022).

- Accenture (2022b) United Nations Global Compact: Communication on Progress 2021. Dublin, Ireland: Accenture. Available at: https://www.accenture.com/_acnmedia/PDF-168/Accenture-United-Nations-Global-Compact-Communication-on-Progress-2021.pdf#zoom=40 (Accessed: 6 January 2022).

- Akzente (2021) CSRD. Available at: https://www.csr-berichtspflicht.de/csrd (Accessed: 1 January 2022).

- Alphabet (2021) CDP Climate Change Response. Mountain View, CA, USA: Alphabet Inc. Available at: https://www.gstatic.com/gumdrop/sustainability/alphabet-2021-cdp-climate-change-response.pdf.

- Amazon (2020) Renewable Energy Methodology. Seattle, WA, USA: Amazon. Available at: https://sustainability.aboutamazon.com/renewable-energy-methodology.pdf.

- Amazon (2021a) Amazon's custom electric delivery vehicles are starting to hit the road. Available at: https://www.aboutamazon.com/news/transportation/amazons-custom-electric-delivery-vehicles-are-starting-to-hit-the-road (Accessed: 18 January 2022).

- Amazon (2021b) Amazon Sustainability 2020 Report: Further and Faster, Together. Seattle, WA, USA: Amazon. Available at: https://sustainability.aboutamazon.com/pdfBuilderDownload?name=amazon-sustainability-2020-report.

- Amazon (2021c) Carbon Footprint: Driving Carbon Out of Our Business. Available at: https://sustainability.aboutamazon.com/environment/sustainable-operations/carbon-footprint (Accessed: 5 January 2022).

- Amazon (2021d) Carbon Neutralization and Nature-based Solutions. Seattle, WA, USA: Amazon. Available at: https://sustainability.aboutamazon.com/amazon-2021-carbon-neutralization.pdf.

- Amazon (2021e) Renewable Energy. Available at: https://sustainability.aboutamazon.com/environment/sustainable-operations/renewable-energy?energyType=true (Accessed: 5 November 2021).

- APEX (2020) 'Verification Statement Greenhouse Gas Emissions CVS Health'. Woonsocket, RI, USA: CVS Health. Available at: https://cvshealth.com/sites/default/files/cvs-health-ghg-verification-statement-2019.pdf.

- Apple (2021) Environmental Progress Report. Cupertino, CA, USA: Apple Inc. Available at: https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2021.pdf.

- Apple (2022) We're carbon neutral. And by 2030, every product you love will be too. Available at: https://www.apple.com/environment/ (Accessed: 4 January 2022).

- Atmosfair (2016) Atmosfair Flight Emissions Calculator. Berlin: Atmosfair gGmbH. Available at: https://www.atmosfair.de/wp-content/uploads/atmosfair-flight-emissions-calculator-englisch-1.pdf.

- Audi AG (2021) Audi CEO Duesmann at Berlin climate conference: accelerated transition to e-mobility. Available at: https://www.audi-mediacenter.com/en/press-releases/audi-ceo-duesmann-at-berlin-climate-conferenceaccelerated-transition-to-e-mobility-14069 (Accessed: 5 January 2022).

- BBC (2020) 'Google says its carbon footprint is now zero', BBC News, 20 September. Available at: https://www.bbc.com/news/technology-54141899.

- BMW Group (2020) BMW AG CDP Climate Change Questionnaire 2020. Munich, Germany: BMW AG. Available at: https://www.bmwgroup.com/content/dam/grpw/websites/bmwgroup_com/ir/downloads/en/2021/BMW_AG_CDP_Climate_Change_Questionnaire_2020.pdf.

- BMW Group (2021a) BMW Group Report: Our Responsibility. Our Future. Munich, Germany: BMW AG. Available at: https://www.bmwgroup.com/content/dam/grpw/websites/bmwgroup_com/ir/downloads/en/2021/bericht/BMW-Group-Bericht-2020-EN.pdf.

- BMW Group (2021b) 'Position BMW Group Balance Sheet CO_2 Neutral'. Munich, Germany: BMW AG. Available at: https://www.bmwgroup.com/content/dam/grpw/websites/bmwgroup_com/responsibility/downloads/en/2021/Position-BMW-Group-balance-sheet-CO2-neutral-below-15-grad_E.pdf.

- Boehm, S. et al. (2021) State of Climate Action 2021: Systems Transformations Required to Limit Global Warming to 1.5°C. Washington D.C, USA: World Resources Institute. Available at: https://www.wri.org/research/state-climate-action-2021.

- Braslawsky, J., Jones, T. and Sotos, M. (2016) Making credible renewable electricity usage claims. RE100, The Climate Group, CDP. Available at: https://www.there100.org/sites/re100/files/2021-02/RE100 Making Credible Claims.pdf.

- Cantzler, J. et al. (2017) Foot off the gas: increased reliance on natural gas in the power sector risks an emissions lock-in. Climate Action Tracker (Climate Analytics, Ecofys, NewClimate Institute). Available at: https://climateactiontracker.org/documents/55/CAT_2017-06-16_DecarbNaturalGas_CATAnalysis.pdf.

- Carbon Check (Pty) Ltd (2014) Saint Nikola Wind Farm. Verified Carbon Standard. Available at: https://registry.verra.org/app/projectDetail/VCS/1258.

- Carrefour (2020) Annual report 2020. Massy, France: Carrefour. Available at: https://www.carrefour.com/en/all-publica-tions.

- Carrefour (2021a) Carrefour Group Sustainability-Linked Bond Framework. Massy, France: Carrefour. Available at: https://www.carrefour.com/sites/default/files/2021-06/Carrefour - Sustainability-Linked Bond Framework %281%29.pdf.

- Carrefour (2021b) 'Carrefour sets the target of carbon neutrality by 2040', 31 October. Available at: https://www.carrefour.com/sites/default/files/2021-11/PR Carrefour sets the target of carbon neutrality by 2040.pdf.

- Carrefour (2021c) Flighting and preparing for climate change (2020 CSR Report). Massy: Carrefour. Available at: https://www.carrefour.com/en/all-publications.

- CAT (2020) Paris Agreement Compatible Sectoral Benchmarks: Elaborating the decarbonisation roadmap. Climate Action Tracker (Climate Analytics, NewClimate Institute). Available at: https://climateactiontracker.org/publications/paris-agree-ment-benchmarks/.

- Climate Action Reserve (2022) Project Setup Project Documents Project Emissions/Reductions. Available at: https://the-reserve2.apx.com/mymodule/reg/TabProjectEmissions.asp?r=111&ad=Prpt&act=update&type=PRO&aProj=pub&table-name=cr&id1=674 (Accessed: 9 January 2022).

- Climate Action Tracker (2018) 'CAT Decarbonisation Series'. Climate Action Tracker (Climate Analytics, Ecofys, NewClimate Institute). Available at: https://climateactiontracker.org/documents/353/CAT_20180522_DecarbSeries_FreightTransport.pdf (Accessed: 30 May 2018).

- ClimatePartner (2021) ClimateID Tracking: Vodafone. Available at: https://fpm.climatepartner.com/tracking/17198-2110-1004/en (Accessed: 13 January 2021).

- coZEV (2021) Leading Cargo Owners Stand Together for Maritime Decarbonization: Our Shared Ambition and Call for Policy Action. Cargo Owners for Zero Emission Vessels. Available at: https://www.cozev.org/img/FINAL-coZEV-2040-Ambi-tion-Statement_2021-10-18-145014_wfcp.pdf.

- CVS Health (2020a) 2020 Corporate Social Responsibility Report. Woonsocket, RI, USA: CVS Health. Available at: https://cvshealth.com/sites/default/files/2020-csr-report.pdf.

- CVS Health (2020b) 2020 Corporate Social Responsibility Report Appendix. Woonsocket, RI, USA: CVS Health. Available at: https://cvshealth.com/social-responsibility/corporate-social-responsibility/report-archive.

- CVS Health (2020c) Health is personal. 2020 Annual Report. Woonsocket, RI, USA: CVS Health. Available at: https://s2.q4c-dn.com/447711729/files/doc_financials/2020/ar/CVSHealth_2020AR_FINAL.pdf.

- Dagoumas, A.S. and Koltsaklis, N.E. (2017) 'Price Signal of Tradable Guarantees of Origin for Hedging Risk of Renewable Energy Sources Investments', International Journal of Energy Economics and Policy, 7(4), pp. 59–67.

- Deutsche Post DHL (2020a) Connecting People. Improving Lives. 2019 Sustainability Report. Bonn, Germany: Deutsche Post DHL. Available at: https://www.dhl.com/my-en/home/about-us/sustainability.html.

- Deutsche Post DHL (2020b) 'ESG Statbook GJ 2020'. Bonn, Germany: Deutsche Post DHL Group. Available at: https://re-porting-hub.dpdhl.com/de/2020/q4-fy/.

- Deutsche Post DHL (2021a) Climate protection projects. Available at: https://www.dpdhl.com/en/sustainability/environ-ment/green-product-portfolio/climate-protection-projects.html (Accessed: 20 December 2021).

- Deutsche Post DHL (2021b) 'Deutsche Post DHL Group führt Green Carrier Certification im Rahmen des Nachhaltigkeits-fahrplans ein', 21 December. Available at: https://www.dpdhl.com/de/presse/pressemitteilungen/2021/deutsche-post-dhl-group-fuehrt-green-carrier-certification-ein.html.

