

The Strongest Currents

**Key Trends in Climate
Target Guidance, Regulation,
and Practice**

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We, the authors, recognize that prevailing guidance and regulation in the net zero space is changing rapidly. To the best of our knowledge, all information provided in the report was accurate at the time of publication. We will continue to publish addenda with key guidance updates as necessary. Please reach out to kimberly.myers@tnc.org and melissa.gallant@tnc.org with any corrections.

Purpose

This report aims to inform anyone in the corporate climate action space and those following such developments to see a clearer picture of the landscape for voluntary corporate climate targets.

Recent years have seen an influx of corporate commitments to reduce emissions, and standards, guidance and recommendations from civil society about what makes a credible claim. This report:

1. summarizes the main components of a credible voluntary corporate net zero claim according to leading standards (see Voluntary Guidance and Assessments),
2. assesses how corporates are performing (see Voluntary Guidance and Assessments),
3. summarizes the current state of government regulation of voluntary corporate action on climate (see Regulatory Guidance of Voluntary Commitments), and
4. ends with a series of gaps and recommendations to consider for these different stakeholder groups (see Conclusion).

Note that the content covered in this report is not meant to be a comprehensive review of all guidance existing around climate commitments. Rather, it is a summary of the criteria, guidance and recommendations from leading standard-setting bodies, as assessed by the authors. In particular, the focus of the report is on voluntary claims by corporates to reduce emissions and government regulation in that context, with an emphasis on hard-to-abate sectors. As such, we do not address broader regulatory aspects of climate action, such as countries' Nationally Determined Contributions and compliance carbon markets.

Approach

The data and analysis provided in this report were collected via literature review of both primary and secondary sources. Given the extensive number of resources available on the topic of corporate climate claims, the authors selected this report's sources based on reputability and perceived influence of the source organizations. Following the review, the authors consulted with these organizations and other experts in the space to validate the report's accuracy and provide feedback on the proposed recommendations. Other organizations and individuals consulted include corporates with climate commitments, legal specialists, and policy experts. This report looks at three types of information:

1. Standards and Guidance for Voluntary Corporate Climate Action:

- Standards and guidance on how companies should account for their greenhouse gas emissions: Greenhouse Gas Protocol (GHGP)
- Standards and guidance on how companies should set emissions reduction targets: Science Based Targets initiative (SBTi), Race to Zero, UN High Level Expert Group (UN HLEG)
- Standards and guidance related to the use of credits: Voluntary Carbon Markets Integrity Initiative (VCMI), SBTi, Integrity Council for Voluntary Carbon Markets (IC-VCM), Gold Standard, British Standards Institute

- Standards and guidance on corporate climate transparency: CDP, Taskforce for Climate-related Financial Disclosures (TCFD), International Sustainability Standards Board (ISSB)
 - Standards and guidance on promoting a climate-forward economy: Transition Pathway Initiative, Exponential Roadmap, AAA Framework for Climate Leadership
- ### 2. Assessments of Voluntary Corporate Action:
- A number of civil society organizations gauge how companies are performing against their targets. While many provided the same metrics, each has a different methodology for evaluating a company's commitment, and all of them relied on a slightly different set of focus companies, leading to variability in the findings (see Appendix).
- ### 3. Regulatory Oversight of Voluntary Corporate Action:
- Secondary reviews of litigation and government press releases provided sufficient information to distill how voluntary corporate action is being regulated.

For all sources used in this work, the authors' aim was to summarize the main points and give a broad overview of the voluntary and regulatory net zero space, not to detail each individual standard and regulation's specifications. For additional information on each item, the authors encourage readers to refer to the source standard or regulation itself (see References).

GLOSSARY

Base year – The reference year companies use as a benchmark against their decarbonization progress.

Carbon budget – Estimated cumulative net global anthropogenic CO₂ emissions from the start of 2018 to the time that anthropogenic CO₂ emissions reach net zero that would result, at some probability, in limiting global warming to a given level, accounting for the impact of other anthropogenic emissions.

Carbon credit – A GHG unit that is issued by a carbon crediting programme and represents an emission reduction or removal of greenhouse gases. Carbon credits are uniquely serialized, issued, tracked, and cancelled by means of an electronic registry.

Carbon offset – A carbon credit that is used to compensate for an equivalent volume of greenhouse gas emissions emitted by a company, individual, or other entity.

Claim – A statement on the environmental aspect(s) or environmental impact(s) of a company or a product, which intends to inform a public audience.

Climate-washing – A term used to describe the dubious claims a company makes about their efforts to address climate change.

Decarbonization – The process by which countries, individuals, or other entities reduce or eliminate their emissions.

Greenwashing – A term to describe environmentally friendly claims companies make that do not result in tangible environmental benefits.

Hard-to-abate sectors – major industries that rely heavily on fossil fuels, such as cement, chemical, and heavy-duty transportation, and whose emissions are extremely costly to mitigate.

Net Zero (Emission Reduction) target – A type of climate target which reflects a company's commitment to make all feasible emission reductions and neutralize residual emissions either internally or through purchasing removal credits, usually on or before 2050.

Paris Agreement – A multilateral agreement coordinated by the UNFCCC and 194 state signatories with the aim of operationalizing a well below 2°C rise in global average temperature by 2050, and pursuing efforts to limit temperature rise to 1.5°C

Residual emissions – Emissions that are not feasible for companies to eliminate in the long term.

Science-aligned target – A type of climate target in line with the scale and speed of emissions reductions that are required globally to meet the Paris Agreement goal of limiting warming to 1.5° or well under 2°.

Target year – The year by which a company has stated it will achieve its emission reduction goal.

Unabated emissions – Emissions that are generated while a company is on the path to net zero.

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Executive Summary

Climate scientists generally agree that to limit warming to 1.5° Celsius (C), we need to halve global greenhouse gas (GHG) emissions by 2030 and attain net zero emissions by around 2050 (IPCC 2018). Companies play a key role in this transition to a low-carbon economy, and many are voluntarily committing to reduce their emissions in line with limiting warming to 1.5°C by reducing their net GHG emissions to zero by 2050 – so-called “**net zero**” pledges.

But recent studies show that many corporate pledges lack the necessary integrity and transparency to be deemed fully credible. Without assurances that these pledges are both real and achievable, companies are liable to be accused of greenwashing and, in some cases, even face legal action due to accusations of false advertising. In addition, the claims companies are making about their emissions reduction targets and actions are largely dictated by a series of voluntary standards and best practice guidelines that, at times, can be challenging to navigate, leading to confusion among corporates seeking to set and meet their climate commitments.

In this paper, we explore the state of the climate-related claims landscape for companies, including a summary of current voluntary standards and guidance, corporate adherence to best practices, and government oversight through regulation, legislation, and litigation. We focus our discussion on topics most relevant to hard-to-abate sectors (i.e., fossil fuel-reliant industries with extremely high abatement costs) and land-intensive sectors. Finally, we identify a series of gaps in the current voluntary and regulatory efforts to point the direction towards a more effective net zero movement.

Photo: Jeff Yonover

Voluntary guidance

Based on analyses of the leading guidance organizations, the common elements of a credible climate strategy include:

A target that is aligned with science, ambitious in scope and scale, and has a clear timeline.

A company's target is considered aligned with science if it is in line with the scale and speed of emissions reductions that are required globally to stay within the carbon budget and meet the Paris Agreement goal. That means cutting emissions in half by 2030 and reducing to net zero by 2050 at the latest, which equates to an average annual rate of reduction of 4.2%. However, decarbonization looks different in different sectors, and those rates and targets will vary (see Box 2). Standards and best practices broadly agree that a credibly ambitious emissions reduction target (or targets) should apply to a company's direct and indirect emissions (scopes 1, 2, and 3); should incorporate all greenhouse gases (not just CO₂); and should incorporate interim targets on the way to net zero.

A holistic transition plan, with a priority on internal decarbonization and limited use of carbon credits.

Credible commitments and targets must be followed by robust plans for the activities and initiatives to make the decarbonization transition.

These transition plans should be publicly available and should detail the strategies, actions, and investments companies will use to reach their targets. In general, standards and guidance follow the principles of the 'mitigation hierarchy' in their recommendations about developing transition plans – companies should prioritize avoiding and minimizing GHG emissions ahead of compensating for the remainder by investing in mitigation outside their value chains. The standard setting bodies we examined all recommend that companies use high-quality carbon credits to go above and beyond meeting their targets. When it comes to the use of credits in meeting targets, standards generally agree that credit use should be limited, though they differ in their specific recommendations.

Regularly measured emissions, monitored progress, and maximized transparency.

Once companies have set targets and released their transition plans, transparency is key. To maximize transparency, target-setting standards and best practices recommend or require companies to produce publicly available information, including 1) accessible, standardized, annual reporting on emissions, 2) comprehensive disclosure of transition plans, 3) progress towards implementing the plans and meeting emissions reduction targets, and 4) third-party verification of emissions reporting and other components of companies' climate disclosures.

Claims language that is accurate and well-founded.

There are innumerable ways companies make claims about their climate achievement, making it difficult to gauge the real impact of those claims. Fundamentally, there are two main claim types: compensation-based claims and contribution-based claims. The key difference between the two is whether the company is claiming ownership of the mitigation outcomes from purchasing credits to compensate for their emissions (in other words, offsetting) or claiming their contribution without claiming ownership of the mitigation outcomes. Several standard setters and other organizations involved have recently issued guidance favoring the use of contribution claims over compensation claims. However, some bodies are also investigating how companies could still use high-integrity compensation claims as they work their way to meet their climate targets and eventually transition to contribution claims.

Promotion of structural change inside and outside your organization to support a climate-forward economy.

Most voluntary standards and best guidance recognize that, to achieve the goals of the Paris Agreement, decarbonization should be backed by corporate governance practices that support holistic decarbonization and beyond. The guidance in this area tends to be more flexible and less specific than in areas regarding emissions targets and decarbonization.

While actions to promote structural change are largely left to companies to sort out, some frameworks and guidance do include some recommendations, with the most common being around aligning companies' internal policies and procedures with setting and meeting their emissions reduction goals. Others are related to leadership oversight/involvement in climate targets and how to designate responsibility for climate targets. Lastly, some recommend linking executive remuneration with climate outcomes to align executives' incentives with ambitious decarbonization.

Reflections and Recommendations: Voluntary Action

Voluntary standards and guidance and the companies who follow them play crucial roles in the global transition to net zero. While the pace of new standards and guidance the pace of new targets is encouraging, gaps and barriers remain. We need companies that are not yet taking action to join in and take responsibility for their emissions, and for companies at all stages of their climate journeys to continue to strive to meet best practices. Standard- and guidance-setters should continue to align with each other and create as clear and navigable a path for all companies on the way to net zero, including those in high-emitting and hard to abate sectors. Throughout the net zero space, transparency and accountability are key. We need companies to maximize transparency, standards and guidance to require disclosures, and standard bodies and civil society to ensure accountability through all stages of net zero.

Regulatory guidance

Voluntary efforts have come a long way in the past several years but will only get us so far. Regulation demands action from companies who would not otherwise address their climate impact or raises the bar for those not doing enough and ensures a common threshold for targets.

Governments are beginning to regulate voluntary claims in the following ways:

Climate litigation

These cases, commonly referred to as “climate-washing” cases, typically involve a civil society or consumer group suing a company over an allegedly misleading claim about their climate impact. They address 3 categories of issues:

1. the legitimacy of corporate net zero or neutrality commitments,
2. the legitimacy of climate-friendly product claims, and
3. lack of disclosure of climate investments, financial risks, and harm caused by companies.

Climate disclosure rules

In the short term, the most common regulation companies with voluntary commitments might face is a disclosure requirement. In the eyes of some policymakers, climate commitments are misleading, or even fraudulent, if they overstate their impact. To date, at least 10 countries have enacted or contemplated enacting corporate disclosure rules to help avoid misleading claims (see Table 2).

Claims rules

Mandatory rules around the marketing of claims have only emerged in the past few years via the European Union, the state of California, France, and the Netherlands. The technical details around what makes an acceptable claim, particularly around the use of credits, are still in discussion. Several other country governments, as far back as 2012, have published guiding principles and certifications for environmental claims.

Gaps, Barriers, and Recommendations: Regulatory Oversight

The following sections describe the key areas where the authors feel governments and civil society should focus to optimize regulatory impact:

- Governments regulate reporting of emissions and other climate-related metrics;
- Governments mandate clearer definitions of claims;
- Governments draw on progress and lessons learned from civil society and companies; and
- Civil society ensures that voluntary guidance is aligned with any regulatory requirements.

We must build on the knowledge and standards that have been developed, continue efforts to enhance and align them where needed, and work to expand credible action on climate throughout the private sector. Governments, companies, and civil society must work collaboratively and constructively, ensuring accountability, acknowledging achievements we’ve already made, and continually striving to be informed by science to meet our climate goals. Recognizing that the standards set for net zero will continue to evolve in the coming years, this report is meant to act as a snapshot of the net zero state of play. We, the authors, plan to publish short addenda to this report as the uncertain aspects of net zero solidify.

Introduction

Climate scientists generally agree that to limit warming to 1.5° Celsius (C), we need to halve global greenhouse gas (GHG) emissions by 2030 and attain net zero emissions by around 2050 (IPCC 2023). Reaching that goal will require a holistic shift in the way our economy functions – from the way our energy is produced to the way we transport ourselves to the way we grow our food. While many countries, municipalities, companies, and individuals around the world are taking action to reduce their emissions, as a globe we are not on track to meet that goal. If we don't transition to a greener economy, and fast, we face a hazardous future with more frequent and stronger storms, fires, and flooding with effects that ripple through people's lives, the natural world, and global markets.

Companies play a key role in this transition to a low-carbon economy, and many are voluntarily committing to reduce their emissions in line with limiting warming to 1.5°C by reducing their net GHG emissions to zero by 2050 – so-called “net zero” pledges. National, subnational, and city governments are committing to net zero too. In fact, data show that these net zero pledges cover >90% of the global economy (Net Zero Tracker 2022).

But recent studies have revealed that many of these pledges, including corporate pledges, lack the necessary integrity and transparency to be deemed fully credible. According to the non-profit Net Zero Tracker, at the time of writing, only one-third of the world's largest publicly listed companies with net zero targets meet minimum standards of integrity. More than half (54%) of all companies on the Forbes 2000 list do not have targets at all (Net Zero Tracker 2023a). This is bad news for the climate, especially as the window for limiting warming to the Paris Agreement's goal of well below 2°C is closing (UNEP 2022).

Without assurances that these pledges are both real and achievable, companies are liable to be accused of greenwashing and, in some cases, false advertising. Some countries are exploring regulation that would require companies with voluntary commitments to disclose their climate-related risks, including their greenhouse gas emissions, on an annual basis. This and other regulatory efforts would help standardize what, when, and how companies report this information and, over time, assist investors and the public in understanding how companies are progressing against their self-imposed emission reduction targets.

Currently, though, most target-setting and reporting is voluntary and unregulated, driven by a combination of investor interest, public pressure, anticipation of being regulated, and genuine desire to address climate change. The decisions companies are making about their emissions reduction targets, actions, and claims are largely dictated by a series of voluntary standards and best practice guidelines that, at times, can be challenging to navigate, leading to confusion among corporates seeking to set and meet their climate commitments.

In this paper, we explore the state of the climate-related targets and claims landscape for companies, including a summary of current voluntary standards and guidance, corporate adherence to best practices, and government involvement through regulation, legislation, and litigation. We focus our discussion on topics most relevant to hard-to-abate sectors (i.e. fossil fuel-reliant industries with extremely high abatement costs) and land-intensive sectors because these sectors are both critical to reaching global climate goals and face unique challenges in their decarbonization processes. Finally, we identify a series of gaps in the current voluntary and regulatory efforts to point the direction towards more effective corporate climate action.

Voluntary Guidance and Assessments

As more companies have set targets to reduce their emissions, non-profits and others have created trackers, standards, and best practices to help differentiate between credible and non-credible targets. This section draws on a number of these standards and best practice guidelines and summarizes **the common elements of a credible climate strategy:**

- 1. A target that is aligned with science, ambitious in scope and scale, and has a clear timeline.**
- 2. A holistic transition plan, with a priority on internal decarbonization and limited use of carbon credits.**
- 3. Regularly measured emissions, monitored progress, and maximized transparency.**
- 4. Claims language that is accurate and well-founded.**
- 5. Promotion of structural change inside and outside your organization to support a climate-forward economy.**

For an overview of the guidance initiatives mentioned in this report, see the Appendix.

