

Setting Net-Zero Targets: Accounting and Policy Implications

Contents:

| | |
|--|-----------|
| Foreword | 1 |
| Science, policy, and accounting to address climate change emergency | 3 |
| Case studies: keystone companies targeting net-zero emissions | 8 |
| Next steps and conclusions | 19 |

Foreword

The emergency of climate change requires urgent action from companies, governments, civil society and other stakeholders. In addition, multiple disciplines play a key role in shaping the energy transition to a greener economy.

This publication aims to (i) explain the connection between science, policy, and accounting to address the collective action problem of climate change, (ii) show case studies from leading companies committed to reduce emissions in line with science, and (iii) identify critical challenges and further steps for a sustainable low carbon economy.

It is hoped that this document catalyzes the accounting and policy implications to address climate change so that actors, especially influential companies, raise ambition and achieve their targeted science-based emissions reductions.

About the authors:

Elena Carrión Moneo is a Ph.D. student of Environmental Accounting at Universidad de Burgos. In her research, she explores the accounting implications of achieving net-zero emissions within the private sector. She is also a research fellow at Duke University (USA), where she has collaborated with multidisciplinary teams on climate change-related issues and climate justice projects. Prior to starting her Ph.D., Elena completed a Master's Degree in Accounting and Auditing, and worked as a Junior Auditor at EY. Her knowledge of companies and accounting together with her concern for sustainability have led her to work closely with companies for a sustainable future.

Deborah Rigling Gallagher is a Professor Emeritus of Environmental Policy at Duke University's Nicholas School of the Environment. Her research considers business leadership behavior to promote sustainability and address climate change. Her current focus is on climate justice as Climate Director at BSR. Her decade-long research collaboration with the United Nations Global Compact yielded research on biodiversity management, business engagement in climate policy, and implementation of internal carbon pricing. Her edited collection, *Environmental Leadership*, set the field of environmental leadership for practitioners and scholars. Prior to her academic career, Dr. Gallagher held leadership roles in the public and private sector. She holds a BS in Chemical Engineering from Northwestern University, a Master's Degree in Public Policy from the Harvard Kennedy School and a Ph.D. in Public Policy from the University of North Carolina at Chapel Hill.

Carlos Larrinaga is a Professor of Accounting at Universidad de Burgos. He is associated with the Center for Social and Environmental Accounting Research from the University of St Andrews. Formerly, he served at the University of Seville and at Carlos III University. He is interested in the role of business in sustainable development, and particularly in social, environmental and sustainability reporting. In the last years he has been studying the interplay between accounting, modernity and the Anthropocene from a historical, colonial and ecological perspective. He has published in a great number of journals including *Accounting, Organizations and Society*, *Accounting, Auditing and Accountability Journal*, *Critical Perspectives on Accounting* and *European Accounting Review*. He also serves in the editorial board of various journals and is an Associate Editor of the *European Accounting Review*.

This Report should be cited as:

Carrión, E., Gallagher, DR., Larrinaga, C. (2022). *Setting Net-Zero Targets: Accounting and Policy Implications*. Burgos, Spain: Universidad de Burgos. <https://doi.org/10.36443/10259/7097>

Acknowledgements:

Funding:

Fundación Banco Sabadell

Fundación Banco Sabadell has financially supported this research through its annual research fellowships for Ph.D. students. Elena Carrión is deeply grateful to the Committee for selecting this research project.

Knowledge partner:

World Benchmark Alliance (WBA)

The authors would like to thank the knowledge above-mentioned partner for providing insightful feedback, which helped create a robust multi-stakeholder report.

Participating companies:

ACCIONA, AstraZeneca, BT, Danone, Enel, Iberdrola, Natura &Co, Salesforce, Unilever and UPM.

The authors are grateful to the interviewees of the participating companies for accepting the invitation to be interviewed and providing insightful information on their companies' science-based targets.

Contact: Elena Carrión Moneo (ecarrion@ubu.es)

Disclaimer:

This report does not intend to provide a comprehensive framework on corporate climate targets but, instead, it focuses on greenhouse gas emissions reduction (e.g., not including offsets, water targets, waste reduction, climate change risks, or circular economy) through setting science-based targets developed by the Science-Based Target initiative.

Neither the authors nor other individuals who contributed to this report assume responsibility for any consequences resulting from its use. We regret any errors or omissions that may have been unwittingly made.

Download the report: <https://riubu.ubu.es/handle/10259/7097>



Science, Policy, and Accounting to address Climate Change emergency

Science

Scientists from the Stockholm Resilience Center (Rockström et al., 2009) identified **nine Earth system processes** that determine the **stability and resilience of the Planet** (Climate change, Introduction of novel entities, Stratospheric ozone depletion, Atmospheric aerosol loading, Ocean acidification, Biogeochemical flows, Freshwater use, Land-system change, and Change in biosphere integrity).

Figure 1 shows the current status of these processes, where the green area represents “a safe operating space for humanity,” whereas crossing the boundaries to the orange area can disturb the stability of the Earth.

Climate change (along with biosphere integrity) plays a core function in maintaining the equilibrium of the Biosphere. However, its boundary has been surpassed, driving to visible consequences such as severe

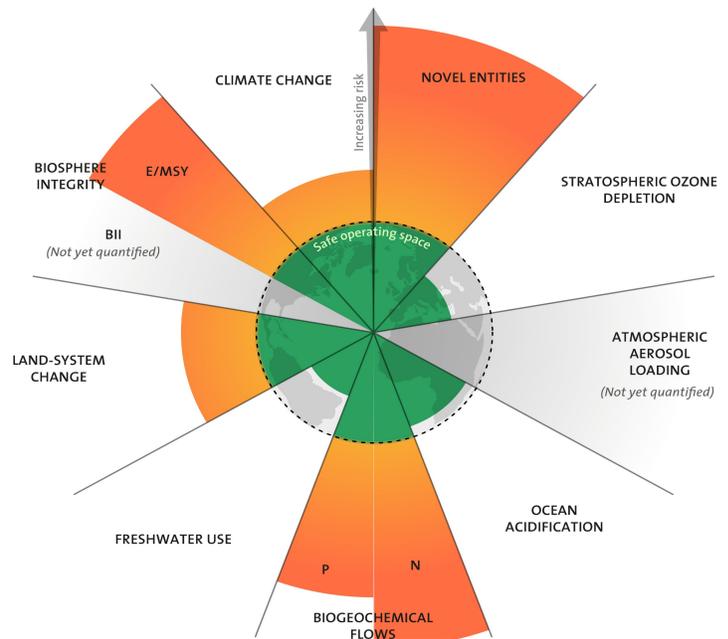


Figure 1. Planetary boundaries. Designed by Azote for Stockholm Resilience Centre, based on analysis in Persson et al. (2022) and Steffen et al. (2015).

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

Figure 2. Global warming of 1.5°C – IPCC Special Report (2018).

The IPCC's latest climate report (AR6) highlighted that **the main driver of climate change is human activity**, and the consequences of inaction have already led to **irreversible environmental changes** (e.g., sea level rise).

In addition, the IPCC'S 3,675-page document reveals that **climate impacts are already more widespread and severe** than expected, increasing **inequality** and **challenging sustainable development**. The future climate depends on managing climate risks through **urgent mitigation and adaptation measurements**.

The Intergovernmental Panel on Climate Change (IPCC) has warned of the urgent need to **achieve net-zero emissions** through **decarbonization** (i.e., emissions abatement to limit global warming to 1.5°C).

This scenario requires **rapid and profound transformations** within socio-economic systems.

IPCC Sixth Assessment Report Impacts, Adaptation and Vulnerability

Figure 3. Sixth Assessment Report (AR6) – IPCC (2022).

Policy

During the last decades, various **international agreements on climate change** have emerged. Such is the case of the *Brundtland report* (1987), which determined the definition of sustainable development; the *Montreal Protocol* (1987), which established the rules to globally protect the stratospheric ozone layer under the *Vienna Convention* (1969); or the *First IPCC Assessment Report* (1990), which alerted of an additional warming of the Earth's surface as a result of human activities. Within this scenario, the *Rio Earth Summit* (1992) arose to rethink economic growth, advance social justice, and ensure environmental protection. The Rio Summit gave rise to three conventions, including the *United Nations Framework Convention on Climate Change* (UNFCCC), which has established **science-based agreements for emissions reduction**:

The *Kyoto Protocol* (1997) operated under the principle of "common but differentiated responsibilities" to reduce global GHG emissions by at least 18% from 1990 levels by 2020.