- Deutsche Post DHL (2021c) Environment: Clean operations for climate protection. Available at: https://www.dpdhl.com/en/sustainability/environment.html (Accessed: 11 January 2022).

- Deutsche Post DHL (2021d) Geschäftskunden: Unser Weg zu null Emissionen in Deutschland. Available at: https://www.dhl.de/de/geschaeftskunden/paket/rund-um-den-versand/dhl-nachhaltigkeit-gk.html#versand (Accessed: 10 January 2022).

- Deutsche Post DHL (2021e) 'Our Sustainability Roadmap'. Bonn, Germany: Deutsche Post DHL Group. Available at: https://www.dpdhl.com/content/dam/dpdhl/en/media-center/investors/documents/presentations/2021/DPDHL-Group-New-Sus-tainability-Roadmap-Presentation-2021.pdf.

- Deutsche Post DHL (2021f) Privatkunden: Unser Weg zu null Emissionen in Deutschland. Available at: https://www.dhl.de/de/privatkunden/kampagnenseiten/gogreen.html (Accessed: 10 January 2022).

- Deutsche Post DHL (2021g) Resilient: Geschäftsbericht 2020. Bonn: Deutsche Post. Available at: https://www.dpdhl.com/content/dam/dpdhl/de/media-center/investors/documents/geschaeftsberichte/DPDHL-Geschaeftsbericht-2020.pdf.

- Deutsche Post DHL (2021h) Umwelt: Grüne Lösungen für klimafreundliche Logistik. Available at: https://www.dpdhl.com/de/nachhaltigkeit/umwelt.html (Accessed: 11 January 2022).

- Deutsche Post DHL (2022a) 'CO$_2$-Emissionen bei Briefbeförderung ab 2022 automatisch ausgeglichen', 3 January. Available at: https://www.dpdhl.com/content/dam/dpdhl/de/media-relations/press-releases/2022/pm-gogreen-fuer-briefe-20220103.pdf.

- Deutsche Post DHL (2022b) Klimaschutzprojekte. Available at: https://www.dpdhl.com/de/nachhaltigkeit/umwelt/gruenes-produktportfolio/klimaschutzprojekte.html (Accessed: 10 January 2022).

- Deutsche Post DHL (2022c) Nachhaltigkeit: Unser Weg zu Null Emissionen in Deutschland. Available at: https://www.deutschepost.de/de/n/nachhaltigkeit.html (Accessed: 10 January 2022).

- Deutsche Telekom (2021a) Klimaschutz bei der Telekom. Available at: https://www.telekom.com/de/verantwortung/klima-und-umwelt/klima-und-umwelt/einfach-erklaert-klimaschutz-bei-der-telekom-608294 (Accessed: 12 January 2022).

- Deutsche Telekom (2021b) Klimastrategie, Corporate Responsibility Bericht 2020. Available at: https://www.cr-bericht.telekom.com/site21/steuerung-fakten/umwelt/klimastrategie#atn-16434-16340 (Accessed: 12 January 2022).

- Deutsche Telekom (2021c) Steuerung & Fakten: CO$_2$-Emissionen, Corporate Responsibility Bericht 2020. Available at: https://www.cr-bericht.telekom.com/site21/steuerung-fakten/umwelt/co2e-emissionen (Accessed: 12 January 2022).

- Deutsche Telekom (2021d) Steuerung & Fakten: Erneuerbare Energien, Corporate Responsibility Bericht 2020. Available at: https://www.cr-bericht.telekom.com/site21/steuerung-fakten/umwelt/erneuerbare-energien#atn-16435-7668 (Accessed: 12 January 2022).

- Deutsche Telekom (2021e) Telekom verschärft Klimaziele. Available at: https://www.telekom.com/de/medien/medieninformationen/detail/telekom-verschaerft-klimaziele-623554 (Accessed: 12 January 2022).

- Dietz, S. et al. (2021) TPI's methodology report: Management Quality and Carbon Performance (Version 4.0, November 2021). Available at: https://www.transitionpathwayinitiative.org/publications/90.pdf?type=Publication (Accessed: 13 January 2020).

- Donofrio, S. et al. (2019) 'State of the Voluntary Carbon Markets 2019'. Washington D.C: Ecosystem Marketplace. Available at: https://www.ecosystemmarketplace.com/carbon-markets/.

- Donofrio, S. et al. (2021) State of the Voluntary Carbon Markets 2021. Ecosystem Marketplace. Available at: https://www.forest-trends.org/publications/state-of-the-voluntary-carbon-markets-2021/.

- Dove (2022) Climate change. Available at: https://www.dove.com/us/en/stories/about-dove/climate-change.html (Accessed: 19 January 2022).

- E.ON SE (2020) 'Climate action: our ambition'. Essen, Germany: E.ON SE. Available at: https://www.eon.com/content/dam/eon/eon-com/Documents/en/climate-commitment/2020/climate-commitment-2020.pdf.

- E.ON SE (2021a) Annual Report 2020. Essen, Germany: E.ON SE. Available at: https://www.eon.com/content/dam/eon/eon-com/eon-com-assets/documents/investor-relations/en/annual-report/GB20_US_final_internet.pdf.

- E.ON SE (2021b) Enabling a sustainable future: 2020 Sustainability Report. Essen, Germany: E.ON SE. Available at: https://www.eon.com/content/dam/eon/eon-com/eon-com-assets/documents/sustainability/en/sustainability-report/2020/EON_2020_Sustainability_Report.pdf.

- E.ON SE (2021c) Interview on the LEAF Coalition. Available at: https://www.eon.com/en/about-us/sustainability/people/david-radermacher-interview-leaf-coalition.html (Accessed: 19 January 2022).

- E.ON SE (2021d) On course for net zero. Essen, Germany: E.ON SE. Available at: https://www.eon.com/content/dam/eon/eon-com/eon-com-assets/documents/sustainability/en/tcfd/EON_2021_On_course_for_net_zero.pdf.

- E.ON UK plc (2021) 100% renewable electricity. Available at: https://www.eonenergy.com/renewable.html (Accessed: 7 January 2022).

- Emma Dotzer (2021) A global carbon levy can accelerate push towards zero-emission shipping, Maersk Tankers. Available at: https://maersktankers.com/newsroom/a-global-carbon-levy-can-accelerate-push-towards-zero-emission-shipping (Accessed: 12 January 2022).

- Enel (2019a) Open Power for a brighter future: Integrated annual report 2020. Rome, Italy: Enel SpA. Available at: https://www.enel.com/content/dam/enel-com/documenti/investitori/informazioni-finanziarie/2020/annuali/en/integrated-annual-report_2020.pdf.

- Enel (2019b) Open Power for a brighter future: Sustainability Report 2020. Rome, Italy: Enel SpA. Available at: https://www.enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/2019/sustainability-report_2019.pdf.

- Enel (2020) Decarbonization of the energy mix. Rome, Italy: Enel SpA. Available at: https://www.enel.com/content/dam/enel-com/documenti/azienda/storie/decarbonization-energy-mix.pdf.

- Enel (2021) GHG Inventory 2020: Quantification and reporting of greenhouse gas emissions in accordance with the Corporate GHG Protocol. Rome, Italy: Enel SpA. Available at: https://www.enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/ghg-inventory-2020.pdf.

- Essentia Water (2022) Giving back. Available at: https://essentiawater.com/giving-back/ (Accessed: 19 January 2022).

- European Commission (2021) Corporate sustainability reporting. Available at: https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en (Accessed: 1 January 2022).

- Fearnside, P.M. (2016) 'Greenhouse gas emissions from Brazil's Amazonian hydroelectric dams', Environmental Research Letters, 011002. doi:10.1088/1748-9326/11/1/011002.

- Fujita, K. (2018) 'Sustainable Procurement' is Becoming a Must for Suppliers, Nikkei ESG. Tokyo, Japan. Available at: https://project.nikkeibp.co.jp/ESG/atcl/eng/news/07/ (Accessed: 18 January 2022).

- Gerber (2021) Our Path to Carbon Neutrality. Available at: https://www.gerber.com/climatejourney (Accessed: 19 January 2022).

- GHG Protocol (2015) 'An amendment to the GHG Protocol Corporate Standard GHG Protocol Scope 2 Guidance'. World Resources Institute and World Business Council for Sustainable Development. Available at: https://ghgprotocol.org/sites/default/files/Scope2_ExecSum_Final.pdf.

- GHG Protocol (2021) Update - Greenhouse Gas Protocol Carbon Removals and Land Sector Initiative. Available at: https://ghgprotocol.org/blog/update-greenhouse-gas-protocol-carbon-removals-and-land-sector-initiative (Accessed: 18 January 2022).

- Gillenwater, M. (2008) 'Redefining RECs-Part 1: Untangling attributes and offsets', Energy Policy, 36, pp. 2109–2119. doi:10.1016/j.enpol.2008.02.036.

- Google (2011) Google' s Carbon Offsets: Collaboration and Due Diligence. Google Inc. Available at: https://static.googleusercontent.com/media/www.google.com/en//green/pdfs/google-carbon-offsets.pdf.

- Google (2018) Capturing value from waste in upstate New York Sustainability. Available at: https://sustainability.google/progress/projects/landfill-NewYork/ (Accessed: 20 January 2022).

- Google (2020a) 24/7 Carbon-Free Energy: Methodologies and Metrics. Available at: https://www.gstatic.com/gumdrop/sustainability/24x7-carbon-free-energy-methodologies-metrics.pdf.