Photo: Penny Pranghell - TNC Photo Contest 2021

Summary of voluntary guidance: common elements of a credible climate strategy

Element #1: A target that is aligned with science, ambitious in scope and scale, and has a clear timeline

Includes guidance from Race to Zero, SBTi, and UN HLEG

SCIENCE-ALIGNED

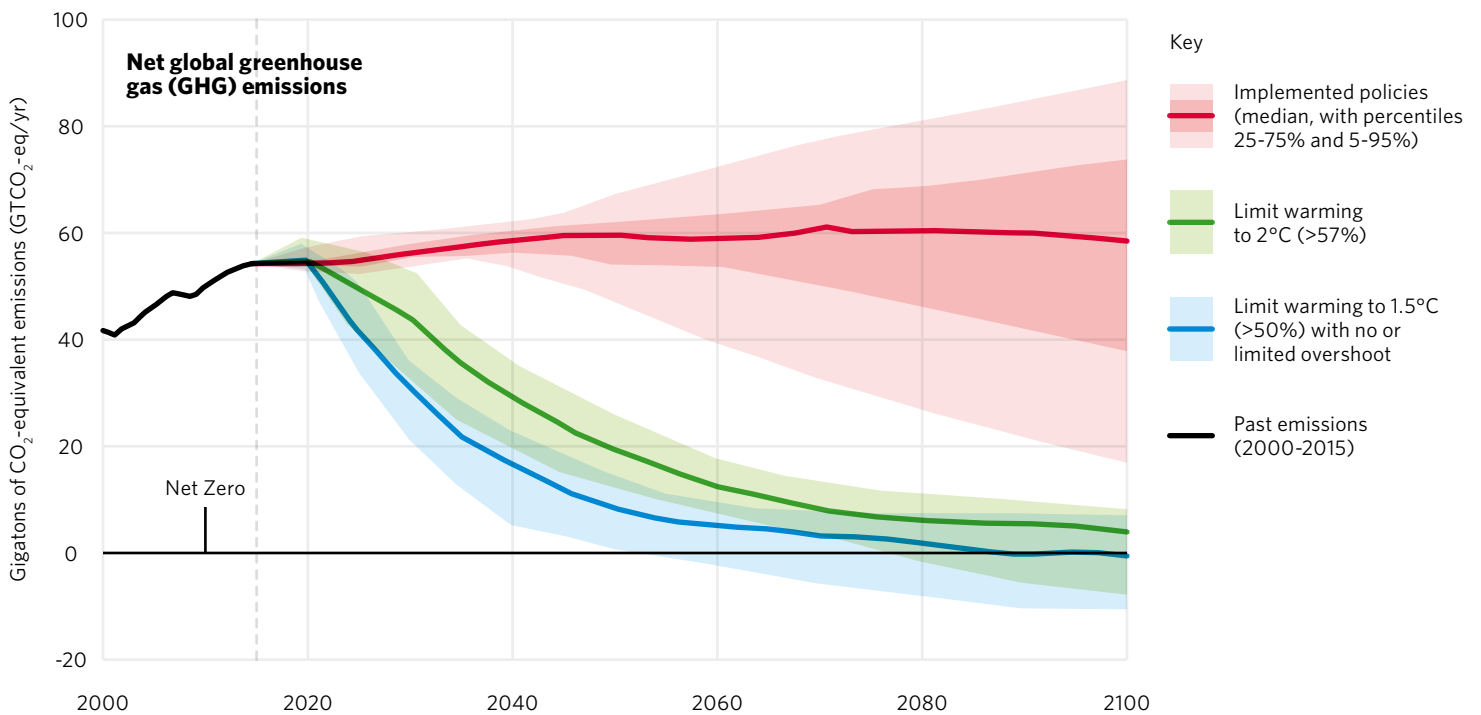
The scientific consensus is that to limit warming to 1.5° C economy-wide, we need to halve emissions by 2030 and attain net zero by 2050 (see Figure 1 below). Based on the current scientific understanding, scientists have estimated a “carbon budget” (which also includes non-CO₂ GHGs) that is the total amount of anthropogenic GHGs that can exist in the atmosphere while avoiding the worst impacts of climate change. Scientists estimate that no more than 500 gigatons of anthropogenic CO₂ can enter the atmosphere between 2020 and 2050 to have a 50% chance at the 1.5° C scenario (IPCC

2023). A company’s target is considered aligned with science if it is in line with the scale and speed of emissions reductions that are required globally to stay within a carbon budget that will meet the Paris Agreement (see Box 2).

Though sometimes used interchangeably, “science-based” or “science-aligned” and “net zero” targets are not always synonymous. “Science-based” and “science-aligned” both refer to targets that are in line with the emissions reductions needed to meet global climate goals, but “science-based” refers to specifically to targets that are set through the Science Based Targets initiative (SBTi). Long-term science-aligned or science-based targets should also be “net zero” targets, where a company commits to reduce its emissions to a residual level by 2050 and neutralize any remaining emissions. Shorter term targets may be science-aligned or science-based, but not net zero, for instance if they follow an emissions reduction trajectory in line with scientific pathways, but have a nearer-term target year (see Appendix for explanations of commonly used claims)¹.

1. Note that the term 'science-aligned' in this report includes but is not limited to the science-based targets set through the Science-based Targets Initiative.

Figure 1: Emissions pathways leading to 2100 with 3 distinct warming scenarios (IPCC 2023).



The most widely used and authoritative standard for setting a science-aligned target is the Science Based Targets initiative (SBTi). The SBTi is an initiative of NGOs (WRI, WWF, CDP and UN Global Compact) that standardizes how companies can set emissions reduction targets that are in line with science. For a company to certify their climate target as SBTi-approved, the target must meet SBTi’s criteria around, for instance, the speed at which the company plans to decarbonize and the scope/coverage of their target. Each target is validated by SBTi – generally, companies first publicly commit to set an SBTi target, then develop their target, and submit it for validation. Once the target is validated, companies must announce their target and continue to disclose progress.

SBTi has several standards and guidance documents, including a cross-sector standard for corporates wishing to set a net-zero target as well as sector-

specific guidance for some sectors. Under the Net Zero Standard, an average company should aim to reduce its absolute emissions at an annual rate of 4.2% from a base year of 2020 or earlier in the near-term or 90% by 2050 and address the remaining 10% of emissions through permanent carbon removals (SBTi 2023). These emission reduction rates and targets vary somewhat by sector. For instance, because of their role in feeding the global population, agricultural companies only need to reduce absolute emissions by 75% – see Box 2 for more information.

Though not as detailed as SBTi’s target-setting guidance, the United Nations’ Race to Zero Campaign requires companies to adopt similar emissions reduction targets. This initiative was launched in 2020 to galvanize private sector climate action, requiring companies to aim for 50% emissions reduction by 2030 and reach net zero emissions no later than 2050.

So far, this summary has focused on “absolute” emissions targets, which are targets that aim to reduce emissions by a specific amount – for instance, reduce 50% below a certain baseline. Companies may also set intensity-based targets, which commit to reducing emissions relative to some other metric, such as unit of production. For example, a shoe company may pledge to reduce emissions per pair of shoes produced. While there are pros and cons to each, it is important to note that, in some cases, intensity-based targets will not equate to absolute emissions reductions if, for example, the company significantly expands production between the base and target years.

SBTi’s approach to absolute- vs. intensity-based targets varies by sector. Companies using the cross-sector approach (which is most companies) must set absolute targets for their scope 1 and 2 targets but

may choose to set intensity-based scope 3 targets for both near- and long-term targets as long as those targets are in line with a well below 2°C and 1.5°C pathway, respectively. Some companies, if they are using certain sectoral decarbonization approaches, may set intensity-based near- and long-term targets where the company’s emissions intensity converges to a sector-wide level of intensity that is consistent with a 1.5°C pathway (SBTi 2023).

A High-level Expert Group organized by the UN (UN HLEG) similarly recommends that companies set absolute emissions reduction targets and, only where appropriate, use intensity emissions reduction targets if they are at least consistent with a 1.5°C pathway where global emissions decline at least 50% below 2020 levels by 2030, reaching net zero by 2050 or sooner.

Box 1: Corporate Action to Date

Net Zero and Science-aligned targets:

According to two separate assessments of the globe’s largest multinational corporations, somewhere between 34% and 38% of large private sector entities are committed to net zero, and these numbers have been climbing steadily in recent years (Accenture 2022, Climate Impact Partners 2022). Climate Impact Partners reported a 52% growth in claims between 2021 and 2022.

Ideally, the “Net Zero by 2050” model would go hand in hand with a science-aligned pathway in order to remain

within the IPCC’s carbon budget. However, not all companies are following those guidelines and instead choosing to establish targets that may be more or less ambitious. Of MSCI’s 9,000+ focus companies, just 16% of corporate targets align with a 1.5°C pathway.

In 2021, a report by TPI determined that target pathways in hard-to-abate sectors ranged between 0% and 35% aligned with the Paris Agreement (2°C) by 2050, depending on the sector. Within the automobile, cement, and electricity sectors, there was more alignment in long term science-aligned pathways than in short term. The least aligned sector overall was found to be oil and gas.

Box 2: Sector Specifics

There are many mitigation pathways depicting how the global economy could develop in the coming decades and stay within the carbon budget scientists have established to meet the Paris Agreement's goals to limit warming to 1.5°C or well-below 2°C. These pathways can provide a framework to understand how specific sectors need to decarbonize in order to meet the global goal. They integrate many factors, from socio-economic considerations like population growth and the relative productivity of different sectors, to technologic development considerations, like how quickly improvements in carbon capture or green energy will develop. Each sectoral pathway has its own limitations and uncertainty levels. Because of the variation in these pathways' underlying assumptions, the rates and degrees to which each sector must decarbonize can vary. For instance, if a pathway assumes slower deployment of renewables and hence more short-term emissions from energy, in order to remain within the carbon budget, other sectors like transportation or land would need to decarbonize more quickly.

That said, there are also many characteristics that are common between most pathways that keep us below 1.5°C, including:

- 1.** Energy supply sees reduced carbon intensity, meaning a lower share of energy coming from carbon-intensive unabated fossil fuels and a higher share from less carbon intensive energy sources like renewables and nuclear.
- 2.** Energy demand sees increased electrification and enhanced efficiency of buildings, industrial and manufacturing processes.
- 3.** Agriculture, forestry and other land use (AFOLU) becomes a net sink by reducing land-based emissions and increasing carbon removals and storage in land through measures like adjusting agricultural practices (e.g. fertilizer use and soil tilling), halting deforestation, and restoring ecosystems to native vegetation.
- 4.** Carbon Capture and Storage (CCS) is included in almost all pathways, which in the short term could alleviate the need for rapid emissions cuts elsewhere and in the longer term can help maintain net emissions removals, which will be necessary even after achieving net zero.

Box 2 continued

These common characteristics can help inform decisionmakers in the private and public sectors about how to align corporate practices and public policy around the transition to net zero. There is a lot of literature and guidance about decarbonization approaches that can help guide a company in understanding how to set a “science-aligned” target. This includes both economy-wide resources like in the IPCC reports and, increasingly, sector-specific tools like the International Energy Agency’s roadmap for the energy sector or the World Business Council for Sustainable Development’s Forest Sector Net Zero Roadmap.

Based on this body of literature, the Science Based Targets Initiative is developing a series of sectoral decarbonization approaches companies can use to set an SBTi-validated target. These sectoral decarbonization approaches differ from SBTi’s standard Corporate Net Zero target-setting practices in that instead of requiring companies to follow an economy-wide trajectory to net zero emissions by 2050, companies in certain sectors follow a sector-specific trajectory. This approach allows for greater variability between sectors, depending on the sector’s modeled emissions under a 1.5°C pathway.

For energy utilities, for example, 1.5°C-aligned pathways almost all require decarbonization at an even faster rate than the overall economy because other sectors’ decarbonization (like industry, buildings, etc.) relies on having access to low-emission electricity. Therefore, the SBTi’s sector guidance for energy utilities requires that companies reach net zero by 2040 instead of 2050, as for most sectors.

Sectoral guidance is more suitable to some sectors than others - it is most applicable for relatively homogenous sectors and those with considerations that do not apply across the whole economy. As of the time of writing, the SBTi has completed sector-specific guidance for the apparel and footwear, cement, financial institutions, forests, land and agriculture (FLAG), information and communication technology, maritime, and power sectors and is developing guidance for the aviation, buildings, chemicals, oil and gas, steel, and transport sectors.

AMBITIOUS IN ITS SCOPE AND SCALE

A company's carbon emissions may come from many different sources, in many forms, and in many places. Standards and best practices generally agree that a credible emissions reduction target (or targets) should apply to as much of a company's overall

emissions as possible. SBTi's Net Zero Standard, for example, requires that companies' emissions inventories cover at least 95% of their scope 1 and 2 emissions, and that companies' emissions reduction target cover the full scope of the emissions inventory (see below for guidance on scope 3).

Box 3: Corporate Action to Date

Overall emissions coverage:

A 2022 analysis by the Corporate Climate Responsibility Monitor found that only 3 of the 25 companies reviewed were committed to reducing 90% or more of their aggregate GHG footprint. Conversely, 5 of those 25 only committed to reducing 15% or less. The average targeted reduction across this sample group was 40%.

60% of companies with net zero targets either do not include scope 3 emissions in their targets or do not specify whether scope 3 emissions are included (Net Zero Tracker 2022).

Ambitious Scope 3 emission reduction plans tend to be correlated with long term targets. Corporates with earlier target dates are less likely to include Scope 3 (Hans et al. 2022).

Scope measurement:

Currently, 81% of S&P 500 companies measure and report their scope 1 and 2 emissions (LoPucki 2022). Meanwhile, 41% of all companies reporting to CDP report at least one scope 3 category.

Ambitious scope 3 emission reduction plans tend to be correlated with long term targets. Corporates with earlier target dates are less likely to include Scope 3 (Hans et al.).

The target should also apply to all significant greenhouse gases, not just carbon dioxide (CO₂), because other GHGs may be material to a company's climate impact. Under the Greenhouse Gas Protocol's GHG accounting framework, companies must include in their inventories all six GHGs included in the Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃), and sulfur hexafluoride (SF₆).

Another consideration is what parts of an organization's operations and value chains are covered by their emissions target. According to the GHGP's framework, corporates emissions are sourced from their direct operations (scope 1), from the energy a company purchases (scope 2), and from the company's purchased goods and services and the use and end phases of their products (scope 3).

Typically, it is much easier for a company to measure and reduce their scope 1 and 2 emissions than scope 3. Scope 3 emissions are the most complex to measure, in part because scope 3 covers such a wide range of activities and in part because they fall outside the company's direct control. GHGP splits scope 3 emissions into 15 categories, nine upstream and six downstream, including everything from purchased goods and services to employee commuting to the use-phase of sold products and end-of-life treatment. To measure emissions from purchased goods and services, companies must obtain emissions data from source companies or rely on generalized emissions factors. Reducing those emissions requires producers and suppliers to change their operations, which can be hard for a company to influence. Still, scope 3 emissions represent the largest share of most companies' emissions so are an important part of corporate climate action.

The complexities of addressing scope 3 emissions are reflected in the standards and guidance. GHGP has a specific scope 3 standard for measuring scope 3 emissions. In terms of target-setting, the main standard-setters agree that targets should include emissions from all three scopes, though with some variation. SBTi requires companies with scope 3 emissions that comprise >40% of their total emissions to set a scope 3 near-term target. In the near-term (5-10 years), that target must cover >67% of the company's scope 3 emissions. In the long-term (with a 2050 target year at latest), targets must cover 90% of scope 3 emissions regardless of the share scope 3 represents in the total emissions portfolio. Race to Zero member companies must include all three scopes in their net zero targets. A 2022 summary report of high-integrity net zero practices published by a United Nations' High Level Expert Group (HLEG) recommends that companies include all three scopes but notes companies should explain where scope 3 data is missing and how they are working to obtain that data. For financial and insurance institutions, according to SBTi and Race to Zero, the target should also include the emissions associated with the projects they finance – a scope 3 requirement that is unique to these sectors.