In addition, the latest global pact is the *Paris Agreement* (2015), through which Parties undersigning the agreement committed to: "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C

- **Reducing emissions: the focus is on the most influential companies (SDG2000)**

Companies play a crucial role in the interplay between natural and economic systems, especially transnational corporations with a disproportionate capacity to influence the biosphere (Folke et al., 2019). These are called **keystone actors** (Österblom et al., 2015) as a metaphor for the existence of particular species in systems ecology, named *keystone species*, capable of regulating ecosystems (Worm & Paine, 2016).

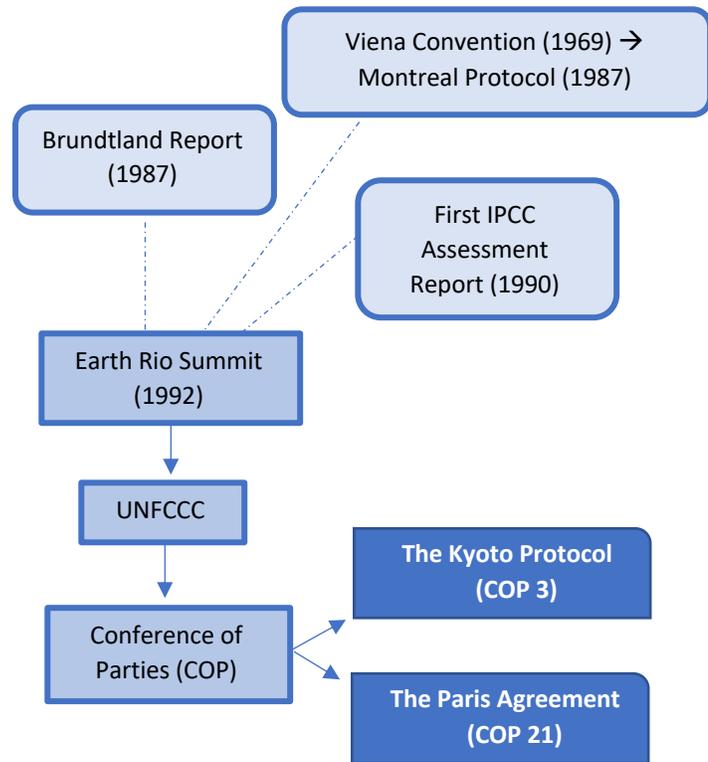


Figure 4. Science-based global agreements. Source: Own elaboration.

above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change" (UNFCCC, 2015, p.3).

However, **none of these agreements are legally binding**, which makes it necessary to seek for other mechanisms to tackle climate change.



The **World Benchmark Alliance** identifies, assesses and incentivizes the world's 2000 most influential companies, through benchmarks based on the seven systems' transformations. Social, Food and Agriculture, Decarbonization and Energy, Nature, Digital, Urban, and Financial system transformation to achieve the Sustainable Development Goals (SDGs).

• **Keystone (and other) companies reducing GHG emissions**

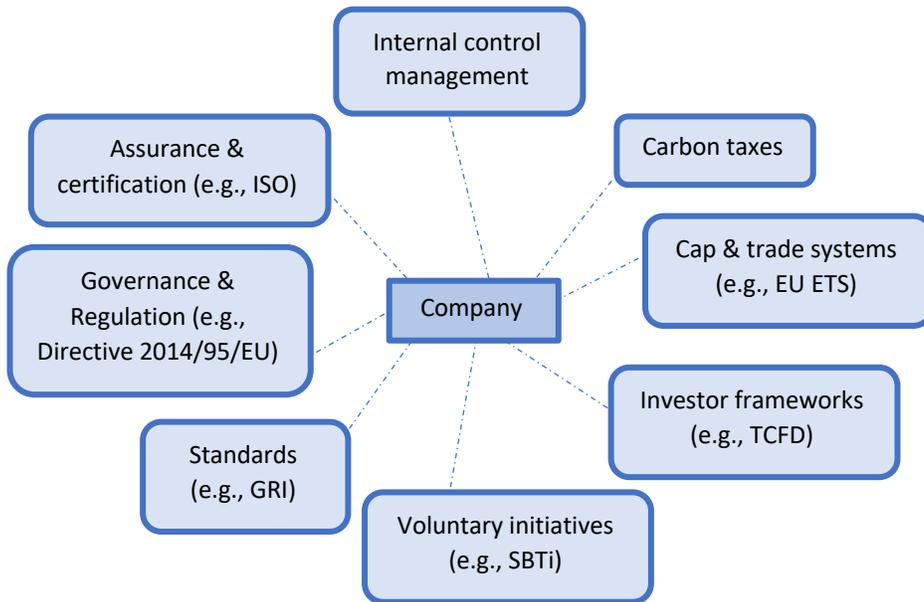


Figure 5. Corporate tools to measure and reduce GHG emissions. Source: Own elaboration.

Companies have different tools to measure and reduce GHG emissions, as shown in *Figure 5*.

This report focuses on a specific voluntary initiative: **The Science-Based Target initiative (SBTi)**, since it provides the criteria to **reduce emissions in line with climate science**.

• **The Science-Based Target initiative (SBTi)**

The **SBTi** is a partnership between the Carbon Disclosure Project (CDP), the United Nations Global Compact (UNGC), the World Resources Institute (WRI), and the World Wildlife Fund for Nature (WWF), launched in 2015 to provide the private sector the tools to tackle climate change with **science-based targets** (i.e., those which, at minimum, are in line with the **Paris Agreement**).

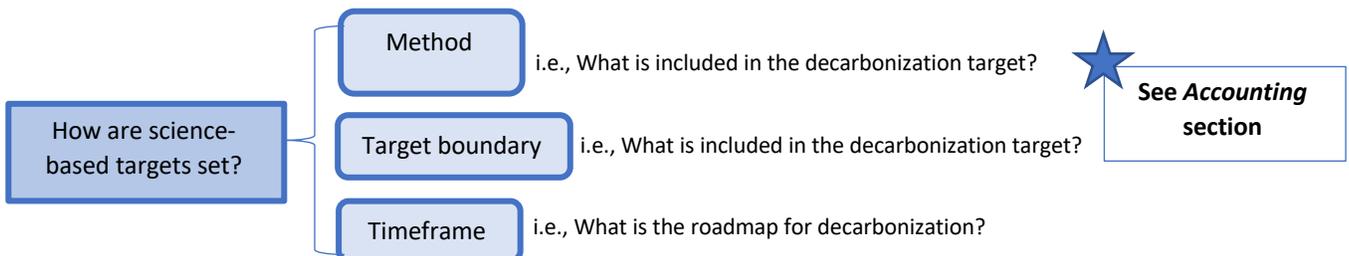


Companies that voluntarily commit to the SBTi need to have their science-based targets approved, which requires **business transformations through an ambitious but plausible climate plan**.

The SBTi has increased the **ambition** of the science-based targets across its different guidelines to adapt to the **urgency of climate change**, as shown in *Figure 6*.



Figure 6. Evolution of the SBTi's ambition for setting science-based targets. Source: Own elaboration.



Accounting

Decarbonization requires establishing a **roadmap on how emissions are accounted** (e.g., criteria for the emissions inventory, annual emissions budget to decarbonize) for their reduction. Furthermore, accounting determines the **responsibility for the impacts**, which have financial implications for companies (e.g., impairment of assets or contingent liabilities), and affect the natural systems (e.g., water withdrawal or land use).

Thus, an accounting system must set out an accurate picture of the impact of emissions.

- **Accounting for decarbonization – SBTi approach**

Companies have their climate action plans to address decarbonization. However, this report only addresses companies' decarbonization targets through the **SBTi**. This way, it provides a consistent analysis of the **accounting implications of decarbonization** by setting science-based targets.

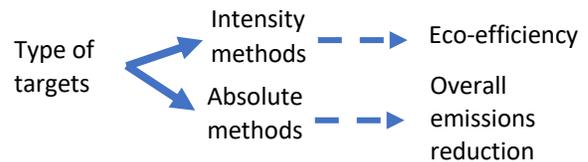


Figure 7. Representation of the roadmap to decarbonization. Companies must transform their businesses to limit warming to 1.5°C by no later than 2050.

Method

The SBTi accepts **six methods to set science-based targets** (Absolute Contraction Approach, Sectoral Decarbonization Approach, Renewable Electricity, Economic Intensity method, Physical Intensity Contraction Method, and Supplier or Customer Engagement targets) (see [SBTi resources](#))

A critical accounting implication is the use of **intensity** or **absolute** targets within these methods. The former consists of a unitary reduction (e.g., emissions reduction per kWh),



whereas the latter requires decreasing the overall emissions of the company.

Accounting must provide calculations that trigger **business transformations for an absolute reduction of GHG emissions.**

Timeframe

The SBTi requires setting **near-term science-based targets** from a base year to a target year between 5 and 10 years post the target submission.