- Google (2020b) Environmental Report 2020. Available at: https://www.gstatic.com/gumdrop/sustainability/google-2020-environmental-report.pdf.

- Google (2020c) 'Our third decade of climate action: Realizing a carbon-free future', 14 September. Available at: https://blog.google/outreach-initiatives/sustainability/our-third-decade-climate-action-realizing-carbon-free-future/ (Accessed: 19 January 2022).

- Google (2020d) Realizing a Carbon-free Future Introduction. Google Inc. Available at: https://www.gstatic.com/gumdrop/sustainability/247-carbon-free-energy.pdf.

- Google (2020e) Supplier Responsibility Report 2020. Google Inc. Available at: https://www.gstatic.com/gumdrop/sustainability/google-2020-supplier-responsibility-report.pdf.

- Google (2021a) Carbon-free Energy Performance at Google Data Centers (2020). Google Inc. Available at: https://www.gstatic.com/gumdrop/sustainability/carbon-free-energy-data-centers.pdf.

- Google (2021b) Environmental report. Google Inc. Available at: https://www.gstatic.com/gumdrop/sustainability/google-2021-environmental-report.pdf.

- Google (2021c) Leading the way to a low-carbon future. Apple Inc. Available at: https://sustainability.google/reports/ (Accessed: 6 December 2021).

- Google (2021d) 'What's the difference between carbon neutrality, 100% renewable energy, and 24/7 carbon-free energy?' Google Inc. Available at: https://www.gstatic.com/gumdrop/sustainability/24-7-explainer.pdf.

- GRAIN and IATP (2018) Emissions impossible: How big meat and dairy are heating up the planet. GRAIN, Institute for Agriculture and Trade Policy. Available at: https://www.grain.org/article/entries/5976-emissions-impossible-how-big-meat-and-dairy-are-heating-up-the-planet.

- GSK (2020a) Annual Report 2020. Brentford, United Kingdom: GlaxoSmithKline plc. Available at: https://www.gsk.com/media/6662/annual-report-2020.pdf.

- GSK (2020b) 'Our pathway to reach net zero carbon by 2030'. Brentford, United Kingdom: GlaxoSmithKline plc. Available at: https://www.gsk.com/media/7180/gsk-carbon-glidepath-010921.pdf.

- GSK (2021a) Carbon. Available at: https://www.gsk.com/en-gb/responsibility/environment/carbon/ (Accessed: 12 November 2021).

- GSK (2021b) ESG Performance Summary 2020. Brentford, United Kingdom: GlaxoSmithKline plc. Available at: https://www.gsk.com/media/6636/esg-performance-summary-2020.pdf.

- Hast, A. et al. (2015) 'Review of green electricity products in the United Kingdom, Germany and Finland', Renewable and Sustainable Energy Reviews, 42, pp. 1370–1384.

- High-Level Commission on Carbon Prices (2017) Report of the High-Level Commission on Carbon Prices. Washington D.C: Carbon Pricing Leadership Coalition. Available at: https://static1.squarespace.com/static/54ff9c5ce4b0a53decccfb4c/t/59244eed17bff-c0ac256cf16/1495551740633/CarbonPricing_Final_May29.pdf.

- Hiroi, Y. (2021) 'Hitachi to eliminate greenhouse gases from supply chain by 2050', Nikkei Asia, 14 September. Available at: https://asia.nikkei.com/Spotlight/Environment/Climate-Change/Hitachi-to-eliminate-greenhouse-gases-from-supply-chain-by-2050.

- Hitachi (2021a) 'Achieving Carbon Neutrality for a Sustainable Society - Hitachi's Environment Strategy and its Work in Mobility', Hitachi Review, 70(6), pp. 13–18. Available at: https://www.hitachi.com/rev/archive/2021/r2021_06/pdf/concept.pdf (Accessed: 6 January 2022).

- Hitachi (2021b) 'Hitachi Sets New Target to Contribute to a Net Zero Society', 13 September. Available at: https://www.hitachi.com/New/cnews/month/2021/09/210913.pdf (Accessed: 6 January 2022).

- Hitachi (2021c) Hitachi Sustainability Report 2021. Tokyo, Japan: Hitachi, Ltd. Available at: https://sustainability.hitachi.com/wp-content/uploads/2021/12/en_sustainability2021-1.pdf.

- Hulshof, D., Jepma, C. and Mulder, M. (2019) 'Performance of markets for European renewable energy certificates', Energy Policy, 128, pp. 697–710. doi:10.1016/j.enpol.2019.01.051.

- IKEA (2021a) 'IKEA joins other global companies to only purchase zero emission fuels for ocean shipping by 2040', 19 October. Available at: https://gbl-sc9u2-prd-cdn.azureedge.net/-/media/aboutikea/newsroom/documents/press-releaseikea-joins-other-global-companies-to-only-purchase-zero-emission-fuels-for-ocean-shippi.pdf?rev=ef79e6e7428f464c83cbe2e94e8ad721.

- IKEA (2021b) IKEA Sustainability Report FY2020. Delft, the Netherlands: Inter IKEA Systems B.V. Available at: http://www.ikea.com/ms/nl_BE/media/pdf/sustainability_report/FY13_group.pdf.

- IKEA (2022a) Becoming climate positive: IKEA Climate Report FY21. Delft, the Netherlands: Inter Ikea Systems B.V. Available at: https://gbl-sc9u2-prd-cdn.azureedge.net/-/media/aboutikea/newsroom/publications/documents/ikea-climate-report-fy21.pdf?rev=0444f85efa814cf2841ad681fd00b533&hash=0C0AEC1C90969A4F957E47CB0D2A9162.

- IKEA (2022b) IKEA Sustainability Report FY21. Delft, the Netherlands: Inter IKEA Systems B.V. Available at: https://gbl-sc9u2-prd-cdn.azureedge.net/-/media/aboutikea/newsroom/publications/documents/ikea-sustainability-report-fy21.pdf?rev=f47eec47b58e-40b99918ca50053c6d63&hash=173CF231B7A8F6E036BD4BF0145ABD30.

- Inajima, T. and Stapczynski, S. (2021) 'Japan's Hitachi Sets 2050 Net-Zero Target, In Line With Rivals', Bloomberg Green, 13 September. Available at: https://www.bloomberg.com/news/articles/2021-09-13/japan-s-hitachi-sets-2050-net-zero-target-in-line-with-rivals.

- Innovate4 Climate (2021) Avoiding a Demand & Supply Mismatch: What do buyers really expect from the voluntary carbon market? Available at: https://www.innovate4climate.com/webinar/avoiding-demand-supply-mismatch-what-do-buyers-really-expect-voluntary-carbon-market (Accessed: 5 January 2022).

- JBS (2020) Annual and Sustainability Report. São Paulo, Brazil: JBS S.A. Available at: https://jbs.com.br/wp-content/uploads/2020/08/RAS_JBS_2019_ENG_final_2.pdf.

- JBS (2021a) JBS is committing to be Net Zero by 2040. Available at: https://jbs.com.br/netzero/en/ (Accessed: 20 January 2022).

- JBS (2021b) JBS Net Zero 2040 - Strategies. Available at: https://jbs.com.br/netzero/en/strategies/ (Accessed: 20 January 2022).

- JBS (2021c) JBS Net Zero 2040 - What we are already doing. Available at: https://jbs.com.br/netzero/en/what-we-are-already-doing/ (Accessed: 20 January 2022).

- JBS (2021d) 'JBS USA Invests in U.S. Beef Capacity and Permanently Increased Wages', 9 June. Available at: https://jbsfoodsgroup.com/articles/jbs-usa-invests-in-u-s-beef-capacity-and-permanent-increased-wages.

- JBS (2021e) Sustainability Report - Environmental, Social and Governance. São Paulo, Brazil: JBS SA. Available at: https://api.mziq.com/mzfilemanager/v2/d/043a77e1-0127-4502-bc5b-21427b991b22/58af758c-29c6-a394-0447-b6eb48fc518c?origin=1.

- Kantar World Panel (2021) Brand Footprint 2021 - A global ranking of the most chosen consumer brands. London, United Kingdom: Kantar Group. Available at: https://kantar.turtl.co/story/brand-footprint-2021-p/page/1.

- Konsumentverket (2021) KO stämmer Arla för netto noll-reklam. Available at: https://www.konsumentverket.se/aktuellt/nyheter-och-pressmeddelanden/pressmeddelanden/2021/ko-stammer-arla-for-netto-noll-reklam/ (Accessed: 20 January 2022).

- Lazarus, O., McDermid, S. and Jacquet, J. (2021) 'The climate responsibilities of industrial meat and dairy producers', Climatic Change, 165, 30. doi:10.1007/s10584-021-03047-7.

- Lilliston, B. (2021) 'Behind the curtain of the JBS net zero pledge'. Institute for Agriculture & Trade Policy (IATP). Available at: https://www.iatp.org/documents/behind-curtain-jbs-net-zero-pledge (Accessed: 20 December 2021).

- Maersk (2019) 2018 Sustainability Report. Copenhagen: A.P. Møller - Mærsk A/S. Available at: https://www.maersk.com/about/sustainability/reports.

- Maersk (2021a) 2020 Sustainability Report. Copenhagen, Denmark: A.P Møller - Mærsk A/S. Available at: https://www.maersk.com/about/sustainability/reports.