Box 4: Corporate Action to Date

Scope targets:

In 2022, Net Zero Tracker found that 38% of companies with net zero targets also address full Scope 3 emissions in their targets. That percentage does, however, jump to around 60% if we count partial Scope 3 coverage.

Box 5: Sector Specifics

Energy supply

According to the IPCC, in most 1.5°C aligned pathways, energy supply must: increase the share of low-emitting energy sources (like renewables and nuclear) while lowering the share of unabated fossil fuels; expand electrification for end users while reducing the carbon intensity of electricity generation; and increase the use of CCS for fossil fuel and biomass-derived energy. The implications of these pathways have wide-reaching, even existential, consequences for energy suppliers in the oil and gas sector. Based on these pathways, what does a science-aligned target that aligns with global net zero goals look like for companies in this sector?

SBTi is currently in the process of developing guidance for the oil and gas sector. The process has been delayed since its original timeline – after beginning in 2019 with a series of working group meetings and publishing draft guidance in 2020, in 2021 the project was put on hold. It was restarted in 2022 after SBTi’s cross-sector Net Zero Strategy was published, but as of this writing there is no updated timeline for completing the project. In the meantime, SBTi is not accepting new targets from the oil and gas sector and has removed the targets previously set from its dashboard registry.

Draft guidance published in 2020 following SBTi’s multi-stakeholder advisory group convenings outlines four general transition approaches for oil and gas sector companies to decarbonize:

1. diversify to other forms of energy like renewables and other low-emitting sources,
2. transition to a circular model for CO₂ management by maximizing the use of CCS and direct air capture and re-storing the captured emissions in geological formations, where they could potentially be re-extracted and used as an energy source,
3. manage the company’s decline as it phases out fossil fuels, or
4. manage the company’s transition to another sector as it phases out fossil fuels.

However, this guidance has not been finalized into a framework for oil and gas companies to use to set SBTi-certified targets.

In the absence of this sector guidance, many oil and gas companies are setting their own emissions reduction targets and often claiming net zero. The gap in authoritative guidance leaves companies to determine on their own what qualifies as a “net zero” or “science-aligned” target independently, typically relying on a combination of general best practices and what companies consider feasible. One example of how this plays out is the way companies in this sector address their scope 3 emissions, which is the bulk of emissions for oil and gas companies. Most do not count emissions from the use of their products, such as downstream emissions from cars, in their climate targets (Dietz et al. 2021). See the gaps and recommendations section for more information.

CLEAR TIMELINE

A clear decarbonization timeline provides clarity on the level and speed of emissions reductions a company is pledging. Timelines should include a target year (when emissions reductions will be achieved), a base year (baseline annual emissions), and interim targets in between. Most companies structure their interim targets as:

*Committing to reduce emissions by [X%]
below [base year] levels by [target year]*

The year a company selects as its base year can affect the magnitude of emissions reductions. For instance, let's say Company X pledges to reduce emissions

50% by 2030, and its emissions grew 10 million tCO₂e in 2010 to 20 million tCO₂e in 2019. If the company chooses a base year of 2019, its target emissions by volume in 2030 will be higher (10 million tCO₂e) than if their base year was 2010 (5 million tCO₂e).

GHGP recommends choosing a base year with robust and reliable data, especially in case the base year emissions inventory needs to be recalculated. SBTi requires companies to choose a base year no earlier than 2015. The base year should also represent a typical year for the company. For example, the Covid-19 pandemic affected many corporate operations in 2020 and 2021, so these are likely not representative of an average year's emissions and would therefore be poor choices for a base year.

Box 6: Corporate Action to Date

Target year:

Overwhelmingly, companies with climate targets aim for 2050 at the latest to meet their goals – over 95% of them, to be exact. One fifth of company targets aim to achieve “net zero” on or before 2030 (Net Zero Tracker 2023b).

Baseline year:

An analysis of the Net Zero Tracker dataset by the authors found that 40% of companies with a net zero claim use a baseline year of 2018 or 2019 to set their targets. Nearly all groups (91.5%) rely on a year between 2010 and 2021 (Lang et al. 2023).

Timelines should align with the science-aligned pathway of limiting warming to 1.5°C or well below 2°C, which requires substantial near-term emissions reductions *and* reaching net zero emissions by 2050. SBTi's Corporate Net-Zero Standard and Race to Zero guidance both require net zero target years of 2050 at the latest to align with the goal to limit warming to 1.5 degrees C. Interim targets are crucial for ensuring near-term emissions reductions, and standard-setters recommend having at least one interim target

before reaching net zero. To meet Race to Zero's membership criteria, companies must set an interim target that reflects "maximum effort toward or beyond a fair share of the 50% global reduction in CO₂ by 2030." SBTi's Net-Zero Corporate Standard requires companies to set near-term (within 5-10 years) in addition to long-term targets. The UN HLEG recommends that companies disclose short-, medium- and long-term absolute emission reduction targets, and, if relevant, relative, or intensity-based emission reduction targets.

Box 7: Corporate Action to Date

Interim targets:

At present, slightly more than half of climate-committed companies have any interim target (Net Zero Tracker 2022, Hans et al 2022., Dietz et al. 2021). Climate Action 100+ estimates that 82% of the world's largest companies have medium-term and 53% have short-term goals, though this number drops significantly if you only count 1.5° C-aligned pathways.

Even if those current interim goals are met, the volume of reductions achieved will not match the volume of reductions needed. Under current interim targets, emissions are projected to fall far short of the 50% needed globally to be on track to meet the Paris Agreement goals (Day et al. 2022).



Photo: Lisa Skelton - TNC Photo Contest 2019

Element #2: A holistic transition plan, with a priority on internal decarbonization and limited use of carbon credits

Includes guidance from IC-VCMI, Race to Zero, SBTi, UN HLEG, and VCMI

Transition plans

Credible commitments and targets must be followed by robust plans for the activities and initiatives to make the decarbonization transition. What those activities are and how they are implemented depends on the company, but standards and best

practice guidance can help inform companies with some basic principles.

Standards and best practice guidance generally agree that transition plans should cover the full scope of the target and include sufficient details on the activities the company plans to undertake to meet its targets. Race to Zero requires member companies to take immediate action toward achieving net zero and interim targets, and to publicly disclose a transition plan within one year of joining, detailing actions to be taken within one year, 2-3 years, and before 2030. The UN High Level Experts Group recommends that companies publicly disclose comprehensive and actionable net zero transition plans, including an explanation of emission reduction and removal activities, with time-bound performance indicators, and an explanation of how specific actions will meet near-, medium- and long-term targets.

Box 8: Corporate Action to Date

Transition plans:

The robustness and transparency of plans in the private sector varies depending on who you ask. Between Climate Action 100+ and WWF, the percentage of companies with 'detailed' emission reduction plans lies somewhere between 19% and

43%.^{*} Another analysis from Corporate Climate Responsibility Monitor determined that none of their focus companies provided enough detailed information on their emission reduction measures.^{**} 20 of the 25 study subjects, however, did at least moderately detail their plans to address Scopes 1 and 2. Scope 3 reduction plans were much more elusive.

^{*}This number varies in part because of differing definitions of what adequately detailed decarbonization strategies entail. Climate Action 100+'s estimate is based on whether the company's public decarbonization strategy is 'quantified', while WWF counted companies which "set out clearly how a company will meet their targets".

^{**}In order to be considered sufficiently detailed according to the CCRM methodology, a company's plan should include information about the company's planned emissions reduction measures, the scale of each measure (i.e. what proportion of a company's activities will be addressed by each), and the anticipated GHG reductions associated with each measure.

PRIORITIZING INTERNAL DECARBONIZATION AND THE USE OF CARBON CREDITS

Standards and guidance generally follow a concept known as the 'mitigation hierarchy', instructing companies to prioritize avoiding and minimizing their own GHG emissions ahead of remediating the remainder through removals or reductions outside their supply chains. However, there is some variation amongst standards and guidance in how this concept applies to the use of credits.

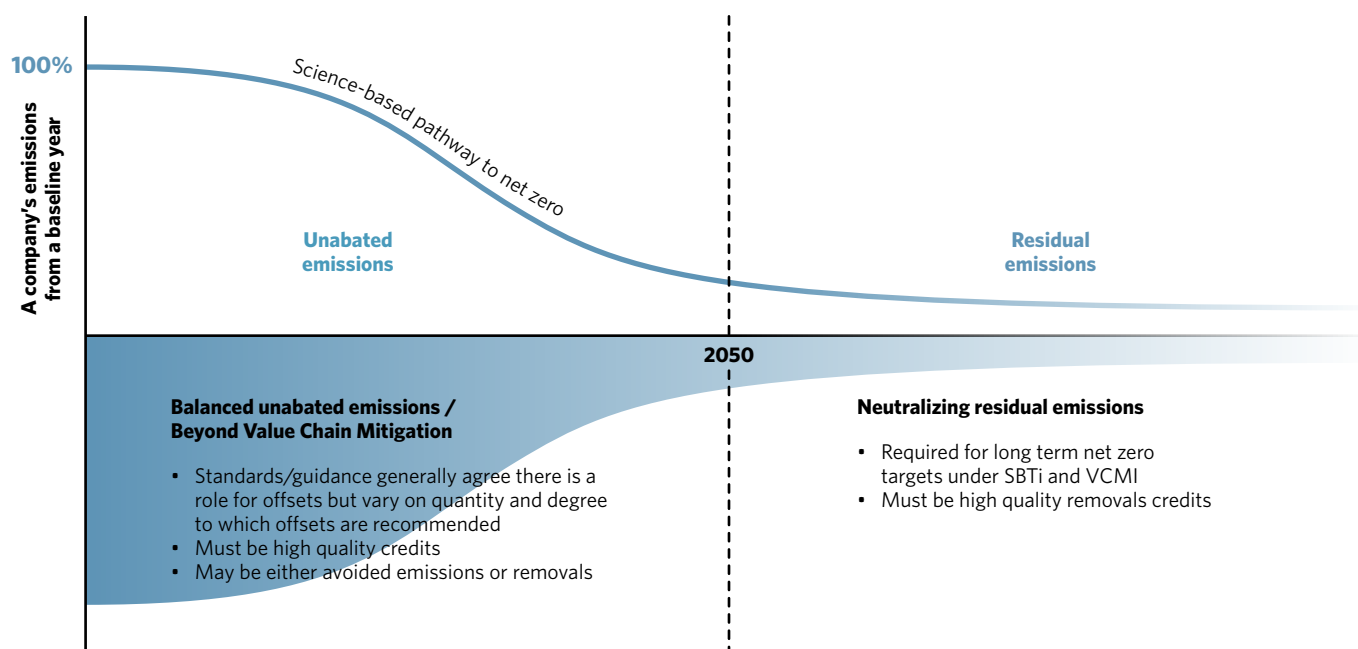
According to SBTi's Corporate Net-Zero Standard, companies' long-term targets should reduce emissions to zero or a residual level that is consistent with a 1.5°C scenario by 2050 at the latest. The level of residual emissions should depend on the company's sector, but for most companies should be no more than 10% of the company's baseline level of emissions. Companies cannot use carbon credits to meet their targets, but may use removals-based credits to neutralize their residual emissions.

In the meantime, SBTi recommends that companies invest in 'Beyond Value Chain Mitigation' (BVCM), which is mitigation action a company takes outside of its own emissions reductions. The finalized guidance is expected to contain greater detail on what BVCM is and isn't, how companies should determine how much to invest in BVCM and what to invest in, and guidance on reporting and claims. Credits, including avoided emissions and removals, are expected to be one of several options a company could use towards its BVCM objectives.

The UN Race to Zero Membership Criteria and UN High Level Expert Group's recommendations are similar but less specific: companies should prioritize reducing emissions within their own value chains and invest in high quality carbon credits to address their unabated emissions.

The Voluntary Carbon Markets Integrity Initiative (VCMI) was established in 2021 to enable high-integrity voluntary carbon markets which contribute to the goal of the Paris Agreement, bringing benefits

Figure 2: Example of corporate decarbonization pathway with additional Beyond Value Chain Mitigation. (Figure adapted from SBTi)



for people and the planet. Its Claims Code of Practice, launched in June and updated in November 2023, gives companies guidance on how to make credible claims around the use of carbon credits. In order to make any VCMI claim, companies must meet a set of four foundational criteria: maintain and publicly disclose an annual greenhouse gas emissions inventory; set and publicly disclose science-aligned near-term emission reduction targets, and publicly commit to reaching net-zero emissions no later than 2050; demonstrate that the company is making progress on financial allocation, governance and strategy towards meeting a near-term emission reduction target; and demonstrate that the company's public policy advocacy supports the goals of the Paris Agreement and does not represent a barrier to ambitious climate regulation.

Once companies have met these criteria, they may choose between VCMI's Silver, Gold, or Platinum "Carbon Integrity" Claims, or a "Scope 3 Flexibility" Claim. For the Carbon Integrity Claims, companies use credits for beyond value chain mitigation, where Silver level requires companies to purchase high

quality credits equivalent to between 10% and 50% of their annual unabated emissions, Gold level between 50% and 100%, and Platinum level equal to or greater than 100%. In November 2023, VCMI launched a beta version of a new "Scope 3 Flexibility" Claim, to be finalized in 2024, which will allow companies to use high quality carbon credits towards addressing a portion of their scope three emissions (VCMI 2023).

One area where all these standards are in alignment is that if a company purchases credits, those credits must be high quality. The Integrity Council for the Voluntary Carbon Market (IC-VCM) is a multistakeholder group that is working to define what high quality means. According to IC-VCM's ten Core Carbon Principles, high quality credits must demonstrate good governance, transparent credit information and tracking, robust independent third-party validation and verification, additionality, permanence, robust quantification of emissions reductions and removals, no double counting, sustainable development benefits and safeguards, and contribution towards net zero (IC-VCM 2023).



Photo: David Palfrey TNC Photo Contest 2021

Element #3: Regularly measured emissions, monitored progress, and maximized transparency

Includes guidance from GHG Protocol, SBTi, VCMi, CDP, TCFD, and ISSB

Once companies have set targets and released their transition plans, transparency is key. To maximize transparency, target-setting standards and best practices recommend or require companies to produce publicly available information, including 1) accessible, standardized, annual reporting on emissions, 2) comprehensive disclosure of transition plans, 3) progress towards implementing the plans and meeting emissions reduction targets, and 4) third-party verification of emissions reporting and other components of companies' climate disclosures.

MEASURE YOUR EMISSIONS

Following the adage "you can't manage what you don't measure", companies must have strong emissions

measuring practices to inform their emissions reduction targets and decarbonization strategies.

The Greenhouse Gas Protocol is the most widely used greenhouse gas accounting framework for measuring emissions. GHGP differs from target-setting standards like SBTi in that it directs companies on how to measure emissions instead of setting emissions reductions targets. The core piece of its private sector standards is the Corporate Standard, which provides requirements and guidance for companies and other organizations on preparing a corporate-level GHG emissions inventory. GHGP also has several other standards, including a Scope 3 Standard for measuring value chain emissions, Product Standard for measuring emissions associated with a specific product's lifecycle, and Agricultural Guidance for measuring emissions from agriculture. GHGP is also in the process of developing a Land Sector and Removals Guidance for measuring emissions and removals from land management, land use change, biogenic products, and technological carbon removals (see Box 9 for more information).

Box 9: Sector Specifics

Forests and land

The forests and land sector, also known as Agriculture, Forestry, and Other Land Use (AFOLU) is unique in that in addition to its role in the climate system, land also supports many human needs including food production, energy production through biofuels, and supplies inputs to consumer goods like paper and wood products. It is also critical for maintaining biodiversity and performing other ecosystem services like water filtration and flood control.