Although these targets are considered near-term, the uncertainty of climate change requires accounting criteria with annual targets to provide ambitious but plausible commitments to limit warming to 1.5°C.



GHG emissions inventory



GREENHOUSE
GAS PROTOCOL

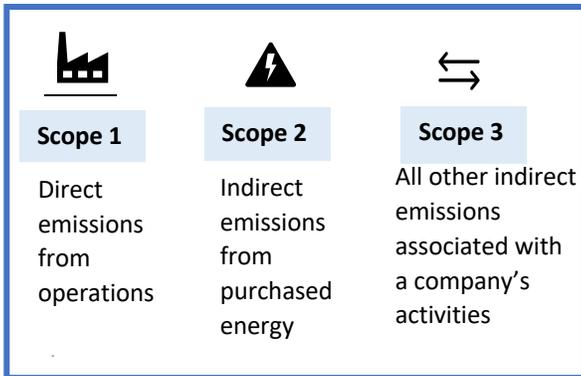
The **GHG emissions inventory** is the number of metric tons of greenhouse gas (GHG) emissions that companies account for in the target year, report in the current year, and commit to reduce in the target year.

The SBTi requires companies to use the **GHG Protocol** to account for their inventory.

The [GHG Protocol](#) is the most extensively used **accounting and reporting standard for measuring and managing corporate GHG emissions**. Launched in 2004 as a partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), it provides a standardized framework for reducing emissions.

The GHG Protocol categorizes the company's direct and indirect emissions through three sources: (i) **Scope 1 emissions** – direct emissions that result from the operations owned or controlled by the company, (ii) **Scope 2 emissions** – indirect emissions that result from the energy generation, and (iii) **Scope 3 emissions** – indirect emissions that are a consequence of the operations of the reporting company but which occur at sources owned or controlled by another company.

An accounting implication of measuring scope 3 emissions is that these are not under the company's control since the emissions occur at the suppliers' facilities. Consequently, **accounting must broaden the boundaries to include scope 3 emissions under the direct responsibility of the reporting company** (e.g., through co-investment with suppliers to reduce these emissions).



The graphic below shows that **scope 3 emissions are the highest source for many keystone companies**, mainly due to their extended supply chains, outsourced production, and global operations.

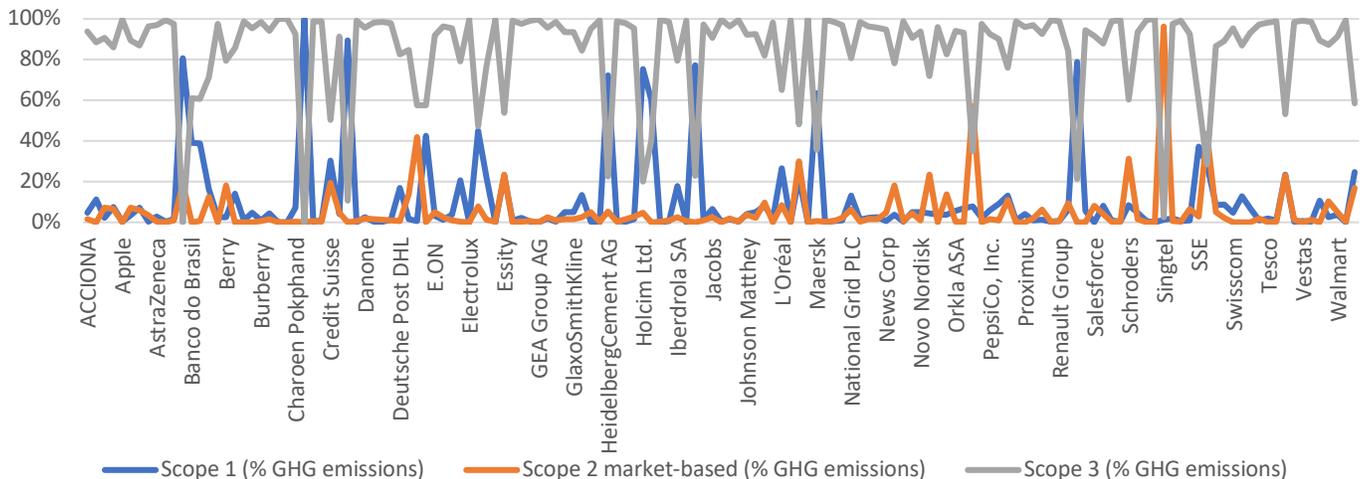


Figure 8. Some keystone companies' emissions categorized by scope¹. Adapted from CDP climate change 2021 questionnaire.

¹ See Annex I at the end of this document for a completed list of selected keystone companies' emissions categorized by scopes.

Case studies: Keystone Companies

targeting Net-Zero Emissions

What is the objective of the interviews?

Case studies provide the opportunity to have an in-depth understanding of the process and challenges that companies undertake to achieve net-zero emissions.

In particular, the case studies presented in this section seek to identify possible accounting and policy difficulties for companies when they establish their roadmap to decarbonization.

The case studies are the result of the interviews held with sustainability managers and the review of their publicly disclosed information (mainly companies' sustainability report and companies' responses to the CDP climate change questionnaire).

Which companies take part in the study?

The targeted sample of companies to interview is the list of keystone companies that have set ambitious climate commitments in the SBTi². Furthermore, these companies account for high levels of scope 3 emissions.

Ten companies agreed to be interviewed (ACCIONA, AstraZeneca, BT, Danone, Enel, Iberdrola, Natura &Co, Salesforce, Unilever, and UPM).

What topics are addressed?

The interviews are framed around three topics:

1. The corporate timeline to address decarbonization;
2. The use of absolute or intensity targets for emissions reduction;
3. The difficulties in achieving net-zero emissions, especially when managing scope 3 emissions.

² The targeted sample consists of 155 companies. This number results from the WBA SDG 2000 list (2,000 companies) and companies engaged in the Business Ambition for 1.5°C campaign (SBTi) by 15th May 2021 (438 companies). The UNGC helped the authors connect with companies to hold the interviews.

ACCIONA³

- Leading company in the construction and engineering sector.
- It operates across six areas: energy, transport, water, cities, social, and real state.
- 41,664 employees and €8.1 billion in revenues in 2021.

ACCIONA invests in, develops, and operates infrastructure assets that can transform the economy towards a low-carbon future, for instance, by building high-speed railways that allow the use of electric trains.



Translating words into action. Science-based targets plan:

ACCIONA's Sustainability Master Plans



Commitments

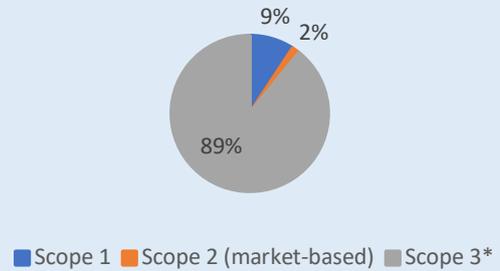
- 1) 60% absolute reduction of scope 1 & 2 emissions by 2030 from the base year.
- 2) 47% absolute reduction of scope 3* emissions by 2030 from the base year.

✓ Progress (2021)**

| | | | |
|---|-----|-------------------|--|
| Absolute reduction of scope 1 & 2 emissions | 19% | 31.7% achieved*** | <div style="width: 31.7%; height: 15px; background-color: #008000;"></div> |
| Absolute reduction of scope 3* emissions | 28% | 59.6% achieved*** | <div style="width: 59.6%; height: 15px; background-color: #008000;"></div> |



Figure 1. Distribution of emissions by scope in 2021:



Key takeaways of ACCIONA's decarbonization plan:

- Responding to the urgent sustainable transformation. For example, the company's strategy is to invest in infrastructures that tackle climate emergency.
- The company uses a linear reduction pathway based on an annual budget to track emissions reduction across each business area.
- Financing is linked to sustainability KPIs.
- Key factors of scope 3 emissions:
 - Focusing on those categories that have more intensity of emissions.
 - Developing a supplier's Risk Map with ESG variables.
 - Providing financial resources to key suppliers to enhance their emissions reduction.



Main challenges of ACCIONA's decarbonization plan:

- The company has a diverse portfolio of activities, some of which are difficult to decarbonize (e.g., cement).
- There are low levels of primary data for scope 3 emissions, which leads to developing econometric models that are resource intensive.
- Sustainability laggards may be benefited from early adopters that invest in suppliers' emissions reduction (i.e., free riding).
- Emissions reduction is a network relationship that requires other actors' involvement, such as governments, companies, and civil organizations.

³ References:

- ACCIONA's Sustainability report 2021 and Integrated Report 2021.
- Interviews with sustainability leader at ACCIONA.

* Scope 3 categories in the SBTi (i.e. covering emissions from purchased goods and services, capital goods, energy-related activities, upstream transportation and distribution, employee commuting and use of sold products).