- Maersk (2021b) 'A.P. Moller - Maersk accelerates fleet decarbonisation with 8 large ocean-going vessels to operate on carbon neutral methanol', 24 August. Available at: https://www.maersk.com/news/articles/2021/08/24/maersk-accelerates-fleet-decarbonisation (Accessed: 12 January 2022).

- Maersk (2021c) 'Maersk invests in electrofuels startup company', 23 September. Available at: https://www.maersk.com/news/articles/2021/09/23/maersk-investment-in-electrofuels-startup-company (Accessed: 12 January 2022).

- Maersk (2021d) 'Maersk invests in Vertoro to develop green lignin marine fuels', 14 October. Available at: https://www.maersk.com/news/articles/2021/10/14/maersk-invests-in-vertoro-to-develop-green-lignin-marine-fuels (Accessed: 12 January 2022).

- Maersk (2021e) 'Maersk invests in WasteFuel to develop green bio-methanol production in the Americas and Asia', 8 September. Available at: https://www.maersk.com/news/articles/2021/09/08/maersk-invests-in-wastefuel-to-develop-green-bio-methanol (Accessed: 12 January 2022).

- Maersk (2021f) Maersk secures green e-methanol for the world's first container vessel operating on carbon neutral fuel. Available at: https://www.maersk.com/news/articles/2021/08/18/maersk-secures-green-e-methanol (Accessed: 12 January 2022).

- Maersk (2022a) A.P. Moller - Maersk accelerates Net Zero emission targets to 2040 and sets milestone 2030 targets. Available at: https://www.maersk.com/news/articles/2022/01/12/apmm-accelerates-net-zero-emission-targets-to-2040-and-sets-milestone-2030-targets (Accessed: 12 January 2022).

- Maersk (2022b) Setting the bar to net zero emissions for our customers and planet. Available at: https://www.maersk.com/news/articles/2022/01/12/setting-the-bar-to-net-zero-emissions (Accessed: 12 January 2022).

- Milne, R. (2022) 'Maersk accelerates net zero push in journey to cleaner shipping', Financial Times, 12 January. Available at: Maersk accelerates net zero push in journey to cleaner shipping.

- Mindful Chef (2020) Carbon Report. London, United Kingdom: Mindful Chef. Available at: https://www.mindfulchef.com/blog/wp-content/uploads/2020/12/MC_Carbon-report_2020_FINAL-1-2.pdf.

- Ministry of Energy of Chile (2013) Ley núm. 20.698: Propicia la amplación de la aatriz energética, mediante fuentes renovables no convencionales. Biblioteca del Congreso Nacional de Chile. Available at: https://www.bcn.cl/leychile/navegar?idNorma=1055402.

- Mulder, M. and Zomer, S.P.E. (2016) 'Contribution of green labels in electricity retail markets to fostering renewable energy', Energy Policy, 99, pp. 100–109.

- Nescafé (2020) Made Respectfully. Available at: https://www.nescafe.com/cup-of-respect/made-respectfully (Accessed: 19 December 2021).

- Nestlé (2021a) 'Nestlé's Net Zero Roadmap'. Vevey, Switzerland: Nestlé S.A. Available at: https://www.nestle.com/sites/default/files/2020-12/nestle-net-zero-roadmap-en.pdf.

- Nestlé (2021b) Rethinking our operations. Available at: https://www.nestle.com/csv/global-initiatives/zero-environmental-impact/climate-change-net-zero-roadmap/operations (Accessed: 6 January 2022).

- NewClimate Institute (2020) Our climate responsibility approach - A new approach for organisations to take responsibility for their climate impact. Cologne: NewClimate Institute. Available at: https://newclimate.org/climateresponsibility.

- NewClimate Institute (2022) Corporate climate responsibility: Guidance and assessment criteria for good practice corporate emission reduction and net-zero targets. Version 1.0. Available at: https://newclimate.org/publications/.

- NewClimate Institute and Data-Driven EnviroLab (2020) Navigating the nuances of net-zero targets. Thomas Day, Silke Mooldijk and Takeshi Kuramochi (NewClimate Institute) and Angel Hsu, Zhi Yi Yeo, Amy Weinfurter, Yin Xi Tan, Ian French, Vasu Namdeo, Odele Tan, Sowmya Raghavan, Elwin Lim, and Ajay Nair (Data-Driven EnviroLab). Available at: https://newclimate.org/2020/10/22/navigating-the-nuances-of-net-zero-targets/.

- Novartis (2017) Novartis Carbon-Sink Forestry Projects. Basel, Switzerland: Novartis AG. Available at: https://www.novartis.com/sites/www.novartis.com/files/novartis-carbon-sink-forestry-projects.pdf.

- Novartis (2020a) 'Novartis - Climate Change 2020'. Basel, Switzerland: Novartis AG. Available at: https://www.novartis.com/sites/novartis_com/files/cdp-2020-climate-change-information-request-response.pdf.

- Novartis (2020b) Novartis Environmental Sustainability and Occupational Health and Safety Data Supplement. Basel, Switzerland: Novartis AG.

- Novartis (2020c) Novartis in Society: ESG Report 2020. Basel, Switzerland: Novartis AG. Available at: https://www.novartis.com/sites/novartis_com/files/novartis-in-society-report-2020.pdf.

- Novartis (2020d) 'Novartis set to achieve 100% renewable electricity in its European operations', 19 November. Available at: https://www.novartis.com/news/media-releases/novartis-set-achieve-100-renewable-electricity-its-european-operations (Accessed: 11 November 2021).

- Novartis (2021a) Climate. Available at: https://www.novartis.com/esg/environmental-sustainability/climate (Accessed: 10 January 2022).

- Novartis (2021b) 'Green Expectations from Suppliers'. Basel, Switzerland: Novartis AG. Available at: https://www.novartis.com/sites/novartis_com/files/novartis-green-expectations-from-suppliers.pdf.

- Novartis (2021c) 'Health, Safety and Environment (HSE) Data 2020'. Basel, Switzerland: Novartis AG. Available at: https://www.novartis.com/sites/novartis_com/files/novartis-hse-data-2020.pdf.

- Novartis (2021d) Novartis Environmental Sustainability Strategy. Basel, Switzerland: Novartis AG. Available at: https://www.novartis.com/sites/novartis_com/files/novartis-environmental-sustainability-strategy.pdf.

- Öko-Institut, WWF-US and EDF (2021) Methodology for assessing the quality of carbon credits. Carbon Credit Quality Initiative. Available at: https://carboncreditquality.org/download/MethodologyForAssessingTheQualityOfCarbonCredits.pdf.

- Pavlenko, N. et al. (2020) The climate implications of using LNG as a marine fuel. International Council on Clean Transportation. Available at: https://theicct.org/sites/default/files/publications/LNG as marine fuel%2C working paper-02_FINAL_20200416.pdf.

- Penchienati-Bosetta, V. (2020) Universal Registration Document, Annual Report - Universal Registration Document. Saint-Gobain S.A. Available at: https://www.saint-gobain.com/sites/saint-gobain.com/files/sgo2020_urd_en_mel_210326.pdf.

- Prem, M. and Schmidtutz, T. (2021) 'Exklusiv: VW will sich bis 2035 in Europa von Verbrennern verabschieden', Merkur.de, 29 June. Available at: https://www.merkur.de/wirtschaft/vw-marke-verbrenner-ausstieg-diesel-benziner-em-uefa-arena-zellmer-interview-volkswagen-wolfsburg-zr-90826056.html.

- Ready Refresh (2021) Walking the Talk by Leaving a Smaller Footprint. Available at: https://www.readyrefresh.com/en/carbon-neutrality (Accessed: 19 December 2021).

- Reclame Code Commissie (2021) Dossiernummer: 2021/00190. Available at: https://www.reclamecode.nl/uitspraken/shell/vervoer-2021-00190/304997/ (Accessed: 18 January 2022).

- Rogelj, J. et al. (2018) 'Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development', in Masson-Delmotte, V. et al. (eds) Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Available at: https://www.ipcc.ch/site/assets/uploads/sites/2/2019/02/SR15_Chapter2_Low_Res.pdf.

- Russell, S. (2019) Estimating and reporting the comparative emissions impacts of products. Washington: World Resources Institute. Available at: https://ghgprotocol.org/sites/default/files/standards/18_WP_Comparative-Emissions_final.pdf.

- S&P Global (2021) 'Enel to get out of gas by 2050, says carbon capture "will not solve the problem"', 29 January. Available at: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/enel-to-get-out-of-gas-by-2050-says-carbon-capture-will-not-solve-the-problem-62378510.

- Saint-Gobain (2019) Universal Registration Document 2019. Available at: https://www.saint-gobain.com/en/news/2019-universal-registration-document.

- Saint-Gobain (2020a) '2020 Integrated Report'. Saint-Gobain S.A. Available at: https://www.saint-gobain.com/sites/saint-gobain.com/files/ri20_sg_230621_va_bd_0.pdf.

- Saint-Gobain (2020b) 'Press release: Saint-Gobain Sets Out Its CO_2 Roadmap Towards Carbon Neutrality By 2050', 12 November. Available at: http://sgr-paris.saint-gobain.com/sites/sgcom.master/files/20201112_roadmap_net_zero_carbon_va.pdf.

- Saint-Gobain (2020c) 'Saint-Gobain carbon neutrality: leading towards sustainable Building & Industry'. Saint-Gobain S.A. Available at: http://sgr-paris.saint-gobain.com/sites/sgcom.master/files/20201112_roadmap_net_zero_carbon_va.pdf.