In the climate system, land acts as both a source of emissions through deforestation and conversion of other natural ecosystems, food production practices, and land degradation, as well as a sink as plants and soil capture and store carbon. In climate pathways that align with 1.5°C, the forests and land sector minimizes its role as a source and maximizes its potential as a sink. The IPCC's Special Report on Climate Change and Land identifies several ways to accomplish this, including: conservation and restoration of forests, peatlands, and other ecosystems sustainable; improved and sustainable forest management; and adjusting our food systems to improve agricultural practices, promote soil organic carbon management, and reduce demand for land conversion through increased agricultural productivity, shifting dietary choices, and reducing food waste.

Historically, land-based emissions have often been excluded from corporate emissions accounting and target-setting due to complexities in measuring these emissions and, relatedly, a lack of formal guidance. As far as sector guidance and standards for corporates, recent years have seen several noteworthy efforts, including: the SBTi's Forests, land, and agriculture guidance (FLAG) guidance, which defines how companies in land-intensive sectors can set science-based targets for their land-based emissions; and the Greenhouse Gas Protocol's Land Sector and Removals Guidance, which is the first accounting methodology for companies to calculate their land-based emissions and removals and integrate these emissions in to their greenhouse gas inventories. Though challenges remain, especially around data availability, supply chain traceability, and limited technical capacity to implement these standards, these efforts are helping provide a framework for companies to measure and address their land-based emissions.

MONITOR PROGRESS AND MAXIMIZE TRANSPARENCY

All the standards and guidance referred to throughout this report emphasize the need for transparency and regular public reporting, with each standard and guidance body typically including the greatest level of detail for the reporting requirements that fall within their remit (e.g. GHGP provides best practices for reporting on emissions, SBTi for targets, and VCMI for credit use).

GHGP, in addition to its guidance on GHG measurement, also includes reporting guidance and requires companies to report on their emissions in a way that is complete, consistent, accurate and transparent. Under the Corporate Standard, a company's public emissions report must include:

- Total scope 1 and 2 emissions, not including any credits or offsets. Emissions from each scope and all GHGs must be reported separately. Scope 3 emissions and information on the use of offsets are considered optional. The Land Sector and Removals Guidance, once finalized, will also require companies to report on their land-related emissions.
- Information about the company, the scope of the company's emissions that are covered by the inventory (operational boundary), and
- Methodological information, including calculation tools, any exclusions, the chosen base year, period of time the report covers, and any other significant context.

Box 10: Corporate Action to Date

Emissions disclosure:

Several studies found that most major companies do report on climate progress in some way, with only 19-34% of major companies not having any sort of public emissions reporting mechanism (WWF 2021, Hans et al 2022., Net Zero Tracker 2022, Lang et al. 2023). However, the contents of these emissions reports vary.

Of Transition Pathway Initiative's 400+ focus companies in their 2021 report, 79% disclosed their scopes 1 and 2 emissions in 2021, while 59% disclosed some amount of scope 3. What's more, 62% have had their operational emissions verified by a third party. These numbers are largely the same compared to 2020, when 76% disclosed scopes 1 and 2 and 61% disclosed scope 3.

Across the more than 15 sectors TPI reviewed, disclosure varied. The shipping, coal mining, cement

and steel industries were the least likely to disclose their scopes 1 and 2 in 2021 (ranging 56-64%), while chemicals and consumer goods were most likely (97-100%). Similar trends emerged around scope 3. Notably, the oil & gas sector was one of the least transparent here (48%) and electricity utilities was one of the most (76%).

Progress towards targets:

While there is limited publicly available comprehensive information on companies' progress towards their targets, there are indications that a very small minority of companies are currently on track to meet their net zero targets. One study found that only 18% of companies are on track to reach net zero by 2050 (Accenture 2023), and another found that just 7% are on track to achieve net zero targets for scope 1 and 2 emissions (Accenture 2022).

SBTi requires companies to disclose their emissions and progress against their targets on an annual basis. They are also developing a Monitoring, Reporting, and Verification (MRV) standard that will put forth specific requirements to support companies in these activities. The UN HLEG recommendations and Race to Zero criteria both include annually disclosing greenhouse gas emissions, net zero targets, transition plans, and progress towards meeting those targets and plans. According to both, reports should be in a standardized, open format, and shared via platforms that feed into the UNFCCC Global Climate Action Portal.

VCMI's Foundational Criteria requires companies to report on emissions annually and demonstrate that the company is making progress on financial allocation, governance, and strategy towards meeting a near-term emission reduction target. The Claims Code also includes more detailed guidelines for transparency around credit use, including: the number of credits purchased and retired to make a VCMI claim; the certification standard, project ID, retirement date and serial number; the cost country, credit vintage, methodology and project type; whether or not the credit is associated with a corresponding adjustment under Article 6 of the Paris Agreement; and co-benefits information if the credit is certified under a social or environmental integrity program (e.g. Verra's Climate, Community and Biodiversity Standard).

There are also separate standards and frameworks focused on climate-related reporting. CDP, for example, is a leading global disclosure organization – companies complete CDP's annual questionnaire that includes information about their emissions, reduction targets, and internal abatement activities. CDP also assigns companies scores based upon the completeness and content of their responses.

The Task Force on Climate-related Financial Disclosures (TCFD) is a voluntary reporting framework created to improve and increase reporting of climate-related financial information. TCFD was created by the Financial Stability Board based with the idea that climate change is and will continue to impact companies' performances, and the financial sector needs timely and standardized information to assess those climate-related risks in their portfolios. TCFD recommends companies report information around four key themes: governance around climate-related risks and opportunities; the impact of climate-related risks and opportunities on a company's businesses, strategy, and financial planning; how the company identifies, assesses and manages climate-related risks; and the metrics and targets they use to measure those risks and opportunities.

Lastly, the IFRS S2 Climate-related disclosures standard was issued in June 2023. The standard was developed by the International Sustainability Standards Board (ISSB), a standard-setting organization under the non-profit IFRS Foundation. ISSB developed two disclosure standards, both launched in June 2023, that cover sustainability-related information and climate-related information, respectively. The S2 standard, focused on climate disclosures, builds upon the TCFD recommendations, and incorporates industry-specific guidance. It includes a requirement for companies to measure and disclose scope 1, 2, and 3 emissions on an annual basis.

While all these standards and recommendations are voluntary, regulatory climate disclosure rules that are emerging in many countries have drawn upon the reporting requirements and recommendations in these voluntary frameworks (see Table 2).

Element #4: Claims language that is accurate and well-founded

Includes guidance from British Standards Institute, Gold Standard, SBTi, VCMI, World Resources Institute

There are innumerable ways companies talk about their climate targets and achievements, from short labels like “net zero” or “carbon neutral” to longer statements about companies’ short and long-term goals and what they encompass. The crux of the difference between many of these claims options is how they talk about the use of credits. Between evolving guidance on credible climate action and the use of credits, accusations of greenwashing, and litigation and regulation of claims (see Regulatory Guidance), companies should take care when selecting their claims language to accurately reflect the action they are taking and who owns the mitigation outcomes they finance.

COMPENSATION VERSUS CONTRIBUTION CLAIMS

Compensation and contribution claims have emerged as the primary ways companies describe their carbon credit use. The key difference between compensation-based claims and contribution-based claims is whether the company is claiming ownership of the mitigation outcomes from purchasing credits to compensate for their emissions (in other words, offsetting) or claiming their contribution without claiming ownership of the mitigation outcome.

The most common example of a compensation claim is carbon neutrality, or using credits to offset

the company’s emissions on a ton-for-ton basis. One fifth of the 2,000 companies with targets tracked by Net Zero Tracker list GHG-, climate-, or carbon-neutrality as their end goal. This claim has come under increased media criticism and litigation in recent years due to questions about the legitimacy of neutrality claims (Greenfield 2023, also see the section on Regulatory Oversight). Most often, the concern is that companies are offsetting instead of reducing their internal emissions and/or that the credits companies purchase do not truly represent the volume of emissions reductions that are claimed. Some standards, notably the PAS 2060 standard from the British Standards Institution and ISO 14068 (currently in development), define requirements for carbon neutral claims.

In contribution claims, companies claim the credits they purchase (or other forms of mitigation activities outside the company’s value chain) as contributions to climate action rather than compensating their internal emissions. The key difference between these two claims is who claims ownership or responsibility for the resulting emissions reductions. In a compensation claim model, the purchaser claims ownership while in a contribution claim model, the purchaser does not.

In recent months and years, several standard setters and other organizations involved in voluntary carbon markets have issued guidance favoring the use of contribution claims. South Pole, recognizing the challenges with carbon neutrality claims, launched a new claim in June 2023: “Funding Climate Action” which companies may use to describe climate action outside their value chains (South Pole 2023). Carbon Trust, a climate consultancy, recently discontinued its ‘Carbon Neutral’ verification, a label which had been offered since 2012, in order to have a “greater emphasis on reduction, more rigorous and ambitious

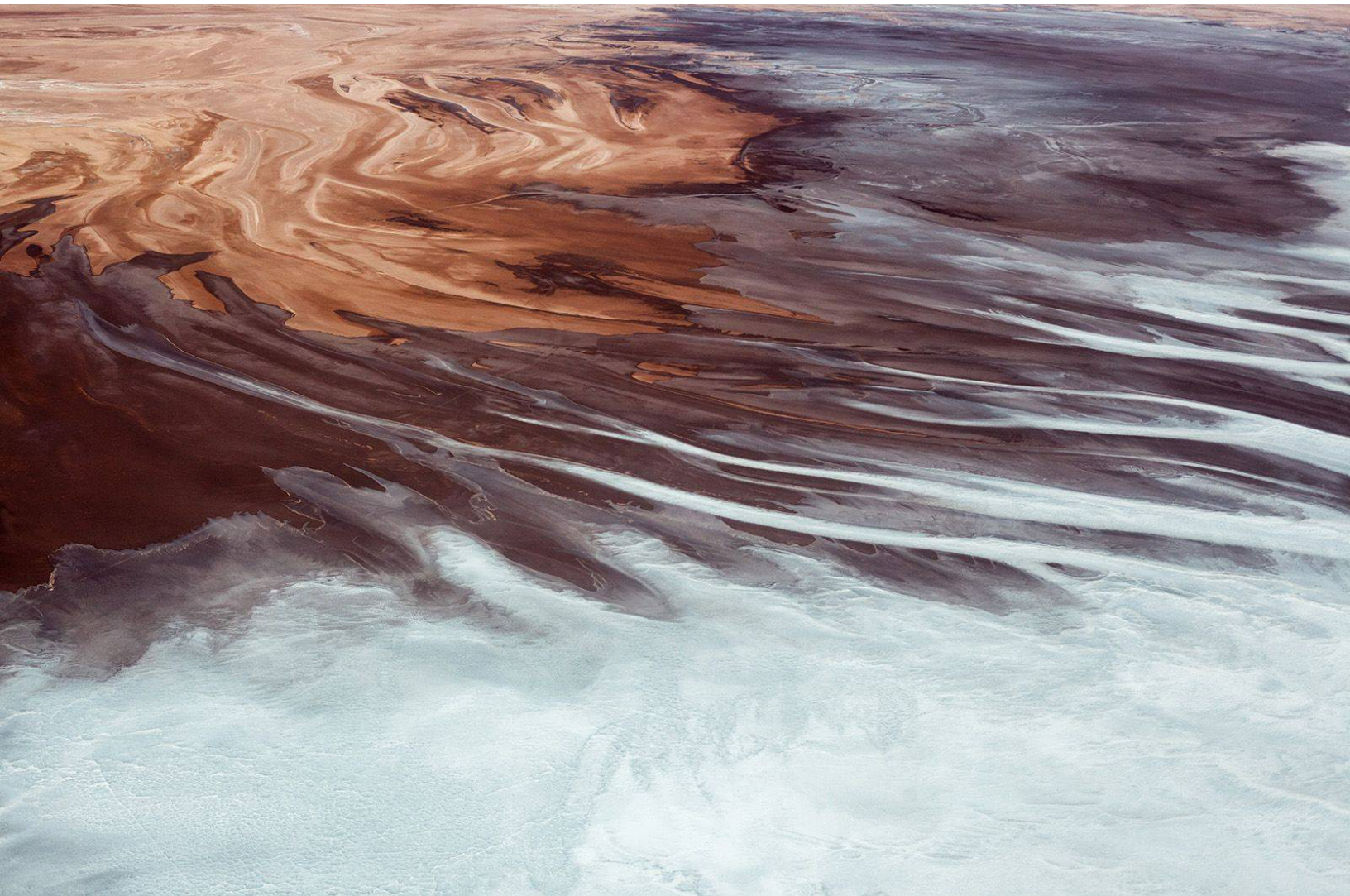
requirements and language to enhance clarity of meaning” (Carbon Trust 2023).

Other guidance recognizes the role for both types of claims but emphasizes that any claims should only be made if a company has set and is on track to meet a credible science-based or science-aligned emission reduction target. Gold Standard’s most recent Claims Guidance, for instance, recognizes the shift from offsetting- and compensation-based claims towards contribution claims, but still permits compensatory claims under certain conditions, including if the company is following the mitigation hierarchy and prioritizing avoiding and reducing emissions (Gold Standard 2022).

World Resources Institute’s (WRI’s) guidance on the use of nature-based carbon credits through 2040 recognizes both compensatory and contribution-based claims, as long as: (1) the credits used ensure environmental integrity, respect the rights and livelihoods of Indigenous and local communities, and safeguard biodiversity; and (2) the company is on a science-based mitigation pathway and will use credits to supplement, not reduce, the pace of internal emissions reductions (WRI 2022).

SBTi’s Beyond Value Chain Mitigation guidance is currently under development but is expected to include claims guidance as well.

Photo: Matjaz Krivic - TNC Photo Contest 2022



Element #5: Promotion of structural change inside and outside your organization to support a climate-forward economy

Includes guidance from the AAA Framework for Climate Policy Leadership, Exponential Roadmap, Race to Zero, SBTi, Transition Pathway Initiative, and UN HLEG

Most voluntary standards and best guidance recognize that, to achieve the goals of the Paris Agreement, decarbonization should be backed by shifts in corporate governance practices and support for policy changes that support holistic decarbonization and beyond. The guidance in this area tends to be more flexible and less specific than in areas regarding emissions targets and decarbonization, and centers on a few themes of what companies can do to promote broader systems-level change, both within companies and externally through multi-stakeholder initiatives and policy development.

The main standards referenced in this report thus far (SBTi, GHG Protocol, VCMi, Race to Zero, UN HLEG) do not include detailed requirements or recommendations for companies' internal management of their net zero targets or transition plans, instead leaving those decisions largely to the companies themselves. Some frameworks and guidance, however, do include some of these recommendations, with the most common being around aligning companies' internal policies and procedures with setting and meeting their emissions reduction goals. Others are related to leadership oversight/involvement in climate targets and how to designate responsibility for climate targets. A few also recommend linking executive remuneration with climate outcomes to align executives' incentives with ambitious decarbonization.

The Exponential Roadmap Initiative's 1.5 Business Playbook, for example, which provides a framework for companies on how to reach their climate targets, says companies should: clearly assign responsibilities, mandates and resources; establish key performance indicators (KPIs) for climate and integrate them into decisions around purchasing, R&D, business development, finance and other departments; and even connect remuneration for executive management and employees to climate-related KPIs.

The Transitions Pathways Initiative is a research and data center established in 2022 based at the London School of Economics' Grantham Research Institute on Climate Change and the Environment. It issues data and research on progress being made by financial and other corporate institutions towards transitioning to a low-carbon economy, including by evaluating companies on their management quality with regards to their decarbonization processes. To meet the highest tier, companies must, among other things, disclose an internal price of carbon, incorporate climate change risks and opportunities into their overall strategy, and incorporate climate change performance into the company's remuneration for senior executives.

Recommendations and requirements on a company's external engagement is more common, and most standards and guidance recommend that companies take steps to contribute to global net zero. For example, the UN HLEG touches on how companies can engage in broader decarbonization initiatives. One of its recommendations is 'investing in just transitions' by demonstrating how their net zero transition plans contribute to the economic development of regions where they are operating and participating in developing country-led decarbonization like Just Energy Transition Partnerships (JETPs) or other country-level frameworks.