** Compared to the base year (2017).

*** Compared to the total commitment of reduction by target year.

AstraZeneca⁴

- Global, science-led biopharmaceutical business.
- 83,100 employees and €37.4 billion in revenues in 2021.

AstraZeneca is one of the first seven companies worldwide that adopted the new Net-Zero Corporate Standard across the value chain — Scopes 1, 2 and 3.



Translating words into action. Science-based targets plan:

AstraZeneca's Ambition Zero Carbon plan



✓ Progress (2021) *

| | |
|---|-----|
| Absolute reduction of scope 1 & 2 emissions | 59% |
|---|-----|

60.2% achieved***



| | |
|--|-----|
| Absolute reduction of scope 3* emissions | n/a |
|--|-----|

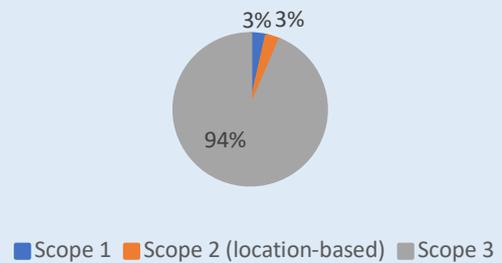
? Increase of 15% absolute scope 3 emissions due to a rise in procurement from business growth.

| | |
|--------------------|----|
| Engagement target* | 7% |
|--------------------|----|

7% achieved***



Figure 1. Distribution of emissions by scope in 2021:



Key takeaways of AstraZeneca's decarbonization plan:

- The roadmap for decarbonization aligns with financial planning.
- Measuring scope 3 emissions:
 - Supplier engagement is targeted through criteria such as size and criticality of the supplier, expenditure, and length of the agreement.
 - The CDP supply chain program helps measure scope 3 emissions.



Main challenges of AstraZeneca's decarbonization plan:

- Scope 3 emissions:
 - Communication with suppliers.
 - Difficult to scale to a significant proportion of the supply chain.
 - Resource-intensive.
- Setting ambitious but plausible targets to reach net-zero emissions.

⁴ References:

- AstraZeneca's Sustainability Report 2021 and Annual Report 2021.
- Interview with a sustainability leader at AstraZeneca.

* AstraZeneca commits that 95% of its suppliers by spend covering purchased goods and services and capital goods, and 50% of its suppliers by spend covering upstream transportation and distribution and business travel, will have science-based targets by FY2025.

** Compared to the base year.

*** Compared to the total commitment of reduction by target year.

BT Group plc⁵

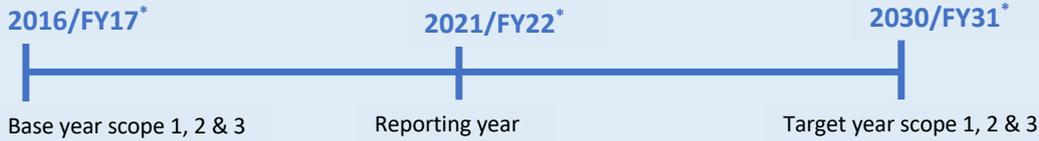
- One of the world's leading communications services companies.
- 99,000 employees and £20.9 billion in revenues by 31st March 2022.

BT Group was one of the first three companies worldwide to commit to a 1.5°C science-based target.

The company is driving ambitious action to achieve net-zero for scope 1 and 2 emissions by the end of March 2031 and net-zero emissions across its whole value chain by the end of March 2041.



Translating words into action. Science-based targets plan:



Commitments

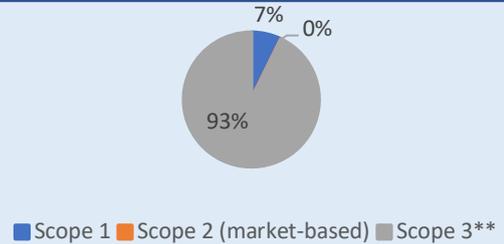
- 1) 87% intensity reduction of scope 1 & 2 emissions by 2030/FY31* from the base year.
- 2) 29% reduction of scope 3** emissions by 2030/FY31* from the base year.

✓Progress (2021)***

| | | |
|---|-----|---------------------------|
| Intensity reduction of scope 1 & 2 emissions | 55% | 63.2% achieved**** |
| Scope 3 emissions reduction – supply chain carbon reduction | 28% | 99.6% achieved**** |



Figure 1. Distribution of emissions by scope in 2021:



Key takeaways of BT's decarbonization plan:

- Decarbonizing buildings and group's commercial vehicle fleet (scope 1 emissions) and using 100% renewable energy (scope 2 emissions).
- Key factors of scope 3 emissions:
 - Requiring key suppliers to have a net-zero science-based target or commit to having one within six months.
 - Education and collaboration with suppliers. For example: asking suppliers to report on CDP questionnaire to acknowledge the importance of measuring emissions.
- Annual bonus for eligible managers is linked to scope 1 and 2 science-based targets.
- "Building the ecosystem" – partnerships with the industry to increase pressure for suppliers to set science-based targets.



Main challenges of BT's decarbonization plan:

- Mapping the supply chain to understand how to develop the emissions reduction trajectory. For example, the top 50 suppliers by spend data account for more than half of the upstream supply chain emissions. Thus, the company is prioritizing these suppliers.
- Obtaining data from suppliers that do not report their GHG emissions.
- Governments need to step up ambitious actions to support companies to reach net-zero emissions.

⁵ References:

- BT's Annual Report 2022, BT Group plc Manifesto Report 2022, and ESG Addendum to the BT Group plc Manifesto Report 2022.
- Interview with a sustainability leader at BT Group plc.

* FY cutoff date is 31st March.

** Scope 3 categories in the SBTi (i.e. categories 1-8 GHG Protocol).

*** Compared to the base year (2017).

**** Compared to the total commitment of reduction by target year.

Danone⁶

- World leader in four agri-food businesses: Essential Dairy and Plant-Based Products, Early Life Nutrition, Medical Nutrition and Waters.
- 99,187 employees and €24.3 billion in sales in 2021.

Danone's mission is to bring health through food security. Thus, sustainability is a mainstay in the business.

The company is updating its climate action plan to align with SBTi targets to limit warming to 1.5°C.



Translating words into action. Science-based targets plan:

Danone's Climate Policy



Commitments

- 1) 30% absolute reduction of scope 1 & 2 emissions by 2030 from the base year.
- 2) 50% intensity reduction of scope 1, 2 & 3 emissions by 2030 from the base year.

✓ Progress (2021)*

| | |
|---|-----|
| Absolute reduction of scope 1 & 2 emissions | 48% |
|---|-----|

100% achieved**

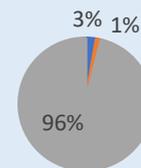


| | |
|---|-----|
| Intensity reduction of scope 1, 2 & 3 emissions | 27% |
|---|-----|

54.2% achieved**



Figure 1. Distribution of emissions by scope in 2021:



■ Scope 1 ■ Scope 2 (market-based) ■ Scope 3



Key takeaways of Danone's decarbonization plan:

- Aligning incentives with sustainability through CDP performance.
- Investing in sustainable practices, such as regenerative agriculture.
- Key factors in reducing scope 3 emissions:
 - Building a good relationship with suppliers – Farmers have decision power.
 - Co-investment with providers and other stakeholders (e.g., government) is critical.
 - Tackling commodity emissions separately (Agriculture is the highest source of scope 3 emissions).



Main challenges of Danone's decarbonization plan:

- Building value chain partnerships that are science-based target compliant.
- Financing interventions across a myriad of agricultural suppliers.
- Need to build a resilient supply chain.
- Decreasing emissions consistently with business growth.
- Lack of public policies to enforce global sustainable commitments.

⁶ References:

- Danone's Extra-financial data 2021, Climate Policy, and 2021 Full-Year Results.
- Interviews with sustainability leaders at Danone.

* Compared to the base year (2015) and based on constant consolidation scope and methodology (*like-for-like*). Danone acquired White Wave company in 2017; thus, increasing the GHG emissions baseline.

** Compared to the total commitment of reduction by target year.

Enel⁷

- Largest private renewable energy operator worldwide.
- 66,279 employees and €88 billion in revenues in 2021.

The company presented its 2022-24 Strategic Plan in November 2021. The strategic plan includes three commitments:

- 1) 80% intensity reduction of scope 1 emissions by 2030 from the base year.
- 2) 80% intensity reduction of scope 1 and scope 3 emissions from electricity generation and sales by 2030 from the base year.
- 3) 55% absolute reduction of scope 3 emissions from gas retail by 2030 from the base year.

Enel's Net-Zero target is under the SBTi validation process.