- Saint-Gobain (2020d) Saint-Gobain CDP Climate Change Questionnaire 2020. Saint-Gobain S.A. and CDP. Available at: https://www.saint-gobain.com/sites/saint-gobain.com/files/cdp_cc_2020_final_sans_sc.pdf.

- Saint-Gobain (2021a) Net Zero Carbon - Our Methodology. Available at: https://www.saint-gobain.com/en/group/net-zero-carbon/our-methodology (Accessed: 11 December 2021).

- Saint-Gobain (2021b) Net Zero Carbon - Success Stories. Available at: https://www.saint-gobain.com/en/group/net-zero-carbon/success-stories (Accessed: 11 December 2021).

- Saint-Gobain (2021c) 'Saint-Gobain in North America Enters Into a Purchase Agreement for Sustainable Energy', 22 March. Available at: https://www.saint-gobain.com/sites/saint-gobain.com/files/20210322_us_wind_mill_farm_va.pdf.

- SBTi (2020) Setting 1.5°C-aligned science-based targets: Quick start guide for electric utilities. Available at: https://sciencebasedtargets.org/resources/files/SBTi-Power-Sector-15C-guide-FINAL.pdf.

- SBTi (2021a) Companies taking action. Science Based Targets initiative. Available at: https://sciencebasedtargets.org/companies-taking-action (Accessed: 23 December 2021).

- SBTi (2021b) SBTi Corporate Net-Zero Standard, Version 1.0. Science Based Targets Initative (SBTi); CDP; United Nations Global Compact; World Ressources Institute (WRI); World Wide Fund for Nature (WWF). Available at: https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf.

- SBTi (2021c) 'SBTi launches world-first net-zero corporate standard', 28 October. Available at: https://sciencebasedtargets.org/news/sbti-launches-world-first-net-zero-corporate-standard.

- SGS (2021) 'DPDHL Group SGS Verification'. Deutsche Post DHL. Available at: https://www.dpdhl.com/content/dam/dpdhl/en/media-center/responsibility/dpdhl-group-sgs-verification-one-page-statement-03-2021.pdf.

- Sony (2020) Sustainability Report 2020. Tokyo, Japan: Sony Group Corporation. Available at: https://www.sony.com/en/SonyInfo/csr/library/reports/SustainabilityReport2020_E.pdf.

- Sony (2021) Sustainability Report 2021. Tokyo, Japan: Sony Group Corporation. Available at: https://www.sony.com/en/SonyInfo/csr/library/reports/SustainabilityReport2021_E.pdf.

- Starbucks (2020) Starbucks Sustainability Timeline. Available at: https://stories.starbucks.com/stories/2020/starbucks-sustainability-timeline/ (Accessed: 19 January 2022).

- Storch, H. Von (2021) 'Mission 2050 - Deutsche Post DHL's path to carbon neutral logistics'. Deutsche Post DHL Group. Available at: https://meetingorganizer.copernicus.org/DKT-12/DKT-12-69.html.

- Sure Deodorant (2021) All about our action on climate change. Available at: https://www.suredeodorant.co.uk/planet/climate-change-commitments/ (Accessed: 20 January 2022).

- Tagesschau (2021) 'Für Verzicht auf Flüge: Post will mehr Zeit für Briefzustellung', tagesschau.de, 17 December. Available at: https://www.tagesschau.de/wirtschaft/verbraucher/deutsche-post-klimaschutz-briefpost-transportflieger-co2-dauer-101.html (Accessed: 10 January 2022).

- UNFCCC (2021a) Race to Zero Breakthroughs: Transforming Our Systems Together. A global challenge to accelerate sector breakthroughs for COP26 – and beyond. United Nations Framework Convention on Climate Change. Available at: https://racetozero.unfccc.int/wp-content/uploads/2021/02/Race-to-Zero-Breakthroughs-Transforming-Our-Systems-Together.pdf.

- UNFCCC (2021b) Race To Zero Campaign. Available at: https://unfccc.int/climate-action/race-to-zero-campaign (Accessed: 18 January 2022).

- UNFCCC CDM Registry (2022) Project 6985 : El Arrayán Wind Farm Project. Available at: https://cdm.unfccc.int/Projects/DB/DNV-CUK1344922336.89/view?cp=1 (Accessed: 14 January 2022).

- Unilever (2019) 'Unilever achieves 100% renewable electricity across five continents'. London, United Kingdom: Unilever PLC. Available at: https://www.unilever.com/news/press-and-media/press-releases/2019/unilever-achieves-100-per-cent-renewable-electricity-across-five-continents/ (Accessed: 6 January 2022).

- Unilever (2020a) 'Unilever PLC CDP Climate Change Questionnaire 2020'. London, United Kingdom: Unilever PLC. Available at: https://assets.unilever.com/files/92ui5egz/production/d220e868b5c9e3effebdd24f3e372f455ce8dbbe.pdf/unilever-cdp-climate-2020.pdf.

- Unilever (2020b) 'Unilever sets out new actions to fight climate change, and protect and regenerate nature, to preserve resources for future generations', 15 June. Available at: https://www.unilever.com/news/press-and-media/press-releases/2020/unilever-sets-out-new-actions-to-fight-climate-change-and-protect-and-regenerate-nature-to-preserve-resources-for-future-generations/.

- Unilever (2021a) Climate Action Transition Plan. London, United Kingdom: Unilever PLC. Available at: https://assets.unilever.com/files/92ui5egz/production/e9b9909cdc75cc67f8614af1c6accaba92e361e5.pdf/unilever-climate-transition-action-plan.pdf.

- Unilever (2021b) 'Scope and boundaries of reporting: Unilever's Basis of Preparation 2020'. London, United Kingdom: Unilever PLC. Available at: https://www.unilever.com/planet-and-society/sustainability-reporting-centre/scope-and-boundaries-of-reporting/.

- Unilever (2021c) Sustainability performance data. Planet: Climate action. Unilever PLC. Available at: https://www.unilever.com/planet-and-society/sustainability-reporting-centre/sustainability-performance-data/ (Accessed: 6 January 2022).

- United Kingdom et. al (2021) COP26 declaration on accelerating the transition to 100% zero emission cars and vans. Available at: https://www.gov.uk/government/publications/cop26-declaration-zero-emission-cars-and-vans/cop26-declaration-on-accelerating-the-transition-to-100-zero-emission-cars-and-vans (Accessed: 5 January 2022).

- Vale (2020) Vale announces target to reduce client and supplier emissions by 15% by 2035. Available at: http://www.vale.com/EN/aboutvale/news/Pages/Vale-announces-target-to-reduce-client-and-supplier-emissions-by-15-by-2035.aspx (Accessed: 13 January 2022).

- Vale (2021a) Integrated Report 2020. Rio de Janeiro, Brazil: Vale S.A. Available at: http://www.vale.com/EN/sustainability/integrated-reporting-2020/Pages/default.aspx.

- Vale (2021b) Sustainability: Net Zero. Available at: http://www.vale.com/brasil/EN/sustainability/Pages/carbonneutral.aspx (Accessed: 12 January 2022).

- Vale (2021c) Sustainability: Net Zero. Available at: http://www.vale.com/brasil/EN/sustainability/Pages/carbonneutral.aspx (Accessed: 12 January 2022).

- Vale (2021d) 'Vale ESG Webinar: Climate Change'. Vale S.A. Available at: https://api.mziq.com/mzfilemanager/v2/d/53207d1c-63b4-48f1-96b7-19869fae19fe/3d8ee145-eb91-0729-70d1-30b4e6403a76?origin=1.

- Vodafone (2020a) ESG Addendum 2020. Newbury, England: Vodafone Group Plc. Available at: https://www.vodafone.com/content/dam/vodcom/sustainability/pdfs/esg-addendum2020.pdf.

- Vodafone (2020b) Vodafone commits to net zero carbon emissions by 2040. Available at: https://www.vodafone.com/news/press-release/vodafone-commits-to-net-zero-carbon-emissions-by-2040 (Accessed: 17 December 2021).

- Vodafone (2021a) Annual Report 2021. Vodafone Group Plc. Available at: https://www.vodafone.com/content/annualreport/annual_report14/downloads/strategic_report.pdf.

- Vodafone (2021b) Reducing emissions in our operations. Available at: https://www.vodafone.com/sustainable-business/our-purpose-pillars/planet/reducing-emissions-in-our-operations (Accessed: 13 January 2022).

- Vodafone (2021c) Reducing scope 3 emissions. Available at: https://www.vodafone.com/sustainable-business/our-purpose-pillars/planet/reducing-scope-3-emissions (Accessed: 13 January 2022).

- Vodafone (2021d) Vodafone's approach to renewable electricity. Newbury, England: Vodafone Group Plc. Available at: https://www.vodafone.com/sites/default/files/2021-08/vodafone-approach-renewable-electricity.pdf.

- Vodafone (2021e) Zusammen GigaGreen. Available at: https://www.vodafone.de/business/digitalisierung/greenbusiness/ (Accessed: 13 January 2022).

- VodafoneZiggo (2020) Impact Report 2020. VodafoneZiggo. Available at: https://impactreport2020.vodafoneziggo.nl/downloads/.

- VodafoneZiggo (2021) Duurzame doelen VodafoneZiggo dragen bij aan klimaatakkoord Parijs. Available at: https://www.vodafoneziggo.nl/nieuws/duurzame-doelen-vodafoneziggo-dragen-bij-aan-klimaatakkoord-parijs/ (Accessed: 13 January 2022).