Policy advocacy is another common topic. In 2019, a group of environmental NGOs published the AAA Framework for Climate Policy Leadership, which encourages companies to: advocate for policies consistent with achieving net zero emissions by 2050; align their trade associations' policy advocacy with that goal; and allocate spending to advance those policies. Other climate standards and guidance reflect those themes. VCMI requires that companies issue a public statement that the company's

advocacy activities, either individually or through trade body membership, are consistent with the goals of the Paris Agreement and do not represent a barrier to ambitious climate regulation. Lastly, the UN HLEG recommends and Race to Zero criteria requires that companies align external policy and engagement efforts, including membership in trade associations, with meeting the Paris Agreement goals by lobbying for positive climate action and not lobbying against it.



Photo: Penny Prangnell - TNC Photo Contest 2021

Box 11: Corporate Action to Date

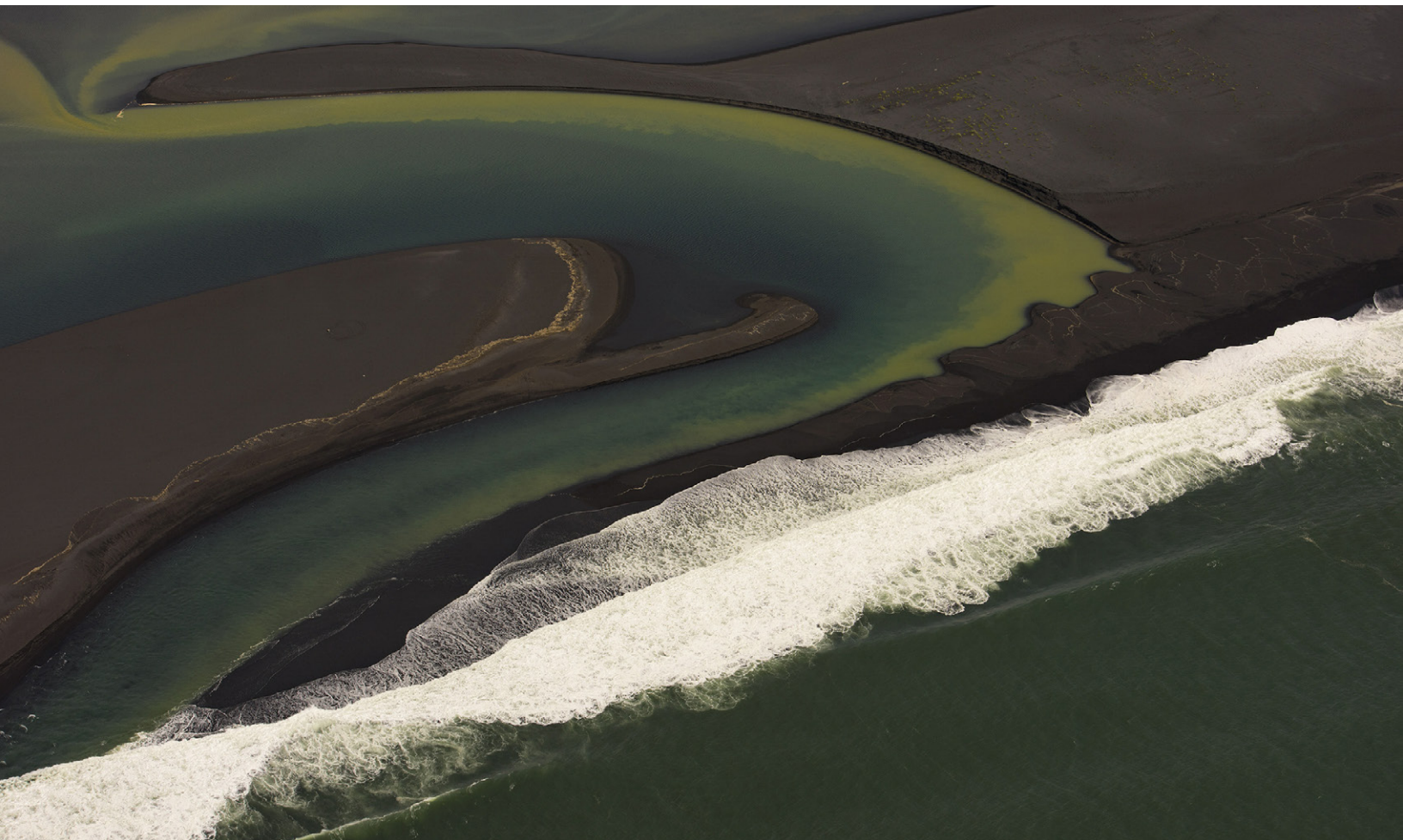
Corporates and climate policies:

Many companies choose to complement their climate commitments with accountability at the senior level. Transition Pathway Initiative found that 63% of their focal companies assign climate responsibility to a board member and Climate Action 100+ estimated a 58% adoption of that same practice.

Linking pay with climate performance is less common; somewhere between 22% and 40% of enterprises tie executive remuneration to their climate outcomes (Dietz et al. 2021, McGivern et al. 2022, World Wildlife Fund 2021).

Various analyses have also looked at lobbying behavior and industry associations to indicate whether a company is fully supporting climate interests through policy engagement. According to Climate Action 100+, 70% of surveyed corporates have policy engagement that is moderately to highly aligned with the Paris Agreement. However, only 36% publicly list their climate-related lobbying activities. Lastly, from Transition Pathway Initiative's estimates, only 7% of corporate climate policies align with those of their trade associations.

Photo: Jassen Todorov - TNC Photo Contest 2019



Reflections and Recommendations: Voluntary Action

Voluntary standards and guidance play a crucial role in the global transition: they help translate the global science-aligned pathways to achieve the Paris Agreement into actionable information, enable companies and other stakeholders to distinguish between higher and lower-quality claims, and often inform the regulatory process. This is also a quickly evolving space. Most of the standards and guidance documents referenced in this report were either published or significantly revised in the past three years. Given the pace of these developments, there is little surprise that this can be a complex space to navigate.

Companies are on the front lines of the global transition to a low-carbon economy. Throughout the 'Climate Action to Date' boxes in this report, we have seen both progress and shortfalls: between 2021 and 2022, the number of Fortune Global 500 companies with net zero targets jumped over 50% yet still less than 40% have set a net zero target (Climate Impact Partners 2022). Fewer than half of companies have detailed transition plans (Climate Action 100+ and WWF) and most (65%) do not meet minimum reporting standards (Net Zero Stocktake 2022). While some elements of standards and guidance are still developing, the core components are clear, as summarized in the five steps laid out here:

- 1.** A target that is aligned with science, ambitious in scope and scale, and has a clear timeline.
- 2.** A holistic transition plan, with a priority on internal decarbonization and limited use of carbon credits.
- 3.** Regularly measured emissions, monitored progress, and maximized transparency.
- 4.** Claims language that is accurate and well-founded.
- 5.** Promotion of structural change inside and outside your organization to support a climate-forward economy.

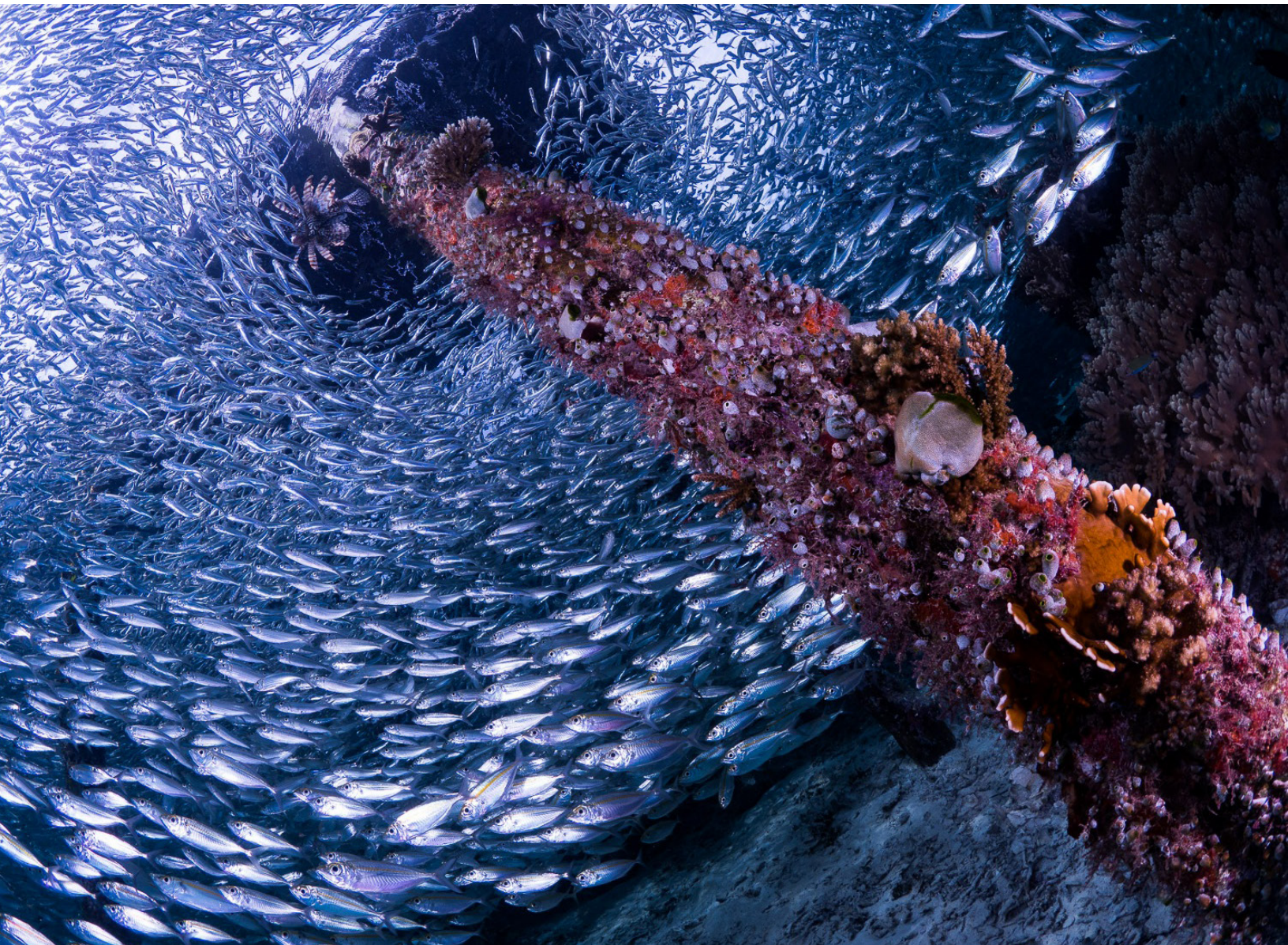
We need companies that are not yet taking action to join in and take responsibility for their emissions and for companies at all stages of their climate journeys to continue to strive for best practices.

The past few years have seen several milestones in standards and guidance setting, with SBTi's Corporate Net Zero Standard, VCMI's Claims Code of Practice, UN High Level Expert Group's Net Zero Recommendations, and many more released within the past two years. Yet this pace of change can make this a difficult space for companies to navigate. Wherever possible, standard- and guidance-setters should continue to align with each other and create as clear and navigable a path for all companies on the way to net zero, including those in high-emitting and hard to abate sectors.

Transparency and accountability underpin all other components of high-integrity climate action. Without it, there is no way to understand where we are on the path to net zero. We need companies to disclose and standards and guidance to require disclosures, especially around the scope and coverage of targets, detailed transition plans,

emissions reporting and mitigation activities, and the use of carbon credits. We also need standard bodies and civil society to ensure accountability, focusing attention both on companies have yet to set science-based or science-aligned climate targets and those that have set already targets and made claims.

Photo: Maximilian Holba - TNC Photo Contest 2022



Regulatory guidance

Regulatory Oversight of Voluntary Commitments

More and more, attention to corporate climate commitments is turning toward regulatory oversight. At this point, we are not seeing policies mandating companies to adopt science-aligned or net zero targets. Instead, emerging policies focus on transparency and accountability for voluntary claims. While the voluntary claims remain optional to participate in, governments may impose mandates around how social and environmental safeguards are addressed in carbon offsetting projects, how credit transactions occur, how companies disclose their climate-related activities, and how they make claims about those activities, for example. We have seen movement on these topics in the regulatory, legislative, and judiciary spheres. In this section, we look at where these requirements may impact corporates' behavior toward their voluntary climate commitments.

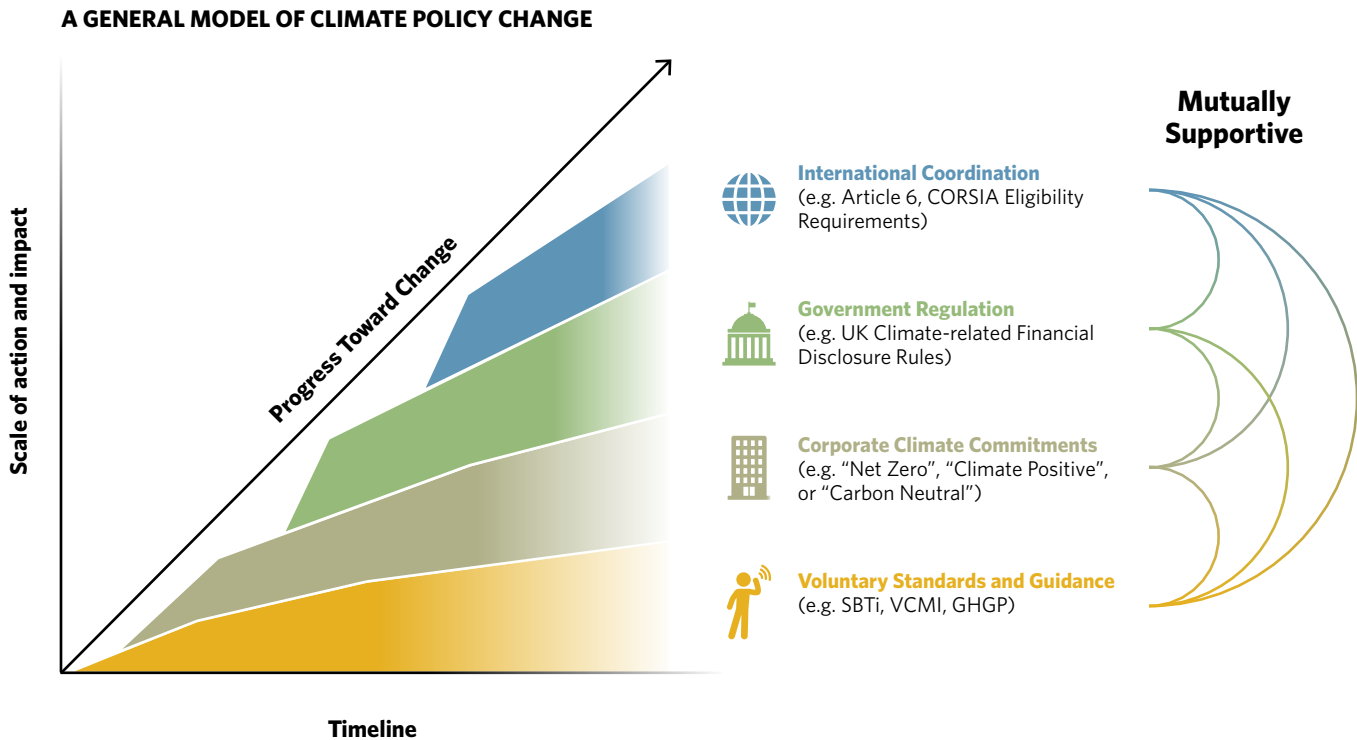
THE LINKAGE BETWEEN VOLUNTARY AND REGULATORY

Voluntary efforts have come a long way in the past several years but will only get us so far. Ideally,

regulation would demand action from companies who would not otherwise address their climate impact or raise the bar for those not doing enough. Additionally, concrete policy adds credibility to corporate claims and targets. As climate action has become more popular in the private sector, so too has public scrutiny. The alleged act of "green-hushing", or criticizing climate-conscious companies to the point that they lower their engagement, has become a real concern in the voluntary space. Ideally, regulatory oversight would eliminate such adverse outcomes.