Translating words into action. Science-based targets plan:



Commitments

- 1) 80% intensity reduction of scope 1 emissions by 2030 from the base year.
- 2) 16% absolute reduction of scope 3 emissions* by 2030 from the base year.

✓ Progress (2021)**

| | | | |
|--|-----|-------------------|--|
| Intensity reduction of scope 1 emissions | 45% | 56.5% achieved*** | |
| Absolute reduction of scope 3 emissions* | 12% | 75.4% achieved*** | |



Figure 1. Distribution of emissions by scope in 2021:



Key takeaways of Enel's decarbonization plan:

- 3-year strategic plan and long-term targets (2030 & 2040).
- Establishing sustainability-linked bonds & long-term incentive plans anchored to climate-related targets.
- Scope 1 emissions:
 - Objective: to phase-out coal production by 2027 and gas production by 2040.
 - Method: SDA (required by the SBTi).
- Scope 2 emissions are not material.
- Scope 3 emissions:
 - Objectives: (i) to increase customer electrification (especially in residential heating), and (ii) to purchase certified renewable energy.
 - Method: absolute reduction targets for gas retail emissions (required by the SBTi).



Main challenges of Enel's decarbonization plan:

- Evolving inventory: the base year was set in 2017 and updated in 2019 to provide more reliability – the base year emissions increase.
- Scope 3 emissions are more difficult to reduce in the short-term because it requires structural changes from customers and suppliers.
- Obtaining real emissions data from suppliers is sometimes difficult when suppliers do not have certified emissions.

⁷ References:

- Enel's Strategic Plan 2022-2024, Sustainability Report 2021, Integrated Annual Report 2021, and Sustainability Report 2019.
- Interviews with sustainability leaders at Enel.

* Scope 3 categories in the SBTi (i.e., gas retail emissions).

** Compared to the base year (2017). The inventory from the base year was recalculated in 2019 due to changes in methodology that provide higher reliability.

*** Compared to the total commitment of reduction by target year.

Iberdrola⁸

- Global renewable energy leader. Its activities include production, transmission, distribution, and supply of electricity, providing accessible and sustainable energy for millions of users.
- 39,955 employees and €39.1 billion in revenues in 2021.

Iberdrola has been working on the energy transition for the last 20 years, participating in international organizations and business coalitions to advance climate goals.

In addition to committing to net-zero emissions through the SBTi, the company has established its climate plan with climate scenarios along three dates (2025, 2030, and 2050).



Translating words into action. Science-based targets plan:

Iberdrola's Climate Action plan



Commitment { 43% absolute reduction of scope 1, 2 & 3 emissions by 2030 from the base year.

✓ **Progress (2021)***

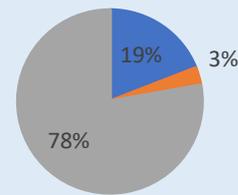
| | |
|--|-----|
| Absolute reduction of scope 1, 2 & 3 emissions | n/a |
|--|-----|



The company does not publicly reveal the evolution of emissions reduction compared to the total commitment of reduction by target year.



Figure 1. Distribution of emissions by scope in 2021:



■ Scope 1 ■ Scope 2 (market-based) ■ Scope 3



Key takeaways of Iberdrola's decarbonization plan:

- The main focus is set on reducing scope 1 emissions as these are within the direct control of Iberdrola.
- Key factors of scope 3 emissions:
 - These are measured through primary data and estimations.
 - The emissions associated with the energy purchased from third parties for sale to end customers and the emissions associated with the use of gas products account for more than 60% of scope 3 emissions.
 - Supplier engagement is targeted through turnover criteria.
- Issuing green bonds to provide consistency with the climate strategy and linking top management incentives to the compliance of climate targets.



Main challenges of Iberdrola's decarbonization plan:

- Primary data of scope 3 emissions are not always reliable and are frequently updated as suppliers provide more accuracy for their emissions inventory.
- Iberdrola operates in almost thirty countries with different climate regulations, which makes it difficult to provide standardized information and reduce total emissions uniformly.
- Emissions associated with the use of gas products are hard to reduce unless that line of business is ended.

⁸ References:

- Iberdrola's Statement of Non-Financial Information and Sustainability Report 2021.
- Interview with a sustainability leader at Iberdrola.

* Compared to the base year (2017). The inventory from the base year was recalculated in 2019 due to changes in methodology that provide higher reliability.

Natura &Co⁹

- Fourth largest company in the cosmetics, fragrance, and toiletries sector.
- Four Business Units: Avon International, Natura &Co LatAm, The Body Shop, and Aesop.
- 35,000+ employees and R\$ 40.16 billion in consolidated net revenues in 2021.

Natura &Co is the world's largest certified B Corporation. In addition, the company aspires to become the best beauty company for the world by promoting positive economic, social, and environmental impact.



Translating words into action. Science-based targets plan:

*Natura &Co's Sustainability Vision
2030 Commitment to Life*

Natura &Co submitted its science-based targets to the SBTi in June 2022. This commitment is expected to receive the SBTi approval in the following months.



Commitment – Absolute reduction of scope 1, 2 & 3 emissions for 1.5°C pathways by 2030 from a 2020 base year.

✓ **Progress (2021)***

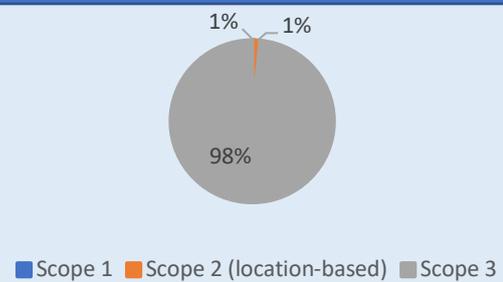
| | |
|--|-----|
| Absolute reduction of scope 1, 2 & 3 emissions | n/a |
|--|-----|

?

The company established a GHG emissions inventory in 2020. The 2021 GHG emissions inventory will be disclosed at the end of 2022 to provide comparable information on the total reduction commitment by the target year.



Figure 1. Distribution of emissions by scope in 2020:



Key takeaways of Natura &Co's decarbonization plan:

- Natura &Co's Climate Transition Action Plan is tackled through three areas: (i) packaging circularity, (ii) reducing carbon footprint of distribution; (iii) accelerating the digitalization of sales channel to reduce printing of physical brochures.
- To measure and reduce scope 3 emissions:
 - Map suppliers across each GHG Protocol scope 3 category and obtain real data and minimize estimations.
- Issue sustainability-linked bonds to integrate sustainability in the business model and establish (short- and long-term) employee incentives related to sustainability targets.
- Engage with external consultant to consolidate the GHG emissions inventory.
- Partner with other companies to create a stronger voice in climate action.



Main challenges of Natura &Co's decarbonization plan:

- Consolidating suppliers' emissions data to provide an accurate GHG emissions inventory.
- Reducing scope 3 emissions when data from suppliers is obtained through estimations.
- Setting aggressive reduction targets to reduce absolute emissions whilst growing the business.
- Turning commitments into action. It is necessary to report the progress of the submitted targets.
- Some of the solutions for emissions reductions are not scalable or affordable for companies – there is a need for public policies. For example: indirect use-phase emissions (category 11B – scope 3 GHG Protocol) are directly dependent on the operating countries' use of renewable energy.

⁹ References:

- Natura &Co's Annual Report 2021.
- Interview with a sustainability leader at Natura &Co.

* Compared to the base year (2020).

Salesforce¹⁰

- Software and services company developing the world's #1 CRM.
- More than 73,000 employees and 26.4 billion in revenues in 2021.

Salesforce achieved net zero residual emissions in 2021 while working to reduce absolute emissions 50% by 2030 and 90% by 2040 (relative to 2018). Its targets are aligned with a 1.5°C emissions



Translating words into action. Science-based targets plan:

Salesforce Climate Action Plan



Commitments

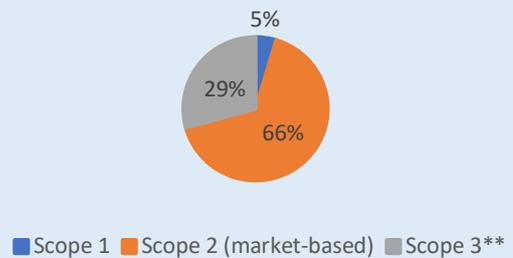
- 1) 50% absolute reduction of scope 1 & 2 emissions by 2030/FY31* from the base year.
- 2) 50% absolute reduction of scope 3** emissions by 2030/FY31* from the base year.
- 3) Ensure that suppliers representing 60 percent of scope 3** emissions, covering all relevant upstream emissions categories, will set their own SBTs by 2024/FY25*

✓ Progress (2021)***

| | | |
|--|-----|--------------------|
| Absolute reduction of scope 1 & 2 emissions | 44% | 87.2% achieved**** |
| Absolute reduction of scope 3* emissions | 21% | 41.6% achieved**** |
| Suppliers engaged to set science-based targets | 16% | 16% achieved**** |



Figure 1. Distribution of emissions by scope in 2021:



Key takeaways of Salesforce's decarbonization plan:

- Contributing to carbon accounting solutions: Salesforce launched *Net Zero Cloud*, to help customers track and manage their GHG emissions.
- Working flexibility to reduce emissions: the establishment of remote work helps the company reduce up to half of this source of emissions compared to business as usual.
- Implementing ESG metrics linked to compensation.
- 100% of total global energy is procured from renewable energy resources (scope 2 location-based).
- Behavior change and policy advocacy are critical for the transition to a low-carbon future.