- Volkswagen (2019) Borneo, Green Energy & Co.: What Volkswagen is doing for the environment. Available at: https://www.volkswagenag.com/en/news/stories/2019/12/what-volkswagen-is-doing-for-the-environment.html (Accessed: 5 January 2022).

- Volkswagen (2021) Volkswagen Aktiengesellschaft: Sustainability Report 2020. Wolfsburg, Germany: Volkswagen AG. Available at: https://www.volkswagenag.com/presence/nachhaltigkeit/documents/sustainability-report/2020/Nonfinancial_Report_2020_e.pdf.

- Volkswagen (2022a) 29 Climate measures of the Volkswagen Group. Available at: https://www.volkswagenag.com/en/news/stories/2021/05/29-climate-measures-of-the-volkswagen-group.html# (Accessed: 12 January 2022).

- Volkswagen (2022b) Manufacturing. Available at: https://www.volkswagenag.com/en/sustainability/environment/manufacturing.html (Accessed: 5 January 2022).

- Walmart (2020a) Frequently asked questions. Bentonville, United States of America. Available at: https://corporate.walmart.com/media-library/document/frequently-asked-questions/_proxyDocument?id=00000174-add4-dcf3-a7fc-afd4d41f0000.

- Walmart (2020b) Walmart, Inc. CDP Climate Change Questionnaire 2020. Walmart Inc. and CDP. Available at: https://corporate.walmart.com/esgreport/media-library/document/walmart-inc-cdp-climate-change-questionnaire-2020-wednesday-september-30-2020/_proxyDocument?id=0000017a-5896-de8c-a17a-7ab7a1b40000.

- Walmart (2021a) Climate change. Available at: https://corporate.walmart.com/esgreport/esg-issues/climate-change (Accessed: 5 January 2022).

- Walmart (2021b) Project Gigaton FAQs. Available at: https://www.walmartsustainabilityhub.com/climate/project-gigaton/faqs (Accessed: 6 January 2022).

- Walmart (2022) Project Gigaton. Available at: https://www.walmartsustainabilityhub.com/climate/project-gigaton (Accessed: 6 January 2022).

- Warnecke, C. et al. (2017) Vulnerability of CDM projects for discontinuation of mitigation activities: Assessment of project vulnerability and options to support continued mitigation. Cologne: NewClimate Institute. Available at: https://newclimate.org/2017/05/11/vulnerability-of-cdm-projects-for-discontinuation-of-mitigation-activities/.

- WBCSD and WRI (2004) The GHG Protocol Corporate Accounting and Reporting Standard. Geneva and New York: World Resources Institute and World Business Council for Sustainable Development. Available at: https://ghgprotocol.org/corporate-standard.

- Wittels, J. (2021) 'Maersk Seeks $150-a-Ton Carbon Tax on Shipping Fuel', Bloomberg, 2 June. Available at: https://www.bloomberg.com/news/articles/2021-06-02/shipping-giant-maersk-seeks-150-a-ton-carbon-tax-on-ship-fuel.

- Wragg, E. (2021) HSBC revamps Walmart sustainable SCF programme with science-based targets, Global Trade Review. Available at: https://www.gtreview.com/news/sustainability/hsbc-revamps-walmart-sustainable-scf-programme-with-science-based-targets/ (Accessed: 6 January 2022).

- WRI and WBCSD (2011) Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. World Resources Institute and World Business Council for Sustainable Development. Available at: https://ghgprotocol.org/standards/scope-3-standard.

- WRI and WBCSD (2013) Technical Guidance for Calculating Scope 3 Emissions. World Resources Institute, World Business Council for Sustainable Development. Available at: http://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope3_Calculation_Guidance_0.pdf (Accessed: 6 June 2019).

- WWF and BCG (2020) Beyond Science-Based Targets: A Blueprint for Corporate Action on Climate and Nature. World Wide Fund For Nature, Gland, Switzerland and Boston Consulting Group, Boston MA, USA. Available at: https://wwfint.awsassets.panda.org/downloads/beyond_science_based_targets___a_blueprint_for_corporate_action_on_climate_and_nature.pdf.

Endnotes

1. (Rogelj et al., 2018)

2. (UNFCCC, 2021b)

3. (NewClimate Institute and Data-Driven EnviroLab, 2020)

4. (Rogelj et al., 2018)

5. (NewClimate Institute, 2022)

6. (NewClimate Institute, 2022)

7. (GHG Protocol, 2015)

8. (WRI and WBCSD, 2013)

9. The inclusion of non-mandatory scope 3 emissions is not always constructive. Indirect use-phase emissions are described by the GHG Protocol Scope 3 Standard as an optional reporting component. In contrast to direct use-phase emissions from products, such as the energy consumption of vehicles and appliances, indirect use-phase emissions refer to the emissions that occur indirectly from the use of a product. For example, apparel requires washing and drying, soaps and detergents are often used with heated water. While there are circumstances where it could be constructive to report on these emissions and include them in targets, special care should be taken in determining when it is appropriate to do so: if these emissions constitute a major portion of a product's footprint and the company has no control or influence on potential emission reductions, then reporting on these emissions can also lead to distraction from the company's mandatory emission scope, or targets can be disingenuous.

10. (NewClimate Institute, 2022)

11. (Lilliston, 2021)

12. (Rogelj et al., 2018)

13. (Rogelj et al., 2018)

14. (NewClimate Institute, 2022)

15. (NewClimate Institute, 2022)

16. The inclusion of non-mandatory scope 3 emissions is not always constructive. See section 1.1.

17. (SBTi, 2021b)

18. (CAT, 2020; Dietz et al., 2021; SBTi, 2021b; UNFCCC, 2021a; Boehm et al., 2021)

19. (NewClimate Institute, 2022)

20. (NewClimate Institute, 2022)

21. (2020)

22. (Gillenwater, 2008; Mulder and Zomer, 2016; Dagoumas and Koltsaklis, 2017)

23. (Hast et al., 2015)

24. (Hulshof, Jepma and Mulder, 2019)

25. (NewClimate Institute, 2022)

26. (Braslawsky, Jones and Sotos, 2016)

27. (NewClimate Institute, 2022)

28. (NewClimate Institute, 2022)

29. (NewClimate Institute, 2022)

30. (WWF and BCG, 2020)

31. (Öko-Institut, WWF-US and EDF, 2021)

32. (NewClimate Institute, 2022)

33. (Rogelj et al., 2018)

34. A6.4ER credits refer to authorised emission reduction credits established under Article 6.4 of the Paris Agreement.

35. (Donofrio et al., 2019)

36. (High-Level Commission on Carbon Prices, 2017)

37. (NewClimate Institute, 2022)

38. (Reclame Code Commissie, 2021)

39. (Konsumentverket, 2021)

40. (UNFCCC, 2021b)

41. (SBTi, 2021b)

42. (WRI and WBCSD, 2011)

43. (Nestlé, 2021a)

44. (GHG Protocol, 2021)

45. (European Commission, 2021; Akzente, 2021)

46. Based on data from the Fortune-500 list

47. In each case, we assess the highest-level business entity that has made a high-profile climate change mitigation pledge. In most cases, this is the parent-level holding company. In some cases, the company with the climate pledge is a major brand or subsidiary of the holding company. For example, Google – which accounts for 98% of the revenue of holding company Alphabet – makes a high-profile climate pledge and is assessed in this report; we assess the brand IKEA, which makes high-profile climate pledges that are adopted by both Inter IKEA Systems and Ingka Group, who own and franchise the brand.

48. Some overlap in emission statistics is possible in the cases that one company's scope 3 emissions are included in the scope 1 or 2 emissions of another company in this analysis. While we have not carried out detailed analysis of any overlaps, we anticipate any that do exist are marginal and of limited significance. Rather, the emissions covered by the companies is likely to be significantly higher than this estimate, due to some companies' incomplete reporting of their GHG emission footprint. We use 2019 emissions as a base year for analytical purposes, as the most recent year with complete GHG reporting before the COVID-19 pandemic distorted emission trends.