If we think of effective climate action as a ladder, the first rung is societal awareness of the problem and how to address it, often because of civil society organizations realizing the need for change and advocating for action. This is followed by voluntary action by companies, with support from civil society organizations establishing best practices, voluntary standards, and guidance. It's then up to the companies to adopt these solutions and join the push for regulation. Finally, and ideally with support from the regulated companies and civil society, government regulation and international cooperation emerges to bring the most effective solutions to scale (see Figure 3).

Figure 3: A visual representation of how voluntary and regulatory action can collectively achieve the scale and impact needed around climate mitigation. (Concept credited to Brack and Wolosin)



We have already begun to see this process in motion for climate policy. For example, the global aviation sector’s carbon offsetting scheme, CORSIA, relies on voluntary carbon accounting standards to certify the credits airlines will be required to purchase to offset their emissions. More of these linkages are emerging around corporate climate disclosure and net zero claims.

Conversely, there is a clear need for civil society to remain cognizant of how regulation might impact companies’ ability to comply with voluntary guidance. For example, insurance group Munich Re withdrew from the Net Zero Insurance Alliance in late 2021, citing antitrust risks wrought by participating in a corporate alliance for climate change (Furness et al., 2023). If voluntary guidance does not accommodate the myriad regulatory contexts in which companies operate, critical climate progress could be lost.

CLAIMS LITIGATION

Lawsuits related to corporate climate claims and emissions reporting are increasing in number year over year. Once primarily aimed at oil and gas, they’re now extending to other emissions-heavy sectors, like food and agriculture, steel, cement, shipping, and aviation. These cases, commonly referred to as “climate-washing” cases, most often involve a civil society or consumer group suing a company over an allegedly misleading claim about their climate impact.

These cases address 3 categories of issues:

1. the legitimacy of corporate net zero or neutrality commitments,
2. the legitimacy of climate-friendly product claims, and
3. lack of disclosure of climate investments, financial risks, and harm caused by companies.

Since 2016, there have been at least 20 climate-washing cases in the U.S., Australia, France, and the Netherlands. About half of these cases resulted in greater enforcement of rules that are “beneficial to the climate” (most likely meaning in favor of the plaintiff). Analysts expect climate-washing cases to keep emerging in the coming years, particularly around the use of carbon offsets (Setzer and Higham 2022).

Climate-washing lawsuits, though they have been around for several years, are largely still in process in courtrooms around the world. In Table 1, we provide a few examples of ongoing cases and only two with judgments.

Table 1: Case studies of recent and ongoing climate litigation against companies making climate-related claims.

Case Study	Verdict	Context
Australasian Centre for Corporate Responsibility v. Santos	Pending	A 2021 Australian case brought against Santos took issue with the vagueness and lack of detail in the oil and gas company’s commitment to reach net zero by 2040. The plaintiff also dismissed Santos’ representation of natural gas as a clean energy source.
Deutsche Umwelthilfe v. BP Europa SE; Deutsche Umwelthilfe v. Shell Deutschland GmbH; and Greenpeace Canada v. Shell Canada	Pending	Dutch group DUH has filed lawsuits against Shell, bp, and several other multinational corporations making carbon neutral claim. In both Shell and bp’s cases, the companies offered carbon neutral products (i.e. product whose emissions were offset with carbon credits) but allegedly did not provide sufficient detail to verify the claims. DUH also posits that the reforestation credits bp uses to offset are “seriously problematic”. In Canada, Greenpeace has initiated a similar lawsuit against Shell for its “illegitimate” carbon neutral claims and use of reforestation credits.
Notre Affaire à Tous and Others v. Total	Pending	Oil and gas company Total was taken to court for its alleged lack of a publicly available, detailed transition plans despite its ambitious climate target. Three non-profits, acting as the plaintiffs, also contest Total’s claims that it is a “climate transition leader” and that biofuel/ gas are environmentally friendly energy sources.
Federal Trade Commission v. Volkswagen Group of America, Inc.	In favor of the plaintiff	The Federal Trade Commission, the U.S.’s trade regulatory arm, sued automaker Volkswagen for cheating emissions tests and claiming their vehicles were “low emission” and used “clean diesel”. The company lost the case and must pay \$14.7 billion to compensate customers and mitigate the environmental damage.
Dwyer v. Allbirds	In favor of the defendant	A 2022 class action lawsuit against shoe brand Allbirds disputed the company’s claims that its products had a low carbon footprint, arguing that its carbon accounting did not consider land use emissions from the production of wool. In a summary judgment, the court ruled that Allbird’s methodology is clearly defined on its website and was not at fault.

CLAIMS REGULATION

In addition to the litigation taking place in the courts, several countries' legislative bodies and regulatory agencies are looking to address corporate climate performance and claims. So far, these are largely focused on rules around credible assertions about climate impact and climate-related disclosures.

Climate disclosure rules

The most common regulation companies with voluntary commitments might face, at least in the short term, is a disclosure requirement. In the eyes of many policymakers, climate commitments are misleading, or even fraudulent, if they overstate their impact (Netherlands Enterprise Agency 2021). To date, at least 10 countries have enacted or contemplated enacting corporate disclosure rules to help avoid misleading claims (see Table 2).

Currently, all countries with climate disclosure rules are at least loosely based on the voluntary frameworks developed by the Taskforce for Climate-related Financial Disclosures (TCFD) or the International Sustainability Standards Board (ISSB). Both frameworks emphasize the need for reporting on climate governance, strategy, risk management, and metrics and targets. Broadly, TCFD defines these categories as:

- **Climate governance:** The organization's governance around climate-related risks and opportunities
- **Strategy:** The actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy, and financial planning
- **Risk management:** The processes used by the organization to identify, assess, and manage climate-related risks

- **Metrics and targets:** The metrics and targets used to assess and manage relevant climate-related risks and opportunities

The specific metrics required to cover the four themes, however, are determined by the governments (see Table 2).

Governments may decide, for example, to nest climate disclosure within the reporting of broader social and environmental impacts. The European Union and Singapore's reporting requirements include metrics on the impacts of pollution, biodiversity, and pay equity, for example.

At a high level, disclosure rules typically only apply to large, publicly traded companies that are already required to annually report on their financials. These companies also tend to be primarily domestic, though some rules, such as those in New Zealand and the European Union, extend the disclosure requirement to foreign countries with "significant" domestic assets.

Countries' approach to implementing disclosure rules can be immediate or gradual. Japan recently announced that all listed companies will be obligated to report starting at the end of FY2022, while Singapore will begin its first phase with a subset of sectors, then adding more industries in later years. Also in Singapore, the government has settled on a "comply or explain" approach, where companies may opt out of the reporting requirement if they provide a public explanation for doing so. Japan initiated its rule with the same approach but transitioned to a fully mandatory reporting model in 2022. Lastly, all countries with climate disclosure rules have designed or will design an enforcement mechanism, whereby corporate compliance will be monitored. The US and UK have specified that companies who do not comply with disclosure requirements will be subject to fines.

Table 2: High level elements of information required in select climate disclosure rules and other relevant information, as of December 2023.

Note: These elements are not comprehensive.

Country	Status	Sectors	Framework	Climate governance	Risk assessment and strategy	Metrics and targets	Start date	Notes
Australia	In consultation							
Brazil	Approved	All	International Sustainability Standard Board (ISSB)				January 2026	<ul style="list-style-type: none"> Voluntary adoption may start in 2024 The government will hold consultations to determine any additional or different requirements needed on top of the ISSB framework
California (United States)	Approved	All	Task Force on Climate-Related Financial Disclosures (TCFD)		<ul style="list-style-type: none"> Climate-related risks Measures adopted to reduce these risks 	GHG emissions of Scopes 1, 2, and 3	January 2026 (2027 for Scope 3 reporting)	<ul style="list-style-type: none"> Applies to any company “doing business” in California Required for any company with over \$1 billion in annual revenue (though some requirements also apply to companies with \$500 million to \$1 billion in revenue)
Canada	Approved	Finance	Task Force on Climate-Related Financial Disclosures (TCFD)				2024 (Phase in approach)	<ul style="list-style-type: none"> Specific metrics not yet available
European Union	In effect	All	European Sustainability Reporting Standards (ESRS)		<ul style="list-style-type: none"> Use of climate scenarios in business model; climate transition plan 	<ul style="list-style-type: none"> GHG emissions of Scopes 1, 2, and 3 Climate-related targets Energy mix Financial impact of climate risks 	January 2023	<ul style="list-style-type: none"> Includes non-climate ESG risks (working conditions, pollution, biodiversity, etc.)
Japan	In effect	All	Task Force on Climate-Related Financial Disclosures (TCFD)	<ul style="list-style-type: none"> Governance processes, controls, and procedures designed to monitor and manage risks and opportunities 	<ul style="list-style-type: none"> Climate-related risks over the short and long term and plans to manage them 	GHG emissions of Scopes 1 and 2	2023	<ul style="list-style-type: none"> Transitioned from optional to mandatory in 2022 Also includes metrics like gender balance and fair pay
New Zealand	In effect	Finance	Task Force on Climate-Related Financial Disclosures (TCFD)	<ul style="list-style-type: none"> Accountable governance body with description of responsibilities Management’s role in assessing and managing climate-related risks 	<ul style="list-style-type: none"> Climate-related impacts of doing business Climate scenario analysis Climate-related risks in the short, medium, and long terms 	<ul style="list-style-type: none"> GHG emissions of Scopes 1, 2, and 3 Emissions intensity Capital deployment Internal price of carbon Long term and interim targets 	January 2023 (Phase in approach)	
Philippines	In effect	Finance	Task Force on Climate-Related Financial Disclosures (TCFD)	<ul style="list-style-type: none"> Accountable governance body with description of responsibilities Management role in assessing and managing ESG related risks 	<ul style="list-style-type: none"> Sustainability strategic objectives and risk appetite ESG risk management system ESG risk exposures (existing and emerging) 	<ul style="list-style-type: none"> Involvement in initiatives to promote adherence to internationally recognized sustainability standards and practices Progress in implementation of targets 	March 2020	<ul style="list-style-type: none"> Regulation updated in 2021 to encourage the offering of green finance instruments Not specifically focused on climate
Singapore	In effect	Finance, forest and land use, energy, materials and buildings, transportation	International Sustainability Standards Board (ISSB)			<ul style="list-style-type: none"> GHG emissions of Scopes 1, 2, and 3 Emissions intensity 	January 2023 (Phase in approach)	<ul style="list-style-type: none"> “Comply or explain” approach, eventually to become fully compliance Includes non-climate ESG risks (water, waste, occupational health and safety, anti-corruption, etc.)
South Korea	Approved	All	International Sustainability Standards Board (ISSB)				2025 or later (Phase in approach)	
United Kingdom	In effect	All	Task Force on Climate-Related Financial Disclosures (TCFD)	<ul style="list-style-type: none"> Governance arrangements of the company in relation to assessing and managing climate-related risks and opportunities 	<ul style="list-style-type: none"> Climate-related risks and opportunities and how they were identified How risks are mitigated in the company’s overall risk management process Consideration for different climate scenarios 	Climate targets and performance against those targets	April 2022	
United States	Proposed	All	Task Force on Climate-Related Financial Disclosures (TCFD)	<ul style="list-style-type: none"> Corporate governance of climate-related risks and risk management processes 	<ul style="list-style-type: none"> Climate-related risks over the short, medium, and long term and their impact on business activities Qualitative and quantitative climate risk and historical impact 	<ul style="list-style-type: none"> GHG emissions of Scopes 1, 2, and 3, with third-party validation for Scopes 1 and 2 Climate transition plan Internal carbon price Climate target and progress toward the goal 		<ul style="list-style-type: none"> Recent speculation suggests that the disclosure metrics may be less stringent in the final draft of the rule (e.g. no scope 3 reporting requirement).



Photo: Daniel Collins - TNC Photo Contest 2019

CLAIMS RULES

Regulation specific to corporate climate claims is in its early stages. For the most part, countries, including the United States, the United Kingdom, France, the European Union, the Netherlands, and Australia, have published rules and guides on what voluntary carbon neutral claims should look like.

In the U.S. and the U.K., the government has issued 'green guides' which are meant to produce high level guidelines for companies making environmental claims. These recommendations are intended to prevent companies from violating laws around misleading advertising, though they are not enforced directly (U.S. FTC 2012, U.S. CMA 2021). Additionally, the Australian government has created a voluntary standard which can certify that companies are following best practices in their climate claims (Climate Active 2019).

Rules from the Netherlands, France, and the European Union are more readily enforceable. While the Dutch rule stipulates that claims must be factual and transparent, punishable by fine, France altogether bans the use of climate-related claims without the required aspects of disclosure (Netherlands Enterprise Agency 2021, Sandrin-Deforge and Tarantino 2022). Finally, the EU's claims directives, which were just announced in early 2023, require companies to substantiate and validate their environmental claims as well as ban the 'over reliance' on offsetting in climate-related claims. Determination of 'over reliance' in this context will be assessed on a case-by-case basis (European Commission 2023, Barbiroglio 2023, Romano 2023).

Generally, these rules and recommendations apply to any entity (product, service, organization, or otherwise) that markets a climate-related claim. See Table 3 for a more detailed description of each country's guidelines and requirements.

Table 3: Details of claims rules and guidelines by country, as of December 2023.

Note: These elements are not comprehensive.

Country	Type of claims regulation	Name	Release Year	Requirements/Recommendations	Notes
Australia	Voluntary Certification	Climate Active certification	2019	<ul style="list-style-type: none"> Requires that the claimant calculate their emissions, develop and implement a reduction strategy, purchase offsets, use an independent validator, and publish a summary of the neutrality claim to be certified 	<ul style="list-style-type: none"> This is a fee-based certification scheme that companies can voluntarily submit to The government has recently hosted a consultation on the certification program and is contemplating retiring the carbon neutral claim in 2024 (Tilly 2023).
California (United States)	Mandatory Law	AB 1305, Voluntary Carbon Market Disclosures	2023	<ul style="list-style-type: none"> Companies making emission reduction claims must justify its worthiness to make the claim, measurements used to track progress toward the company's climate goal, and note whether third party verification was used. Companies using carbon credits toward their emission reduction claims must specify the credit seller, registry, project name, project type, protocol used to quantify emission reductions, project ID number, and whether the credits have been verified. 	<ul style="list-style-type: none"> The disclosure rule also applies a different set of reporting requirements for companies marketing and/or selling credits. The rule applies to any company conducting business in California across all sectors, regardless of size, and will come into effect starting in 2024.
France	Mandatory Law	Climate and Resilience Law	2021	<ul style="list-style-type: none"> Prohibited use of neutrality claims without disclosure of: full GHG inventory of product or service; the process used to avoid, reduce, or offset emissions; and how offsets meet minimum standards 	
European Union	Mandatory Directive	Green Claims Directive	2023	<ul style="list-style-type: none"> Disclosure of key aspects of the claim, including activities undertaken, sources of information used, significance of the environmental impact, proof of activity beyond legal and/or business-as-usual, and the use of offsets 	<ul style="list-style-type: none"> Applies to sustainability claims more broadly, including climate claims
European Union	Mandatory Directive	Empowering Consumers for the Green Transition Directive	2023	<ul style="list-style-type: none"> Bans claims that are "over reliant" on offsetting 	<ul style="list-style-type: none"> Instances of "over reliance" to be assessed on a case-by-case basis
Netherlands	Mandatory Rule	Rules for Sustainability Claims	2021	<ul style="list-style-type: none"> Sustainability claims must be factual and understandable Proven by referencing third party resources and standards 	<ul style="list-style-type: none"> Applies to sustainability claims more broadly, including climate claims
United Kingdom	Voluntary Guidance	Green Claims Code	2021	<ul style="list-style-type: none"> Recommends that claims be truthful, accurate, clear, unambiguous, transparent, fair, meaningful, comprehensive, and substantiated 	<ul style="list-style-type: none"> Applies to sustainability claims more broadly, including climate claims
United States	Voluntary Guidance	Green Guides	2012	<ul style="list-style-type: none"> Comments on the use of carbon offsets, recommending that the offsets are accurately quantified, that the company specifies whether the emissions reductions are yet to occur, and that claims should not be made if the offsetting is required by law 	<ul style="list-style-type: none"> Set to be updated in 2023 Applies to sustainability claims more broadly, including climate claims

Reflections and Recommendations: Regulatory Action

According to the “progress towards change” model depicted in Figure 3, in order to reach a significant scale, voluntary action must progress towards government regulation and international coordination. Currently, government regulation already affects corporate emissions in a myriad of ways – from subsidizing cleaner forms of energy and investing in research and development to mandating participation in emissions trading schemes and levying carbon taxes. Still, at a global level, with the policies in place now we are not on track to meet the goal of limiting warming to 1.5 degrees. Hence, we need both ambitious policy and regulation *and* ambitious and credible voluntary climate action.