Main challenges of Salesforce's decarbonization plan:

- Getting supplier primary data, and validating the methodology by the company and third-party auditors.
- The supplier engagement target is challenging as the company has a wide set of suppliers with multiple tiers.
- There are different accounting methodologies to measure emissions across the supply chain. Harmonization is needed to provide comparability.

¹⁰ References:

- Salesforce's FY22 Stakeholder Impact Report Summary, Climate Action Plan, and Schedules of Selected Environmental, Equality and Social Value Metrics.
- Interview with a sustainability leader at Salesforce.

* FY cutoff date is 31st January.

** Scope 3 categories in the SBTi (i.e. Scope 3 GHG emissions from fuel and energy related ("FERA") activities).

*** Compared to the base year (2018).

**** Compared to the total commitment of reduction by target year.

Unilever¹¹

- One of the world's largest companies in the Consumer Durables, Household, and Personal Products sector.
- 148,000 employees and €52.4 billion in revenues in 2021.

Unilever has committed to reducing scope 1 and 2 emissions in line with SBTi 1.5°C ambition. In addition, the company is currently validating scope 3 targets to achieve net-zero emissions across the whole value chain.

 Translating words into action. Science-based targets plan: **Unilever's Climate Transition Action Plan**



 **Commitment** { 100% absolute reduction by 2030 for scope 1 and 2 emissions from a 2015 base year.

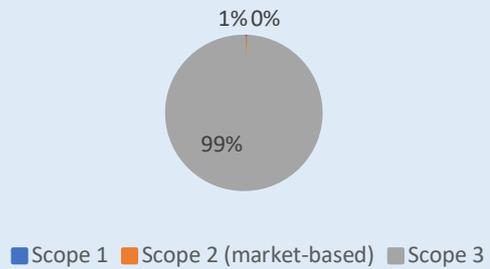
✓ **Progress (2021)***

| | |
|---|-----|
| Absolute reduction of scope 1 & 2 emissions | n/a |
|---|-----|

?

The company does not publicly show the evolution of emissions reduction compared to the total commitment of reduction by target year.

 **Figure 1. Distribution of emissions by scope in 2021:**



 **Key takeaways of Unilever's decarbonization plan:**

- The main focus is on reducing scope 1 emissions as these are within the direct control of Unilever. However, emissions reductions occur across the whole value chain:
 - Key areas for emissions reductions are raw and packaging materials, and logistics and distribution networks, totaling more than 75% of Unilever's greenhouse gas footprint.
- Compensation mechanisms are linked to sustainability targets.
- Developing learning programs with suppliers to reduce emissions.
- Eco-efficiency measures (e.g., programs to reduce the energy demand) and the transition to renewable energy (100% renewable grid electricity within the company operations) are the main methods to reduce emissions.
- Ensuring the plausibility of the science-based targets to provide legitimacy to climate goals.

 **Main challenges of Unilever's decarbonization plan:**

- Scope 3 emissions are not under the control of Unilever. The company can influence emissions reductions in some categories (e.g., logistics), whereas others are more difficult to reduce (e.g., ingredients for products).
- Measuring scope 3 emissions is resource intensive due to the extended supply chains across different tiers of suppliers.

¹¹ References:

- Unilever's Climate Transition Action Plan 2021 and Annual Report and Accounts 2021.
- Interview with a sustainability leader at Unilever.

* Compared to the base year (2015). The inventory from the base year was recalculated in 2020 due to changes in methodology that provide higher reliability.

UPM-Kymmene Corporation¹²

- The world's leading producer of graphic papers.
- Six business areas: UPM Fibres, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers, and UPM Plywood.
- 16,966 employees and €9.8 billion in sales in 2021.

UPM-Kymmene Corporation integrates sustainability through value creation from renewable and recyclable raw materials.

UPM has its target validated by the Science-Based Target initiative to limit warming to 1.5°C.



Translating words into action. Science-based targets plan:



Commitments

- 1) 65% absolute reduction of scope 1 & 2 emissions by 2030 from the base year.
- 2) 30% absolute reduction of scope 3 emissions by 2030 from the base year.

Progress (2021)*

| | |
|---|-----|
| Absolute reduction of scope 1 & 2 emissions | 27% |
|---|-----|

41.5% achieved**



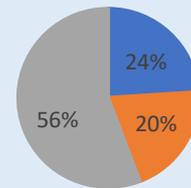
| | |
|---|-----|
| Absolute reduction of scope 3 emissions | n/a |
|---|-----|

?

The company is adjusting its scope 3 inventory to increase accuracy throughout primary data.



Figure 1. Distribution of emissions by scope in 2021:



■ Scope 1 ■ Scope 2 (market-based) ■ Scope 3



Key takeaways of UPM's decarbonization plan:

- Aligning SBTI's targets with UN SDGs – 2030.
- Creating KPIs aligned with sustainability performance: e.g., loan covenants and managers' remuneration associated with the scope 1 & 2 targets.
- Accounting for biogenic emissions produces a "neutral" impact since the CO₂ captured by sustainably managed forests compensates the biomass-based energy.
- The main focus is to reduce emissions of the critical raw materials for the company, such as pulp, pigments, chemicals, and paper.
- Developing a materiality analysis is the first step in choosing suppliers to reduce scope 3 emissions. This includes working with different stakeholders, including scientific partners, to gain credible data and approaches.



Main challenges of UPM's decarbonization plan:

- Modifying the scope 3 inventory to include real data from suppliers requires developing new targets.
- Receiving data from suppliers instead of using average CO₂ factors from databases.
- Working with numerous suppliers within the six business areas.
- It is difficult to ask suppliers to reduce scope 3 emissions – cooperation with suppliers is essential.

¹² References:

- UPM's Annual Report 2021 and Greenhouse Gas Inventory 2021.
- Interviews with sustainability leaders at UPM.

* Compared to the base year.

** Compared to the total commitment of reduction by target year.

Next steps and conclusions

This study indicates that there is a challenge in achieving net-zero emissions mainly due to the **business transformations that require collective action**. This is particularly relevant for keystone companies since their interconnected context of global production triggers extended supply chains.

Scope 3 emissions represent the highest source of emissions for most of the keystone companies. Although these emissions are the reporting company's responsibility, since these are produced along the supply chain, they are not under the financial or operational control of the reporting company. This scenario triggers difficulties in measuring and reducing scope 3 emissions. However, it must not be an excuse to decarbonize emissions across the supply chain.

This section aims to highlight the main policy and accounting obstacles found in the process of decarbonization of

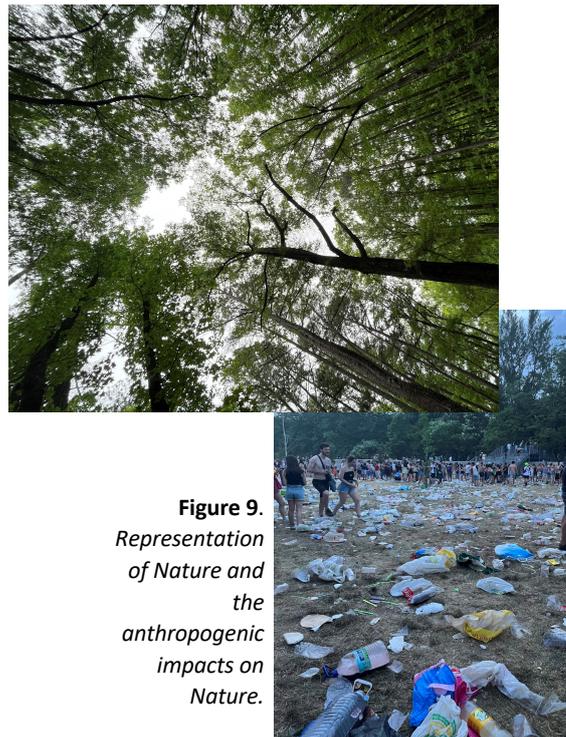


Figure 9.
Representation of Nature and the anthropogenic impacts on Nature.