49. (NewClimate Institute, 2022)

50. (Accenture, 2020; 2021b; 2021a; 2022b)

51. Accenture, 2021c; 2021b)

52. (Accenture, 2022b; 2022a)

53. (Accenture, 2021a)

54. (Accenture, 2021b)

55. (Accenture, 2020; 2021b)

56. (Amazon, 2020; 2021d; 2021e; 2021c; 2021a; 2021b)

57. (Amazon, 2021b, p. 111)

58. (Amazon, 2021c)

59. (Amazon, 2021b, p. 12)

60. (Amazon, 2021d)

61. (Amazon, 2021b, p. 21)

62. (Amazon, 2021b, p. 118)

63. (Amazon, 2021b, p. 33)

64. (coZEV, 2021)

65. (Amazon, 2021b, p. 30)

66. (Amazon, 2021e)

67. (Amazon, 2020)

68. (Amazon, 2021e)

69. (Amazon, 2021b)

70. (Apple, 2021; SBTi, 2021a; Apple, 2022)

71. (Apple, 2021)

72. (Apple, 2022)

73. (Apple, 2021, p. 28)

74. (Apple, 2021, p. 9)

75. (SBTi, 2021a)

76. (Apple, 2021, p. 20)

77. (Apple, 2021, p. 21)

78. (Apple, 2021, p. 89)

79. (Fujita, 2018; Apple, 2021, pp. 15–27)

80. (Apple, 2022)

81. (Apple, 2021, p. 67)

82 (Apple, 2021, pp. 28–29)

83 (Apple, 2021, p. 28)

84 (BMW Group, 2020; 2021a; 2021b)

85 (CAT, 2020)

86 (BMW Group, 2021a, p. 44)

87 (BMW Group, 2021a, pp. 47–48)

88 (BMW Group, 2021a, p. 344)

89 (CAT, 2020, p. 27)

90 (United Kingdom et. al, 2021)

91 (BMW Group, 2021a, p. 344)

92 (BMW Group, 2021a, p. 344)

93 (BMW Group, 2020, pp. 73–84)

94 (BMW Group, 2021a, p. 344)

95 (BMW Group, 2021a, p. 99)

96 (BMW Group, 2020, p. 100)

97 (BMW Group, 2021a, p. 95)

98 (BMW Group, 2021b)

99 (Innovate4 Climate, 2021)

100 (BMW Group, 2021a, p. 344)

101 (Carrefour, 2020; 2021c; 2021b; 2021a)

102 (Carrefour, 2021c)

103 (Carrefour, 2021c; 2021b)

104 (Carrefour, 2020; 2021c)

105 (Carrefour, 2020; 2021c)

106 (Carrefour, 2021c)

107 (Carrefour, 2020)

108 (Carrefour, 2021c)

109 (Carrefour, 2021c)

110 (Carrefour, 2021a)

111 (Carrefour, 2021c)

112 (Carrefour, 2021c)

113 (Carrefour, 2021c)

114 (Carrefour, 2021c)

115 (Carrefour, 2021b)

116 (Carrefour, 2021a)

117 (CVS Health, 2020a; 2020b; 2020c; SBTi, 2021a; 2021c)

118 (SBTi, 2021c)

119 (SBTi, 2021a)

120 (CVS Health, 2020b, pp. 33–34)

121 (SBTi, 2021a)

122 (CVS Health, 2020b, p. 34)

123 (CVS Health, 2020b, pp. 33–34)

124 (CVS Health, 2020c, p. 114)

125 (CVS Health, 2020b, pp. 33–34)

126 (CVS Health, 2020b, pp. 33–34; SBTi, 2021c)

127 (APEX, 2020, p. 1)

128 (CVS Health, 2020b, p. 33)

129 (CVS Health, 2020c, p. 114)

130 (CVS Health, 2020c, p. 107)

131 (CVS Health, 2020c)

132 (Deutsche Post DHL, 2020b; 2021f; 2021e; 2021a; 2022b)

133 (SGS, 2021)

134 (Deutsche Post DHL, 2022c)

135 (Tagesschau, 2021)

136 (Deutsche Post DHL, 2021b)

137 (Deutsche Post DHL, 2021b)

138 (Deutsche Post DHL, 2020b)

139 (Deutsche Post DHL, 2020b)

140 Market-based scope 2 emissions are 0.48 MtCO2e lower than location-based emissions. Using the market-based accounting method, Deutsche Post DHL's emissions amount to 38.62 MtCO2e.

141 (Deutsche Post DHL, 2021e)

142 (Deutsche Post DHL, 2021g, p. 49; 2021c; 2021h; Storch, 2021)

143 (Deutsche Post DHL, 2020a, p. 105)

144 (Deutsche Post DHL, 2021h)

145 (Deutsche Post DHL, 2020a, p. 86)

146 (Deutsche Post DHL, 2021f)

147 (Deutsche Post DHL, 2022a)

148 (Deutsche Post DHL, 2021f; 2021d)

149 (Deutsche Post DHL, 2020b; SGS, 2021)

150 (Deutsche Post DHL, 2021a)

151 (Deutsche Post DHL, 2021a) Note that Deutsche Post DHL selected a different set of companies in the year 2022 and that these are mentioned on most recent update of the website.

152 (Deutsche Post DHL, 2021a)

153 (Deutsche Post DHL, 2021a)

154 (Deutsche Telekom, 2021c; 2021b; 2021d; 2021a; 2021e)

155 (Deutsche Telekom, 2021c)

156 (Deutsche Telekom, 2021c)

157 (Deutsche Telekom, 2021b)

158 (Deutsche Telekom, 2021b)

159 (Deutsche Telekom, 2021b)

160 (Deutsche Telekom, 2021a)

161 (Deutsche Telekom, 2021e)

162 (Deutsche Telekom, 2021c)

163 (Deutsche Telekom, 2021d)

164 (Deutsche Telekom, 2021d)

165 (Deutsche Telekom, 2021c)

166 (Deutsche Telekom, 2021b)

167 (Enel, 2019a; 2019b; 2020; 2021; S&P Global, 2021)

168 (Enel, 2019b)

169 (S&P Global, 2021)

170 (Cantzler et al., 2017)

171 (Enel, 2019a)

172 (Enel, 2019a)

173 (Enel, 2019b)

174 (Enel, 2019b)

175 (Enel, 2019b)

176 (Enel, 2019b)

177 (Enel, 2019b)

178 (E.ON SE, 2020; 2021a; 2021b; 2021d; 2021c)

179 (E.ON SE, 2021b)

180 (E.ON SE, 2020)

181 (Climate Action Tracker, 2018; SBTi, 2020)

182 (E.ON SE, 2021b; 2021a)

183 (E.ON SE, 2021b)

184 (E.ON SE, 2021c)

185 (E.ON SE, 2021b)

186 (E.ON SE, 2021d)

187 (E.ON UK plc, 2021)

188 (E.ON SE, 2021b)

189 (GSK, 2020b; 2020a; 2021a; 2021b)

190 (GSK, 2020a, p. 41)

191 (GSK, 2020a, p. 41)

192 (GSK, 2021b, pp. 7–8)

193 (GSK, 2020b)

194 (GSK, 2020b)

195 (GSK, 2020b)

196 (GSK, 2020b)

197 (GSK, 2020b; 2021b, pp. 7–8)

198 (GSK, 2020b)

199 (GSK, 2020a, p. 41)

200 (GSK, 2020a, p. 41)

201 (GSK, 2021a)

202 (GSK, 2020a, p. 41)

203 (Google, 2011; 2018; 2020a; 2020c; 2020e; 2020d; 2020b; 2021c; 2021b; Alphabet, 2021; Google, 2021a)

204 (Google, 2021b)

205 (Google, 2020a; 2021a)

206 (Google, 2021b)

207 (Google, 2021b)

208 (Google, 2021b)

209 (Google, 2020a)

210 (Google, 2021b)

211 (Google, 2021d)

212 (Google, 2020a)

213 (Alphabet, 2021)

214 (Google, 2021b)

215 (Google, 2021b)

216 (Google, 2011; 2018; BBC, 2020; Alphabet, 2021; Climate Action Reserve, 2022)

217 (Google, 2018)

218 (Google, 2018)

219 (Climate Action Reserve, 2022)

220 (Warnecke et al., 2017)

221 (Google, 2011)

222 (Google, 2018)

223 (Google, 2011)

224 (Donofrio et al., 2021)

225 (Hitachi, 2021c; Inajima and Stapczynski, 2021; Hitachi, 2021a; Hiroi, 2021; Hitachi, 2021b)

226 (Hitachi, 2021c)

227 (Inajima and Stapczynski, 2021)

228 (Hitachi, 2021c)

229 (Hitachi, 2021c; 2021a)

230 (Hiroi, 2021)

231 (Hitachi, 2021c)

232 (Hitachi, 2021c)

233 (Hitachi, 2021c)

234 (Hitachi, 2021c)

235 (IKEA, 2022a; 2022b)

236 (IKEA, 2022a, p. 4)

237 (IKEA, 2022a, p. 4)

238 (IKEA, 2022a, p. 4)

239 (IKEA, 2022a, p. 7)

240 (IKEA, 2022a, p. 9)

241 (IKEA, 2022a, p. 31)

242 (IKEA, 2022a, p. 7)

243 (IKEA, 2022a, pp. 4–6; 10–28)

244 (IKEA, 2021a)

245 (IKEA, 2022a, p. 23)

246 (IKEA, 2021b, p. 38)

247 (IKEA, 2022b, p. 37)

248 (Gobczyński, 2021)

249 (IKEA, 2022b, p. 36)

250 (IKEA, 2022b, pp. 23–24)

251 (IKEA, 2022a, pp. 16–17)

252 (IKEA, 2022a, p. 7)

253 (IKEA, 2022a, p. 7)

254 (IKEA, 2022a, pp. 4, 8; 2022b, p. 26)

255 (IKEA, 2022a, p. 8; 2022b, p. 10)

256 (IKEA, 2022a, p. 8)

257 (WRI and WBCSD, 2011; Russell, 2019)

258 (GRAIN and IATP, 2018)

259 (JBS, 2020; 2021e; 2021b; 2021c; 2021a)

260 (JBS, 2021e)

261 (GRAIN and IATP, 2018, p. 5; Lazarus, McDermid and Jacquet, 2021, p. 30)

262 (JBS, 2021e)

263 (JBS, 2021e)

264 (JBS, 2021e)

265 (JBS, 2021d)

266 (JBS, 2021b; 2021c)

267 (JBS, 2021a)

268 (JBS, 2021b; 2021e)

269 (JBS, 2021a)

270 (JBS, 2021e)

271 (JBS, 2021e)

272 (JBS, 2021a)

273 (Maersk, 2021a; 2021c; 2021d; 2021f; 2022b)