In addition, governments are increasingly realizing that, while *voluntary* climate commitments are optional for companies to partake in, this doesn’t mean that they are exempt from regulation. They have an important role to play in ensuring claims are truthful and adequately transparent.

Lastly, while the idea of regulating corporate targets and claims is to improve outcomes for the climate, there are scenarios where regulation could do the opposite. *Any* regulation is not necessarily better than *no* regulation – it is critical to make sure

policies are ambitious, actionable, and efficient. This will require ongoing engagement from guidance initiatives and standards to help move government action in the right direction and fill in the gaps where they are delayed or altogether absent.

The following sections describe the key areas where the authors feel governments and civil society should focus to optimize regulatory impact.

More regular reporting of emissions and other climate-related metrics

Already, numerous countries have adopted or considered adopting climate disclosure rules. These rules will go a long way in improving global alignment with 1.5°C. Information availability is the first step in robust mitigation planning, responsible investing, and general accountability. Investors, civil society, and even companies themselves cannot operationalize decarbonization without it.

While the number of countries planning to enforce climate disclosure rules is high, most have yet to start enforcing them. Countries that are the furthest along,

such as the UK and European Union, rely on pre-existing frameworks to implement their disclosure rules more quickly. This is an important model to replicate for other climate-related regulation, considering we need to scale high-integrity climate commitments as quickly as possible. Civil society can also provide insight into gaps that are best filled through regulation, and even share experiences on how to balance ambition with practicability. The same applies also to carbon credits, where years of civil society experience can help governments regulate which credits represent real emissions with no net harm and which do not.

Clearer definitions of claims

At present, the legitimacy of corporate climate commitments is decided through litigation. This lever protects society from buying into claims that have no proven benefit to mitigating climate change. However, assessing these cases on an individual basis may not be the most direct and effective way to enforcing good climate commitment practices. Rather, companies need clearer regulatory guidance from governments on what is considered an acceptable or unacceptable claim.

Drawing progress and lessons learned from civil society and companies

As mentioned throughout this paper, the corporate climate commitments space is rapidly evolving. It has emerged mostly following the signing of the Paris Agreement in 2015. Since then, civil society groups have organized to continue to raise awareness of where emissions come from and establish standards and best practices to guide corporate action. Many companies have invested significant resources to be able to measure and reduce their emissions. Government regulators should draw on the progress made by both of these groups in developing regulation to address corporate climate action. Incorporating their knowledge and perspectives can help avoid pitfalls with effective implementation and reduce unnecessary complexity.

Lastly, the relationship between net zero regulation and voluntary guidance is bi-directional. As governments adopt voluntary concepts into their policies, civil society must also be careful to balance ambitious guidelines and requirements with regulatory limitations (e.g. triggering antitrust laws, conflicting with disclosure rules).

Conclusion

The state of climate commitments has come a long way in recent years, but there is still a way to go. Key initiatives have emerged in the space to provide guidance on the core components of net zero claims – from measuring emissions to setting a science-aligned target to the credibility of offsetting. Thousands of companies have set emissions reduction targets and are investing resources to be able to measure emissions and decarbonize their value chains. Litigation has helped bring accountability to companies making less-than-credible claims, and governments are beginning to step up through disclosure rules and claims requirements. Great progress is being made, especially considering that much of this has only taken place in the past few years.

However, globally, we are far from on track to limit warming to 1.5°C. The UNEP's 2022 Emissions Gap report found that with the policies currently in place, we will reach 2.8°C by the end of this century, and “incremental change is no longer an option: broad-based economy-wide transformations are required to avoid closing the window of opportunity to limit global warming to well below 2°C, preferably 1.5°C.”

Achieving that level of transition will require committed action on the part of governments, companies, and civil society – and corporate climate action and claims are central to moving forward. Our key recommendations for each of these groups are summarized in Table 4 and detailed throughout this report.

Our overarching recommendation is this: we must build on the progress that's been made in the knowledge and standards that have been developed, continue efforts to enhance and align them where needed, and work to expand credible action on climate throughout the private sector. Governments, companies, and civil society must work collaboratively and constructively, ensuring accountability, acknowledging achievements we've already made, and continually strive to be informed by science to meet our climate goals. Recognizing that the standards set for net zero will continue to evolve in the coming year, this report is meant to act as a snapshot of the net zero state of play.

Photo: Joseph Rossbach TNC Photo Contest 2007

Table 4: Key priorities for corporate, standards bodies and civil society, and government regulators to achieve a 1.5°C pathway for the private sector.

<p>Corporates</p>	<ul style="list-style-type: none"> • Strive for the standards and best practices described above in terms of target setting, decarbonization, reporting and driving towards a low-carbon economy. • Enhance transparency by publishing and reporting regular updates about emissions reduction targets, annual emissions, transition plans and use of offsets. For greater accountability, companies should increase use of third-party verification. • Invest in readiness efforts, especially in light of emerging regulation.
<p>Standards bodies and civil society</p>	<ul style="list-style-type: none"> • Continue to seek alignment (based on sound science) in voluntary corporate climate standards to reduce complexity for companies seeking to set and meet emissions reduction goals, especially around the appropriate use of offsets and scope 3 emissions reductions. • Provide research and guidance to inform companies and industry groups in hard-to-abate sectors on decarbonization action and pathways that are in line with limiting warming to 1.5°C. • Continue efforts to assess the quantity and quality of corporate net zero targets in a constructive way to incentivize greater action, enhance accountability, and identify and address broader barriers.
<p>Government regulators</p>	<ul style="list-style-type: none"> • Continue to develop regulations to limit corporate GHG emissions. • Clearly define which corporate claims are credible or would be considered false advertising. • Regulate bilateral carbon trading to ensure credits represent real emission reductions or removals and do no harm to biodiversity or communities. • Implement disclosure frameworks based on proven best practices made available by civil society. • In developing regulation, enhance collaboration across sectors, drawing on the knowledge and standards established by civil society groups, incorporating considerations and lessons learned from corporates.

Appendix

CLAIM TYPES

Net Zero - GHG reductions complemented by removals once the company has reduced to only residual emissions

Absolute Zero/Zero Emissions - GHG emissions reduced to zero without neutralization or the use of credits/offsets

Climate Neutral/GHG Neutral/Carbon Neutral - company purchases and retires offsets to compensate for emissions, and may be undertaking internal GHG reductions but not promised

Climate Positive/Carbon Negative/Net Negative - company purchases and retires offsets to more than compensate for emissions, and may be undertaking internal GHG reductions but not promised

1.5°C Aligned - Emissions targets aligned with pathways that limit warming to below 1.5°C with some specified probability (e.g. 50%, 66%) and some amount of overshoot (e.g. none, low)




























Science-aligned/Paris Aligned - Emissions targets aligned with pathways that limit warming to well-below 2°C above preindustrial levels, with no or low overshoot


Table 5: Summary of corporate climate assessments used in this report.


Source	Date Published and Author	Companies Targeted in Study
<i>The MSCI Net-Zero Tracker</i>	2022 (MSCI)	9,248 companies from small to large cap (23 developed market and 27 emerging market countries)
<i>Putting a Price on Carbon: The State of Internal Carbon Pricing by Corporates Globally</i>	2021 (CDP)	5,900 corporates who disclosed their climate data to CDP in 2020 (Global)
<i>Accelerating Global Companies toward Net Zero by 2050</i>	2022 (Accenture)	2,000 public and private companies in the world by revenue (Global)
<i>Recommendations and Current Realities</i>	2022 (Net Zero Tracker)	Forbes Global 2,000 list
<i>Net Zero Stocktake 2022</i>	2022 (Net Zero Tracker)	Forbes Global 2,000 list
<i>Net Zero Stocktake 2023</i>	2023 (Net Zero Tracker)	Forbes Global 2,000 list
<i>Net Zero Tracker Dataset</i>	2023 (Net Zero Tracker)	Forbes Global 2,000 list
<i>Net Zero Company Benchmark: Interim assessments</i>	2022 (Climate Action 100+)	159 companies accounting for up to 80 percent of global corporate industrial greenhouse gas emissions.
<i>Can Science-Based Targets Make the Private Sector Paris-Aligned? A Review of the Emerging Evidence</i>	2022 (Bjørn et al.)	1,039 companies with science-based targets approved by SBTi (Global)
<i>If not now, when? How Are Companies Stepping up with the Urgency Required to Deliver Climate Impact</i>	2022 (Climate Impact Partners)	Fortune 500 companies (Global)
<i>TPI State of Transition Report 2021</i>	2021 (Transition Pathways Initiative)	401 companies from 16 business sectors (Global)
<i>Turning Blue Chips Green: A Review of FTSE100 Net Zero Commitments</i>	2021 (WWF)	100 public companies with highest public valuation (UK-only)
<i>Evaluating Corporate Target Setting in the Netherlands</i>	2022 (NewClimate Institute)	29 companies and financial institutions (Dutch-only)
<i>Corporate Climate Responsibility Monitor 2022</i>	2022 (NewClimate Institute)	25 "major" companies (Global)
<i>Corporate Climate Responsibility Monitor 2023</i>	2023 (NewClimate Institute)	24 "major" companies (Global)

KEY GUIDANCE AND ACCOUNTABILITY RESOURCES

Figure 4: Areas of focus for key initiatives and standards within the voluntary net zero space. (This information was retrieved in March 2023 and is subject to updates by the host organizations.)

	Target setting	Decarbonizing	Offsets' role and/or quality	GHG Measurement	Reporting	Structural change
SBTi Net Zero Standard						
Race to Zero Membership Criteria						
UN HLEG Integrity Matters						
GHG Protocol Corporate Standard						
TPI Management Quality & Carbon Performance Methodology						
VCMi Provisional Claims Code of Practice						
IC-VCM Core Carbon Principles						
CDP Climate Change Questionnaire						
TCFD Recommendations						
ISO 14064						
GRI Universal and Sector Standards						

 Standards and Frameworks

 Guidance and Recommendations

References

- Accenture. *Accelerating Global Companies toward Net Zero by 2050*. 2022, <https://www.accenture.com/content/dam/accenture/final/capabilities/strategy-and-consulting/strategy/document/Accenture-Net-Zero-By-2050-Global-Report-2022.pdf>.
- Accenture. *Destination Net Zero: Tracking Global Progress on the Targets and Action Companies Are Taking to Accelerate Their Journey to Net Zero*. 2023. <https://www.accenture.com/content/dam/accenture/final/accenture-com/document-2/Destination-Net-Zero-2023-Report.pdf>
- Accenture. "Nearly All Companies Will Miss Net Zero Goals without at Least Doubling Rate of Carbon Emissions Reductions by 2030, Accenture Report Finds." *Newsroom.accenture.com*, 1 Nov. 2022, <https://newsroom.accenture.com/news/2022/nearly-all-companies-will-miss-net-zero-goals-without-at-least-doubling-rate-of-carbon-emissions-reductions-by-2030-accenture-report-finds>.
- AI Dash. *Carbon Offsetting in 2023: A Chief Sustainability Officer's Guide to the Market*. 2023, www.aidash.com/wp-content/uploads/2022/12/Carbon-offsets-in-2023-report.pdf.
- Allen and Gledhill. *SGX Mandates Climate and Board Diversity Disclosures*. 14 Jan. 2022, www.allenandgledhill.com/sg/publication/articles/19998/sgx-mandates-climate-and-board-diversity-disclosures.
- Australian Treasury. "Climate-Related Financial Disclosure" *Treasury.gov.au*, 2022, treasury.gov.au/consultation/c2022-314397.
- Bangko Sentral ng Pilipinas. "Bangko Sentral Ng Pilipinas Media and Research." *Www.bsp.gov.ph*, 24 May 2021, www.bsp.gov.ph/Site-Pages/MediaAndResearch/MediaDisp.aspx?ItemId=5792.
- Bangko Sentral ng Pilipinas. *Circular No. 1085: Sustainable Finance Framework*. 29 Apr. 2020, www.bsp.gov.ph/Regulations/Issuances/2020/c1085.pdf.
- Barbiroglio, E. "EU lawmakers vote to ban firms from relying on offsetting when making green claims". 12 May 2023, <https://carbon-pulse.com/202892/>.
- Bjørn, Anders, et al. "Can Science-Based Targets Make the Private Sector Paris-Aligned? A Review of the Emerging Evidence." *Current Climate Change Reports*, vol. 8, Apr. 2022, <https://doi.org/10.1007/s40641-022-00182-w>.
- BloombergNEF. *The Untapped Power of Carbon Markets in Five Charts*. 16 Sept. 2022, about.bnef.com/blog/the-untapped-power-of-carbon-markets-in-five-charts/#:~:text=Close%20to%20a%20fifth%20of,just%205%25%20a%20decade%20ago.
- Brack, Duncan, and Michael Wolosin. *Getting the "Bads" out of Goods: Evolution from Voluntary to Regulated Approaches in Reducing the Undesirable Impacts of Global Trade*. *Forest Trends*, June 2018, www.forest-trends.org/wp-content/uploads/2018/06/Getting-the-Bads-out-of-Goods_6-20-18_FINAL_WEB.pdf.
- Burns, David, et al. "Guidance on Voluntary Use of Nature-Based Solution Carbon Credits through 2040." *Www.wri.org*, 2 June 2022, <https://www.wri.org/technical-perspectives/guidance-voluntary-use-nature-based-solution-carbon-credits-through-2040>. Accessed July 2023.
- Business and Human Rights Resource Centre. "TotalEnergies Lawsuit (Re Climate Change, France) - Business & Human Rights Resource Centre." *Business & Human Rights Resource Centre*, 2020, www.business-humanrights.org/en/latest-news/total-lawsuit-re-climate-change-france/.
- Canadian Securities Administrators. "Canadian Securities Regulators Seek Comment on Climate-Related Disclosure Requirements." *Canadian Securities Administrators*, 18 Oct. 2021, www.securities-administrators.ca/news/canadian-securities-regulators-seek-comment-on-climate-related-disclosure-requirements/.
- Carbon Trust. "Carbon neutral verification". 2023, www.carbontrust.com/what-we-do/assurance-and-labelling/carbon-neutral-verification.
- CDP. "CDP Scores Explained - CDP." *Www.cdp.net*, CDP, www.cdp.net/en/scores/cdp-scores-explained.
- CDP. *PUTTING a PRICE on CARBON: The State of Internal Carbon Pricing by Corporates Globally*. 2021, cdn.cdp.net/cdp-production/cms/reports/documents/000/005/651/original/CDP_Global_Carbon_Price_report_2021.pdf?1618938446.
- Climate Action 100+. *Net Zero Company Benchmark: Interim Assessments*. Oct. 2022, www.climateaction100.org/wp-content/uploads/2022/10/October-2022-Benchmark-interim-assessments_public-summary_Final_13Oct22.pdf.
- Climate Active. "Certification". 2019, <https://www.climateactive.org.au/be-climate-active/certification>.
- Climate Case Chart. "Australasian Centre for Corporate Responsibility v. Santos - Climate Change Litigation." *Climate Change Litigation*, 2021, climatecasechart.com/non-us-case/australasian-centre-for-corporate-responsibility-v-santos/#:~:text=On%20August%2025%2C%202021%2C%20Australasian,net%20zero%20emissions%20by%202040.
- Climate Impact Partners. *IF NOT NOW, WHEN? How Are Companies Stepping up with the Urgency Required to Deliver Climate Impact*. 21 Sept. 2022, ifnotnowwhen.climateimpact.com
- COMISSÃO DE VALORES MOBILIÁRIOS. *CVM Resolution V. 193 (Disclosure of Sustainability-Related Financial Information in Brazil)*. 20 October 2023, <https://www.gov.br/cvm/en/foreign-investors/regulation-files/ResolutionCVM193.pdf>.
- Conservation International, and We Mean Business Coalition. *Corporate Minds on Climate Action: The Current Thinking, the Key Challenges, and the Will to Find a Way Forward*. Jan. 2023, www.wemeanbusinesscoalition.org/wp-content/uploads/2023/01/Corporate-Minds-On-Climate-Action-Report.pdf.