Policy and accounting implications in achieving net-zero emissions

The SBTi is one of the key mechanisms for companies to set science-based targets to achieve net-zero emissions. Its soundness and its dynamic methodology are based on a set of rules for decarbonization. However, **some of these rules do not trigger the necessary business transformations to limit warming to 1.5°C.**

In relation to the **methods** for setting science-based targets, the SBTi allows absolute and intensity targets.

Intensity targets can be used as a form of greenwashing, as it is susceptible to multiple interpretations. For example, a company can reduce its unitary emissions and accomplish its intensity target, but increase its total production, and consequently the overall GHG emissions. Thus, the SBTi should **drive businesses to the use of absolute targets.**

Why are absolute targets critical to achieve net-zero emissions?

Climate change is a *wicked problem*, as there is not a unique solution to address it. Nevertheless, there is no doubt that global emissions need to decline to limit warming 1.5°C. Absolute targets are more effective to capture the total emissions reduction.

The **timeframe** for decarbonization provided by the SBTi can be inconsistent with the uncertainty of climate change since the target year is displaced in time. The SBTi should **promote urgent action through an ambitious but plausible roadmap**. Furthermore, the SBTi should set **clearer rules to set the base year**.

Why should companies set an ambitious but plausible roadmap?

Reducing emissions in line with 1.5°C pathways is itself a tough goal. This difficulty increases with long-term targets, especially for scope 2 and 3 emissions, as these are out of the companies' direct control. Thus, companies should internally set annual science-based targets to ensure they accomplish the long-term decarbonization goal.

To account for the **GHG emissions inventory**, the GHG Protocol categorizes the emissions by scope 1, 2, and 3. However, the concept of control drawn by the GHG Protocol does not help companies push action with suppliers, who need new accounting mechanisms to **enhance suppliers' emissions reductions**. Furthermore, accounting needs to work out the **difficulties** of measuring scope 3 emissions, such as **double counting, free-riding, or setting criteria for developing a comparable GHG emissions inventory**.

How should accounting mechanisms to measure scope 1, 2, and 3 emissions work?

First, pushing the boundaries to include supply chain emissions under the reporting companies' responsibility. Second, focusing on reducing their scope 3 categories with the highest emissions (e.g., category 1 – Purchased goods and services). Third, removing the most pollutant activities. In addition, engaging with researchers, as happened in this project, is critical to develop effective solutions.

In terms of **accountability**, companies have to review and update their targets at least every five years. However, they do not face any consequences if they do not meet their target. Despite the voluntary nature of the SBTi, **compliance mechanisms are critical to ensure the legitimacy of corporate commitments**. Public policies help overcome this problem.

What is the role of companies in enforcing voluntary commitments?

Companies must provide transparency in setting science-based targets (e.g., methodology, results, forecasts.). In addition, sustainability-linked incentives are necessary to enforce the commitments. Likewise, advocacy is critical for peers and governments to call for action.

10 key recommendations for companies when setting their roadmap for decarbonization:

- **Acknowledging responsibility** for the emissions occurring across the supply chain. Scope 2 and 3 emissions are categorized as “indirect” because these are out of the financial or operational control of the company. However, companies must recognize their responsibility by setting ambitious absolute scope 3 emission targets and using customer power to reduce suppliers’ emissions, for example.
- **Measuring emissions** with primary data and **making estimations** when data is not available.
- Developing a GHG emissions inventory, which may change over time (e.g., due to changes in methodology or business expansion). Companies must **track emissions reduction progress and provide transparency in the method** to reduce emissions (e.g., does the company consider business growth or is it a like-for-like inventory?).
- **Reducing scope 3 emissions**, as these are critical to tackle climate change. Companies must co-invest with suppliers to address the collective action of decarbonization.
- Prioritizing **absolute targets** as these ensure an overall reduction of the GHG emissions of the company. Absolute targets are the path to develop structural changes that limit warming to 1.5°C.
- Setting a **corporate short-term climate plan** (e.g., annually) that ensures the traceability and plausibility of the SBTi commitments. This provides a consistent strategy to achieve net-zero emissions.
- **Linking Key Performance Indicators (KPIs) to sustainability** to provide a consistent emissions reduction plan. Sustainability commitments must be embedded in the core strategy of the company, for which connecting incentives, debt bondages, or covenants with climate performance is pivotal.
- **Increasing transparency**. Investors and other stakeholders seek for climate change information. Companies must provide reliable and clear information on their science-based targets, regardless of the fact that eventually these are not achieved or have evolved.
- **Influencing local and national policymakers** to set up climate action and policies in line with a 1.5°C ambition. It is necessary to link the micro and macro-level in sustainability and regulation is critical for this achievement.
- **Collaborating with stakeholders** in the transition to a greener and fairer society. Companies must engage with civil society organizations to safeguard stakeholders’ interests.

References:

ACCIONA's Sustainability report 2021 and Integrated Report 2021.

AstraZeneca's Sustainability Report 2021 and Annual Report 2021.

BT's Annual Report 2022, BT Group plc Manifesto Report 2022, and ESG Addendum to the BT Group plc Manifesto Report 2022.

Danone's Extra-financial data 2021, Climate Policy, and 2021 Full-Year Results.

Enel's Strategic Plan 2022-2024, Sustainability Report 2021, Integrated Annual Report 2021, and Sustainability Report 2019.

Folke, C., Österblom, H., Jouffray, J. B., Lambin, E. F., Adger, W. N., Scheffer, M., Crona, B. I., Nyström, M., Levin, S. A., Carpenter, S. R., Anderies, J. M., Chapin, S., Crépin, A. S., Dauriach, A., Galaz, V., Gordon, L. J., Kautsky, N., Walker, B. H., Watson, J. R., ... de Zeeuw, A. (2019). Transnational corporations and the challenge of biosphere stewardship. *Nature Ecology and Evolution*, 3(10), 1396–1403. <https://doi.org/10.1038/s41559-019-0978-z>

Iberdrola's Statement of Non-Financial Information and Sustainability Report 2021.

IPCC. (2018). *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.*

IPCC, 2022: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp., doi:10.1017/9781009325844.

Natura &Co's Annual Report 2021.

Österblom, H., Jouffray, J. B., Folke, C., Crona, B., Troell, M., Merrie, A., & Rockström, J. (2015). Transnational corporations as “keystone actors” in marine ecosystems. *PLoS ONE*, 10(5), e0127533. <https://doi.org/10.1371/journal.pone.0127533>

Persson, L., Carney Almroth, B. M., Collins, C. D., Cornell, S., de Wit, C. A., Diamond, M. L., ... & Hauschild, M. Z. (2022). Outside the safe operating space of the planetary boundary for novel entities. *Environmental science & technology*, 56(3), 1510-1521.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E. F., ... & Foley, J. A. (2009). A safe operating space for humanity. *Nature*, 461(7263), 472-475.

Salesforce's FY22 Stakeholder Impact Report Summary, Climate Action Plan, and Schedules of Selected Environmental, Equality and Social Value Metrics.

SBTi. (2021a). *SBTi Corporate Net-Zero Standard – Version 1.0* (Issue October).

SBTi. (2021b). *SBTi Criteria and Recommendations – Version 5.0* (Issue October). <http://sciencebasedtargets.org/wp-content/uploads/2017/02/SBTi-criteria.pdf>

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., ... & Sörlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223), 1259855.

Unilever's Climate Transition Action Plan 2021 and Annual Report and Accounts 2021.

United Nations. Framework Convention on Climate Change. (2015). *Adoption of the Paris agreement.*

UPM's Annual Report 2021 and Greenhouse Gas Inventory 2021.

Worm, B., & Paine, R. T. (2016). Humans as a Hyperkeystone Species. *Trends in Ecology and Evolution*, 31(8), 600–607.