274 (Milne, 2022)

275 (Maersk, 2021a, p. 22)

276 (Maersk, 2022a)

277 (Milne, 2022)

278 (Maersk, 2022a)

279 (Maersk, 2022a; 2022b)

280 (Maersk, 2019)

281 (Maersk, 2021a, p. 19; 2022a; Milne, 2022)

282 (Maersk, 2022a; 2022b)

283 (Maersk, 2022a)

284 (Maersk, 2021a, p. 19)

285 (Maersk, 2021a, p. 19; Milne, 2022)

286 (Pavlenko et al., 2020, p. 17)

287 (Maersk, 2021a, p. 20)

288 (Maersk, 2021b)

289 See, for instance: (Maersk, 2021d; 2021c; 2021e)

290 (Maersk, 2021f)

291 (Emma Dotzer, 2021; Wittels, 2021)

292 (Maersk, 2021b)

293 (Nestlé, 2021a; 2021b)

294 (Nestlé, 2021a)

295 (Nestlé, 2021a)

296 (Nestlé, 2021a)

297 (Nestlé, 2021a)

298 (Nestlé, 2021a)

299 (Nestlé, 2021a)

300 (Nestlé, 2021a)

301 (Nestlé, 2021a)

302 (Nestlé, 2021a)

303 (Nestlé, 2021a)

304 (Nestlé, 2021a)

305 (Nestlé, 2021a)

306 (Nestlé, 2021a)

307 (Nestlé, 2021a)

308 (Nestlé, 2021a)

309 (Nestlé, 2021b; 2021a)

310 (Nestlé, 2021a)

311 (Nestlé, 2021b; 2021a)

312 (Nestlé, 2021a, p. 43)

313 (Nestlé, 2021a)

314 (Nestlé, 2021a)

315 (Nestlé, 2021a)

316 (Ready Refresh, 2021)

317 (Essentia Water, 2022)

318 (Starbucks, 2020)

319 (Nescafé, 2020)

320 (Mindful Chef, 2020)

321 (Gerber, 2021)

322 (Novartis, 2017; 2020c; 2020a; 2020b; 2021c; 2021a; 2021b; 2021d)

323 (Novartis, 2021d, p. 26)

324 (Novartis, 2021d, p. 26)

325 (Novartis, 2021a)

326 (Novartis, 2017, p. 4; 2020c, p. 66; 2021d)

327 (Novartis, 2017, pp. 6–14)

328 (Novartis, 2020c, p. 66)

329 (Novartis, 2020c, p. 65)

330 (Novartis, 2020c, p. 65)

331 (Novartis, 2020b)

332 (Novartis, 2020c, p. 75; 2020b)

333 (Novartis, 2020a, pp. 20–24)

334 (Novartis, 2020c, p. 66; 2021b, p. 5)

335 (Novartis, 2020d; 2020c, p. 65; 2021d, p. 32)

336 (Novartis, 2021c)

337 (Novartis, 2020c, pp. 65–66; 2021d, pp. 64–65)

338 (Novartis, 2020c, p. 66; 2021b, p. 3)

339 (Saint-Gobain, 2019; 2020a; Penchienati-Bosetta, 2020; Saint-Gobain, 2020c; 2020d; 2021b; 2021a; 2021c)

340 (Saint-Gobain, 2020b, p. 1)

341 (Saint-Gobain, 2020b, p. 3)

342 (Saint-Gobain, 2020c, p. 6)

343 (Saint-Gobain, 2020b, p. 2)

344 (Saint-Gobain, 2019, p. 111; Penchienati-Bosetta, 2020, p. 127)

345 (Saint-Gobain, 2019, p. 111; Penchienati-Bosetta, 2020, p. 127)

346 (Penchienati-Bosetta, 2020, p. 127; Saint-Gobain, 2020d, pp. 51–58)

347 (Saint-Gobain, 2020c)

348 (Saint-Gobain, 2021b; 2021a)

349 (Penchienati-Bosetta, 2020, p. 128; Saint-Gobain, 2020d, pp. 66–72)

350 (Saint-Gobain, 2021c)

351 (Sony, 2020; 2021)

352 (Sony, 2020; 2021)

353 (Sony, 2021, p. 123)

354 (Sony, 2021, p. 123)

355 (Sony, 2021, p. 125)

356 (Sony, 2021, p. 25)

357 (Sony, 2021, p. 128)

358 (Sony, 2021, p. 187)

359 (Sony, 2020, p. 159; 2021, p. 187)

360 (Sony, 2021, pp. 137–170)

361 (Sony, 2021, pp. 187–188)

362 (Sony, 2021, p. 139)

363 (Sony, 2021, p. 152)

364 (Sony, 2021, p. 152)

365 (Sony, 2021, pp. 152–154)

366 (Unilever, 2019; 2020a; 2021a; 2021b; 2021c)

367 (Unilever, 2021a)

368 (Unilever, 2021a)

369 (Unilever, 2021c)

370 Per consumer use is a measurement defined by Unilever, which equates to the quantity of a product needed for a single use.

371 (Unilever, 2021a)

372 (Unilever, 2021a)

373 (Unilever, 2021a)

374 (Unilever, 2021c)

375 (Unilever, 2021a)

376 (coZEV, 2021)

377 (Unilever, 2021c)

378 (Unilever, 2019)

379 (Unilever, 2020a)

380 (Unilever, 2021b, p. 3)

381 (Unilever, 2021a, p. 47)

382 (Unilever, 2021a)

383 (Unilever, 2021a)

384 (Kantar World Panel, 2021, p. 14)

385 (Sure Deodorant, 2021; Dove, 2022)

386 (Unilever, 2020b)

387 (Vale, 2020; 2021b; 2021c)

388 (Vale, 2021b, p. 49; 2021c)

389 (Vale, 2021b, pp. 49, 109)

390 (Vale, 2021b, p. 4)

391 (Vale, 2021b, p. 4; 2021c)

392 (Vale, 2021c)

393 (Vale, 2021b)

394 (Vale, 2021b, pp. 109–110; 2021d; 2021a)

395 (Vale, 2020; 2021c)

396 (Vale, 2021d)

397 (Vale, 2021b, p. 112)

398 (Fearnside, 2016)

399 (Vale, 2021b, p. 112)

400 (VodafoneZiggo, 2020; Vodafone, 2020a; 2020b; 2021e; 2021c; 2021b; 2021d; 2021a)

401 (Vodafone, 2020b; 2021d, p. 7)

402 (Vodafone, 2020b; 2021d, p. 7)

403 (Vodafone, 2021a, p. 38)

404 (Vodafone, 2020b)

405 (Vodafone, 2020b)

406 (Vodafone, 2021b)

407 (Vodafone, 2021d, pp. 4–7)

408 (Vodafone, 2021d, p. 5)

409 (Vodafone, 2020a, pp. 6–7)

410 (Vodafone, 2021c)

411 (Vodafone, 2021e; VodafoneZiggo, 2021)

412 (VodafoneZiggo, 2020, p. 114; Vodafone, 2021e)

413 (ClimatePartner, 2021; Vodafone, 2021e)

414 (VodafoneZiggo, 2020, pp. 114, 162–163)

415 (ClimatePartner, 2021; Vodafone, 2021e)

416 (Carbon Check (Pty) Ltd, 2014)

417 (UNFCCC CDM Registry, 2022)

418 (Ministry of Energy of Chile, 2013)

419 (Volkswagen, 2019; 2021)

420 (CAT, 2020)

421 (Volkswagen, 2021, p. 45)

422 (Volkswagen, 2021, p. 45)

423 (CAT, 2020, p. 27)

424 (United Kingdom et. al, 2021)

425 (Volkswagen, 2022a)

426 (Prem and Schmidtutz, 2021)

427 (Audi AG, 2021)

428 (Volkswagen, 2022b)

429 (Volkswagen, 2021, p. 48)

430 (Volkswagen, 2021, p. 51)

431 (Volkswagen, 2021, p. 51)

432 (Volkswagen, 2019)

433 (Volkswagen, 2019)

434 (Volkswagen, 2019; 2021)

435 (Walmart, 2020b; 2021a; 2021b; 2022)

436 (Walmart, 2021a)

437 (Walmart, 2021a)

438 (Walmart, 2020b, pp. 38–47)

439 (Walmart, 2022)

440 (Wragg, 2021)

441 (Walmart, 2021b)

442 (Walmart, 2022)

443 (Walmart, 2021a)

444 (Walmart, 2020b, pp. 38–47)

445 (Walmart, 2021a)

446 (Walmart, 2020b, pp. 63–67)

447 (Walmart, 2021a)

448 (Walmart, 2020a)

449 (Rogelj et al., 2018)

450 (Atmosfair, 2016)

451 (NewClimate Institute and Data-Driven EnviroLab, 2020)

452 (WBCSD and WRI, 2004)

453 (WRI and WBCSD, 2013)

454 (WRI and WBCSD, 2013)

455 (WRI and WBCSD, 2013)

456 (WRI and WBCSD, 2013)

457 (WRI and WBCSD, 2013)

The rapid acceleration in the volume of corporate climate pledges, combined with the fragmentation of approaches and the general lack of regulation or oversight, means that it is more difficult than ever to distinguish between real climate leadership and unsubstantiated greenwashing.

The Corporate Climate Responsibility Monitor evaluates the climate strategies of 25 major corporations. It critically analyses the transparency and integrity of corporate pledges and claims to identify replicable good practice and areas for improvement.