- Day, Thomas, et al. *Corporate Climate Responsibility Monitor 2022 ASSESSING the TRANSPARENCY and INTEGRITY of COMPANIES' EMISSION REDUCTION and NET-ZERO TARGETS*. 2022, newclimate.org/sites/default/files/2022-06/CorporateClimateResponsibility-Monitor2022.pdf.
- Day, Thomas, and et al. *Corporate Climate Responsibility: GUIDANCE and ASSESSMENT CRITERIA for GOOD PRACTICE CORPORATE EMISSION REDUCTION and NET-ZERO TARGETS, Version 3.0*. NewClimate Institute, Feb. 2023, https://newclimate.org/sites/default/files/2023-05/NewClimate_CCRM2023_Methodology_Feb23.pdf
- Dietz, Simon, et al. *TPI State of Transition Report 2020*. Transition Pathway Initiative, 2020, www.transitionpathwayinitiative.org/publications/50.pdf?type=Publication.
- Dietz, Simon. *TPI State of Transition Report 2021*. Transition Pathway Initiative, Apr. 2021, www.transitionpathwayinitiative.org/publications/82.pdf?type=Publication.
- European Commission. *Proposal for a Directive on Green Claims*. 22 Mar. 2023, environment.ec.europa.eu/publications/proposal-directive-green-claims_en.
- European Parliament. "New Social and Environmental Reporting Rules for Large Companies" *Www.europarl.europa.eu*, 21 June 2022, www.europarl.europa.eu/news/en/press-room/20220620IPR33413/new-social-and-environmental-reporting-rules-for-large-companies.
- Fox Rothschild. California's Climate Accountability Package: What You Need to Know. 24 October 2023. <https://www.foxrothschild.com/publications/californias-climate-accountability-package-what-you-need-to-know>.
- Fuminaga, Tomoko, and Kyoko Nagano. "Japan Introduces Mandatory ESG Disclosures for Public Companies." *Morgan Lewis*, 22 Dec. 2022, www.morganlewis.com/pubs/2022/12/japan-introduces-mandatory-esg-disclosures-for-public-companies.
- Furness, V; T. Reggiori Wilkes; S. Jessop; I. Binnie; and T. Sims. "Zurich Insurance becomes second firm to quit climate alliance". *Reuters*, 6 April 2023. <https://www.reuters.com/business/sustainable-business/zurich-becomes-second-major-insurer-quit-climate-alliance-2023-04-05/>.
- Grant Thornton. California voluntary carbon market disclosure act. 9 November 2023. <https://www.grantthornton.com/insights/articles/audit/2023/snapshot/november/california-voluntary-carbon-market-disclosure-act>
- Greenfield, Patrick. "Delta Airlines faces lawsuit over \$1bn carbon neutrality claim". May 2023, <https://www.theguardian.com/environment/2023/may/30/delta-air-lines-lawsuit-carbon-neutrality-aoe>.
- Hale, T. *Governing net zero: the conveyor belt*. Blatnik School of Government, University of Oxford. November 2021, <https://www.bsg.ox.ac.uk/sites/default/files/2021-11/2021-11%20Hale%20Net%20Zero%20Policy%20Memo.pdf>.
- Hans, Frederic, et al. *Net Zero Stocktake 2022*. June 2022, ca1-nzt.edcdn.com/Net-Zero-Tracker/Net-Zero-Stocktake-Report-2022.pdf?v=1655074300.
- ICLG Group. "Environmental, Social and Governance Law Korea 2023." *International Comparative Legal Guides International Business Reports*, 2023, [iclg.com/practice-areas/environmental-social-and-governance-law/korea](https://www.iclg.com/practice-areas/environmental-social-and-governance-law/korea).
- IFRS. "IFRS - IFRS S2 Climate-Related Disclosures." *Www.ifrs.org*, June 2023, www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s2-climate-related-disclosures.html/content/dam/ifrs/publications/html-standards-issb/english/2023/issued/issbs2/. Accessed 3 Aug. 2023.
- IPCC. *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*. Cambridge University Press, 2018, www.ipcc.ch/sr15/.
- IPCC. *SYNTHESIS REPORT of the IPCC SIXTH ASSESSMENT REPORT (AR6)*. Mar. 2023, report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_LongerReport.pdf.
- International Organization for Standardization (ISO). ISO/DIS 14068 – Greenhouse gas management and climate change management and related activities – Carbon neutrality. May 2023, <https://www.iso.org/standard/43279.html>.
- Japan Financial Services Agency. "Announcement of Revisions to the Cabinet Office Ordinance Concerning Disclosure of Corporate Information, Etc." *Www.fsa.go.jp*, 20 Nov. 2020, www.fsa.go.jp/news/r4/sonota/20221107/20221107.html.
- Kim, Yun Sung, and Seulbin Park. *2022 K-ESG Regulatory Outlook*. Lee & Ko, 2022, www.investkorea.org/upload/kotraexpress/2022/01/images/Special_Report.pdfwww.investkorea.org/upload/kotraexpress/2022/01/images/Special_Report.pdf.
- Lang, John, et al. *Net Zero Tracker Dataset*. Net Zero Tracker, 2023, zerotracker.net/.
- LoPucki, Lynn M., *Corporate Greenhouse Gas Disclosures*. 20 May 2022, 56 UC Davis Law Review, No. 1, UCLA School of Law, Public Law Research Paper No. 22-11, <https://ssrn.com/abstract=4051948>.
- Malcolm, Graeme. "The Global Methane Pledge Could Be Our Only Realistic Chance to Slow down Climate Change within a Few Years—but Time Is Already Running Out." *Fortune*, 25 Nov. 2022. fortune.com/2022/11/25/global-methane-pledge-realistic-chance-slow-down-climate-change-tech-space-environment-agriculture-graeme-malcolm/.
- McGivern, A., et al. *Defining Net Zero: How Do Climate Criteria Align across Standards and Voluntary Initiatives?* Smith School of Enterprise and the Environment, 2022, netzeroclimate.org/wp-content/uploads/2022/10/SUMMARY-REVIEW-21-OCT-FINAL.pdf.
- MSCI. *The MSCI Net-Zero Tracker*. Oct. 2022, www.msci.com/documents/1296102/26195050/MSCI-Net-ZeroTracker-October.pdf.
- Net Zero Tracker. *Net Zero Stocktake 2023*, NewClimate Institute, Oxford Net Zero, Energy and Climate Intelligence Unit and Data-Driven Environmentlab. <https://zerotracker.net/analysis/net-zero-stocktake-2023>.
- Net Zero Tracker. *Recommendations and current realities*. 15 November 2022, <https://zerotracker.net/analysis/recommendations-and-current-realities>.

- Netherlands Enterprise Agency. "Rules for Sustainability Claims". 2021, <https://business.gov.nl/regulation/sustainability-claims-rules/>.
- NewClimate Institute. *EVALUATING CORPORATE TARGET SETTING in the NETHERLANDS*. 2 July 2022, newclimate.org/resources/publications/evaluating-corporate-target-setting-in-the-netherlands.
- New Zealand Ministry for the Environment. *Mandatory Climate-Related Disclosures*. 18 Jan. 2023, environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/mandatory-climate-related-financial-disclosures/#:~:text=Managers%20of%20registered%20investment%20schemes%20will%20be%20required%20to%20make,future%20performance%20of%20their%20investment.
- New Zealand Ministry of Business, Innovation and Employment, and New Zealand Ministry for the Environment. "Mandatory Climate-Related Disclosures." *Environment.govt.nz*, 18 Jan. 2023, environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/mandatory-climate-related-financial-disclosures/.
- Oliver, Rae. "Japan's Mandatory Climate Risk Disclosures." *Sinai Technologies*, 21 Sept. 2022, www.sinaitechnologies.com/post/japans-mandatory-climate-risk-disclosures.
- Otis, Lindsay. *Corporate Climate Responsibility Monitor 2023*. NewClimate Institute, 13 Feb. 2023, carbonmarketwatch.org/publications/corporate-climate-responsibility-monitor-2023/.
- Romano, V. "EU Parliament votes to clamp down on carbon neutral claims, early obsolescence". 12 May 2023, <https://www.euractiv.com/section/energy-environment/news/eu-parliament-votes-to-clamp-down-carbon-neutral-claims-early-obsolescence/>.
- Sandrin-Deforge, Armelle and Karim Tarantino. "France Regulates the Use of Carbon Neutrality Claims in Advertisements". May 2022, Jones Day. <https://www.jonesday.com/en/insights/2022/05/france-regulates-the-use-of-carbon-neutrality-claims-in-advertisements>.
- SBTi. *SBTi CORPORATE NETZERO STANDARD, Version 1.1*. SBTi, Apr. 2023, sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf.
- Setzer, Joana, and Catherine Higham. *Global Trends in Climate Change Litigation: 2022 Snapshot*. Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science, June 2022, www.lse.ac.uk/granthaminstitute/wp-content/uploads/2022/08/Global-trends-in-climate-change-litigation-2022-snapshot.pdf.
- Seyfarth. *New California Laws Mandate Climate Disclosures for Both Private and Public Companies*, 19 October 2023. <https://www.seyfarth.com/news-insights/legal-update-new-california-laws-mandate-climate-disclosures-for-both-private-and-public-companies.html>.
- SGX Group. "SGX Mandates Climate and Board Diversity Disclosures - SGX Group." *Www.sgxgroup.com*, 15 Dec. 2021, www.sgxgroup.com/media-centre/20211215-sgx-mandates-climate-and-board-diversity-disclosures.
- Sidley. *California Enacts Novel Disclosure Requirements for the Voluntary Carbon Market and Green Claims*. 17 October 2023. <https://www.sidley.com/en/insights/newsupdates/2023/10/california-enacts-novel-disclosure-requirements-for-the-voluntary-carbon-market-and-green-claims>
- South Pole. *Corporate Claims Report 2023*. South Pole, 2023, <https://go.southpole.com/corporate-claims-report-2023>
- "South Pole Calls for Businesses to Align around New Future-Proof Green Claim: Funding Climate Action." *South Pole*, 27 June 2023, www.southpole.com/news/south-pole-calls-for-businesses-to-align-around-new-future-proof-green-claim-funding-climate-action. Accessed 3 Aug. 2023.
- Sullivan and Cromwell LLP. *SEC Proposes Expansive Climate-Related Disclosure Rules*. 29 Mar. 2022, <https://www.sullcrom.com/insights/memo/2022/March/SEC-Proposes-Expansive-Climate-Related-Disclosure-Rules>.
- Sutton, Isabel. "Company Climate Claims in Court: Pending Cases Will Shape Future of 'Net Zero' Pledges." *Clean Energy Wire*, 21 Sept. 2022, www.cleanenergywire.org/factsheets/company-climate-claims-court-pending-cases-will-shape-future-net-zero-pledges.
- Task Force on Climate-related Financial Disclosures (TCFD). *Recommendations of the Task Force on Climate-Related Financial Disclosures*. TCFD, June 2017, assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf.
- The Greenhouse Gas Protocol. "A Corporate Accounting and Reporting Standard, Revised Edition." *Ghgprotocol.org*, World Business Council for Sustainable Development and World Resources Institute, 2015, ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf. Accessed Mar. 2023.
- The Integrity Council for the Voluntary Carbon Market (IC-VCM). "High Quality Voluntary Carbon Credits Principles." *ICVCM*, 2023, <https://icvcm.org/the-core-carbon-principles/>.
- Tilly, Mark. *Australia looks to ditch carbon neutral claim in its Climate Active scheme*. Carbon Pulse, 20 October 2023. <https://carbon-pulse.com/230646/>.
- Triggs, Matthew, et al. "EU Finalizes ESG Reporting Rules with International Impacts." *The Harvard Law School Forum on Corporate Governance*, The Harvard Law School Forum on Corporate Governance, 30 Jan. 2023, corpgov.law.harvard.edu/2023/01/30/eu-finalizes-esg-reporting-rules-with-international-impacts/#:~:text=As%20part%20of%20these%20disclosures,achieve%20climate%20neutrality%20by%202050.
- U.K. CMA. "Green Claims: CMA sets out the dos and don'ts for businesses". 21 May 2021, <https://www.gov.uk/government/news/green-claims-cma-sets-out-the-dos-and-don-ts-for-businesses>.
- U.K. Department for Business, Energy & Industrial Strategy. "UK to Enshrine Mandatory Climate Disclosures for Largest Companies in Law." *Gov.uk*, 29 Oct. 2021, www.gov.uk/government/news/uk-to-enshrine-mandatory-climate-disclosures-for-largest-companies-in-law.

- U.S. Commodity Futures Trading Commission. "CFTC Releases Request for Information on Climate-Related Financial Risk | CFTC." *Www.cftc.gov*, 2 June 2022, www.cftc.gov/PressRoom/PressReleases/8541-22.
- U.S. Federal Trade Commission. "Volkswagen Group of America, Inc." *U.S. Federal Trade Commission*, 29 Mar. 2016, www.ftc.gov/legal-library/browse/cases-proceedings/162-3006-volkswagen-group-america-inc.
- U.S. Federal Trade Commission. *Guides for the Use of Environmental Marketing Claims*, 11 Oct. 2012. Federal Register, Vol. 77. https://www.ftc.gov/sites/default/files/documents/federal_register_notices/guides-use-environmental-marketing-claims-green-guides/greenguidesfrn.pdf.
- U.S. Securities and Exchange Commission. "SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors." *Sec.gov*, 21 Mar. 2022, www.sec.gov/news/press-release/2022-46.
- UK Department for Business, Energy, & Industrial Strategy. *Mandatory Climate-Related Financial Disclosures by Publicly Quoted Companies, Large Private Companies and LLPs*. Feb. 2022, assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1056085/mandatory-climate-related-financial-disclosures-publicly-quoted-private-cos-llps.pdf.
- UN Race to Zero. *Race to Zero Criteria 3.0*. UNFCCC, 2022, climatechampions.unfccc.int/wp-content/uploads/2022/06/Race-to-Zero-Criteria-3.0-4.pdf.
- United Nations Environment Programme (UNEP). *The Emissions Gap Report 2022: The Closing Window*. 2022, <http://www.unep.org/resources/emissions-gap-report-2022>.
- United Nations' High Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities (UN HLEG). *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions*. United Nations, 2022, http://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf.
- Vander Stoep, Kari, and David Wang. "Litigation Minute: Litigation Targeting Companies' 'Carbon-Neutral' and Renewable Energy Representations." *Klgates.com*, K & L Gates, 2022, www.klgates.com/Litigation-Minute-Litigation-Targeting-Companies-Carbon-Neutral-and-Renewable-Energy-Representations-7-19-2022.
- Voluntary Carbon Markets Integrity Initiative (VCMI). *Provisional Claims Code of Practice*. 7 June 2022, vcmintegrity.org/wp-content/uploads/2022/06/VCMI-Provisional-Claims-Code-of-Practice.pdf.
- Watson, Emma, and Roman Paul Czebiniak. "Net-Zero: Urgent beyond Value Chain Mitigation Is Essential." *Science Based Targets Initiative*, 13 Sept. 2022, sciencebasedtargets.org/blog/net-zero-urgent-beyond-value-chain-mitigation-is-essential.
- World Business Council for Sustainable Development. *Forest Sector Net Zero Roadmap*. 6 Nov. 2021, <http://www.wbcsd.org/Sector-Projects/Forest-Solutions-Group/Resources/Forest-Sector-Net-Zero-Roadmap>.
- World Wildlife Fund (WWF). *TURNING BLUE CHIPS GREEN: A REVIEW of FTSE100 NET ZERO COMMITMENTS*. Oct. 2021, http://www.wwf.org.uk/sites/default/files/2021-10/Net_zero_scorecard_report_0.pdf.

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