Annex I: companies' emissions categorized by scopes (targeted sample). (Extracted from CDP climate change 2021 questionnaire responses)

| Organization - analysis | Scope 1 (% GHG emissions) | Scope 2 market-based (% GHG emissions) | Scope 3 (% GHG emissions) |
|---------------------------------------|---------------------------------|---|---------------------------------|
| A.P. Moller - Maersk | 64% | 1% | 36% |
| ACCIONA S.A. | 5% | 2% | 94% |
| Accor | 11% | 0% | 89% |
| Adobe | 2% | 7% | 91% |
| Ajinomoto Co.Inc. | 7% | 7% | 86% |
| Apple Inc. | 0% | 0% | 100% |
| Applied Materials Inc. | 3% | 7% | 89% |
| Asahi Group Holdings, Ltd. | 7% | 6% | 87% |
| ASICS Corporation | 0% | 3% | 96% |
| AstraZeneca | 3% | 0% | 97% |
| Atos SE | 0% | 0% | 100% |
| Aviva PLC | 1% | 1% | 98% |
| Balfour Beatty | 81% | 19% | 0% |
| Banco do Brasil S/A | 39% | 0% | 61% |
| BanColombia SA | 39% | 0% | 61% |
| Bayer AG | 16% | 13% | 71% |
| Beiersdorf AG | 2% | 0% | 98% |
| Berry Global Group, Inc | 2% | 18% | 79% |
| Biogen Inc. | 14% | 0% | 86% |
| BMW AG | 1% | 0% | 99% |
| BT Group | 5% | 0% | 95% |
| Burberry Group | 1% | 1% | 98% |
| Carlsberg Breweries A/S | 4% | 2% | 94% |
| CBRE Group, Inc. | 0% | 0% | 100% |
| CHANEL | 0% | 0% | 100% |
| Charoen Pokphand Group | 7% | 0% | 93% |
| Chocoladefabriken Lindt & Sprüngli AG | 100% | 0% | 0% |
| Colgate Palmolive Company | 0% | 1% | 99% |
| Compass | 1% | 0% | 99% |
| Credit Suisse | 30% | 20% | 50% |
| Crown Holdings | 4% | 5% | 91% |
| Dalmia Bharat Ltd | 89% | 0% | 11% |
| Danfoss | 0% | 1% | 99% |
| Danone | 3% | 2% | 96% |
| Decathlon SA | 0% | 1% | 98% |
| Dell Technologies | 0% | 1% | 99% |
| Dentsu International | 1% | 1% | 98% |

| | | | |
|---|-----|-----|------|
| Deutsche Post DHL Group | 17% | 0% | 82% |
| Deutsche Telekom AG | 1% | 14% | 85% |
| Digital Realty Trust Inc | 1% | 42% | 57% |
| Dr. Reddy's Laboratories | 43% | 0% | 57% |
| E.ON SE | 3% | 5% | 92% |
| Eaton Corporation | 1% | 2% | 96% |
| Ecolab Inc. | 4% | 1% | 95% |
| EDF | 21% | 0% | 79% |
| Electrolux | 0% | 0% | 100% |
| Enel SpA | 45% | 8% | 47% |
| ENGIE | 22% | 1% | 77% |
| Ericsson | 0% | 0% | 100% |
| Essity | 23% | 23% | 54% |
| Europcar Mobility Group | 1% | 0% | 99% |
| FIRMENICH SA | 2% | 0% | 98% |
| Ford Motor Company | 0% | 1% | 99% |
| GEA Group AG | 0% | 0% | 100% |
| General Mills Inc. | 2% | 2% | 96% |
| General Motors Company | 0% | 1% | 99% |
| Givaudan SA | 5% | 2% | 93% |
| GlaxoSmithKline | 5% | 1% | 94% |
| Grupo Bimbo, S.A.B. de C.V. | 13% | 2% | 84% |
| Guess ?, Inc. | 0% | 5% | 95% |
| H&M Hennes & Mauritz AB | 0% | 0% | 100% |
| HeidelbergCement AG | 72% | 5% | 22% |
| Henkel AG & Co. KGaA | 1% | 0% | 99% |
| Hewlett Packard Enterprise Company | 0% | 2% | 98% |
| Hitachi, Ltd. | 2% | 3% | 95% |
| Holcim Ltd. | 75% | 5% | 20% |
| Hon Hai Precision Industry | 60% | 0% | 40% |
| HP Inc | 0% | 0% | 100% |
| Husqvarna AB | 0% | 1% | 99% |
| Iberdrola SA | 18% | 3% | 80% |
| Inditex | 0% | 1% | 99% |
| International Consolidated Airlines Group, S.A. | 77% | 0% | 23% |
| International Flavors & Fragrances Inc. | 6% | 3% | 91% |
| Interpublic Group of Companies, Inc. | 6% | 69% | 26% |
| J Sainsbury plc | 2% | 1% | 97% |
| Jacobs Engineering Group Inc. | 7% | 3% | 91% |
| JLL | 0% | 0% | 100% |
| Johnson & Johnson | 2% | 2% | 96% |

| | | | |
|------------------------------------|-----|-----|------|
| Johnson Controls International plc | 0% | 0% | 99% |
| Johnson Matthey | 4% | 4% | 92% |
| KAO Corporation | 5% | 2% | 93% |
| Kirin Holdings Co Ltd | 8% | 10% | 82% |
| Koninklijke KPN NV (Royal KPN) | 2% | 0% | 98% |
| L'Oréal | 26% | 8% | 65% |
| Legal and General | 0% | 0% | 100% |
| Levi Strauss & Co. | 22% | 30% | 48% |
| Lojas Renner S.A. | 0% | 0% | 100% |
| Mahindra & Mahindra | 0% | 0% | 100% |
| Marks and Spencer Group plc | 2% | 0% | 97% |
| Michelin | 1% | 1% | 99% |
| Microsoft Corporation | 1% | 2% | 97% |
| National Grid PLC | 13% | 6% | 81% |
| Natura &Co Holdings | 1% | 1% | 98% |
| NatWest Group plc | 2% | 1% | 96% |
| Nestlé | 3% | 2% | 96% |
| New World Development | 13% | 0% | 87% |
| News Corp | 1% | 5% | 95% |
| Nikon Corporation | 4% | 18% | 78% |
| Nokia Group | 0% | 1% | 99% |
| Novartis | 5% | 4% | 91% |
| Novo Nordisk A/S | 5% | 1% | 94% |
| Novozymes A/S | 4% | 24% | 72% |
| Olam International | 4% | 0% | 96% |
| ORANGE | 4% | 14% | 83% |
| Orkla ASA | 6% | 0% | 94% |
| Ørsted | 7% | 0% | 93% |
| PayPal Holdings Inc | 8% | 57% | 35% |
| Pearson | 2% | 0% | 98% |
| PepsiCo, Inc. | 6% | 1% | 93% |
| Pernod Ricard | 9% | 1% | 90% |
| Pfizer Inc. | 13% | 11% | 76% |
| Procter & Gamble Company | 1% | 0% | 99% |
| Proximus | 4% | 0% | 96% |
| PVH Corp | 1% | 2% | 97% |
| Ralph Lauren Corporation | 1% | 6% | 92% |
| Reckitt Benckiser | 0% | 0% | 99% |
| Renault Group | 1% | 1% | 99% |
| Ricoh Co., Ltd. | 6% | 9% | 84% |
| RWE AG | 79% | 0% | 21% |
| SAINT-GOBAIN | 6% | 0% | 94% |

| | | | |
|---------------------------------------|-----|-----|------|
| Salesforce.com, Inc. | 0% | 8% | 92% |
| Salvatore Ferragamo SpA | 0% | 5% | 95% |
| SANOFI | 8% | 4% | 88% |
| SAP SE | 1% | 0% | 99% |
| Schneider Electric | 0% | 0% | 100% |
| Schroders | 8% | 31% | 60% |
| Siemens AG | 5% | 2% | 94% |
| Siemens Gamesa Renewable Energy SA | 1% | 0% | 99% |
| Signify NV | 0% | 0% | 100% |
| Singtel | 1% | 96% | 2% |
| Snap Inc. | 2% | 1% | 98% |
| Sodexo | 1% | 0% | 99% |
| Sony Group Corporation | 1% | 7% | 92% |
| SSE | 37% | 3% | 60% |
| Stantec Inc. | 28% | 44% | 28% |
| Suntory Holdings Limited | 8% | 5% | 87% |
| Swiss Re | 9% | 2% | 89% |
| Swisscom | 5% | 0% | 95% |
| Symrise AG | 13% | 0% | 87% |
| Takeda Pharmaceutical Company Limited | 7% | 0% | 93% |
| Target Corporation | 1% | 2% | 97% |
| Telia Company AB | 1% | 1% | 99% |
| Telstra Corporation | 1% | 0% | 99% |
| TELUS Corporation | 1% | 0% | 99% |
| Tesco | 2% | 0% | 98% |
| Unilever plc | 1% | 0% | 99% |
| UPM-Kymmene Corporation | 24% | 23% | 53% |
| Valeo Sa | 0% | 1% | 98% |
| Vestas Wind Systems A/S | 1% | 0% | 99% |
| VF Corporation | 0% | 1% | 98% |
| Vivendi SA | 10% | 0% | 90% |
| Vodafone Group | 3% | 10% | 87% |
| Walmart, Inc. | 4% | 5% | 91% |
| Yum! Brands, Inc. | 0% | 0% | 100% |
| Zurich Insurance Group | 25% | 17% | 58% |

Setting Net-Zero Targets: Accounting and Policy Implications

If you would like to discuss any questions, please reach out to Elena Carrión (ecarrion@ubu.es)

Copyright © 2022 The Authors, some rights reserved. Distributed under a Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)

