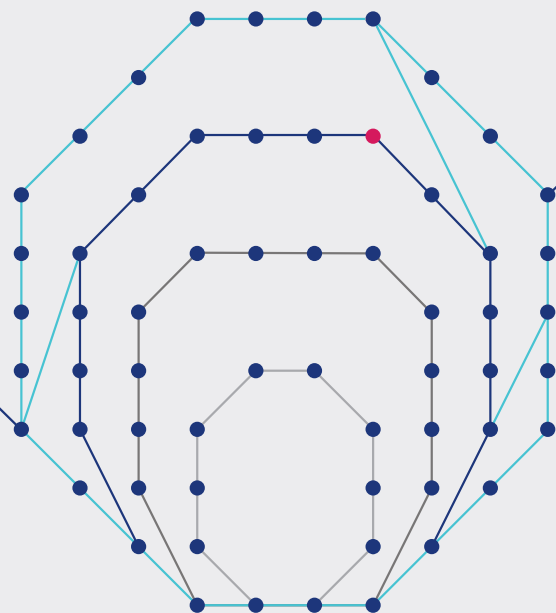


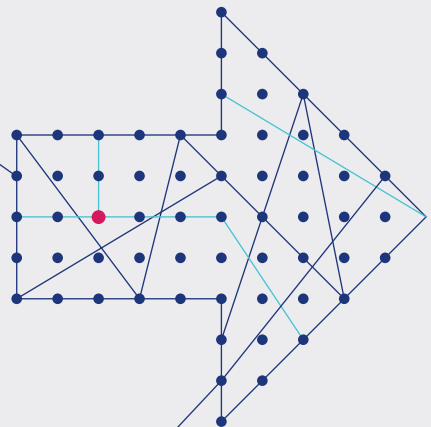


TCFD Good Practice Handbook

2nd Edition



About the Climate Disclosure Standards Board and We Mean Business



The Climate Disclosure Standards Board (CDSB) is an international consortium of business and environmental NGOs. We are committed to advancing and aligning the global mainstream corporate reporting model to equate natural and social capital with financial capital.

We do this by offering companies a [framework](#) for reporting environmental and social information with the same rigour as financial information. In turn, this helps them to provide investors with decision-useful environmental information via the mainstream corporate report, enhancing the efficient allocation of capital. Regulators have also benefited from CDSB's compliance-ready materials. Recognising that information about natural, social and financial capital is equally essential for an understanding of corporate performance, our work builds trust and transparency needed to foster resilient capital markets. Collectively, we aim to contribute to more sustainable economic, social and environmental systems.

For more information, visit cdsb.net, follow us on [Twitter](#), [LinkedIn](#) and [YouTube](#) and subscribe to our monthly [newsletter](#). Visit the [TCFD Knowledge Hub](#) for access to free online e-learning courses, as well as a [report database](#), [case studies](#) and [additional resources](#), and subscribe to the TCFD Knowledge Hub's monthly [newsletter](#). We welcome your input and discussions. If you would like to comment on this document, please contact us at info@cdsb.net.

We Mean Business Coalition (WMBC) is a global non-profit coalition working with the world's most influential businesses to take action on climate change.

We collaborate with a core group of seven business-focused climate non-profit organisations to accelerate the transition to a just and climate resilient net-zero economy. The coalition partners are: BSR, CDP, Ceres, CLG Europe, Climate Group, The B Team and WBCSD. These founding partners help to deliver key initiatives and activities that are central to the success of the overall coalition's bold objectives. Beyond this core group, we also collaborate with a wider network of organisations that help to realize our shared vision at speed and scale.

For information, visit wemeanbusinesscoalition.org, follow us on [Twitter](#), [LinkedIn](#) and [YouTube](#) and subscribe to our [newsletter](#). If you would like to comment on this document, please contact us at info@wemeanbusinesscoalition.org.

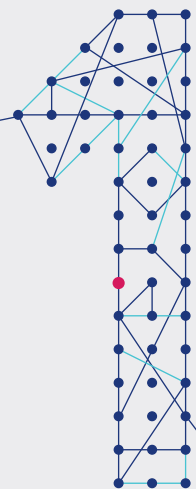
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1. Introduction



Introduction

In September 2019, the first edition of the [TCFD Good Practice Handbook](#) was published by the Climate Disclosure Standards Board (CDSB) and the Sustainability Accounting Standards Board (SASB)¹. It aimed to address the common question “what does good practice look like?” when it comes to reporting upon the Task Force on Climate-Related Financial Disclosure (TCFD) recommendations, by sharing a selection of real-world examples from across the G20.

Since then, a growing number of companies have taken steps to align their reporting to the recommended disclosures of the TCFD’s 2017 [Final Recommendations Report](#) (TCFD recommendations) both within the G20 and beyond. As of 2021, over 2,600 organisations worldwide have formally registered their public support as TCFD Supporters, and collectively represent a market capitalisation of over USD\$25 trillion across 89 countries. This equates to an increase of +42% from the previous year². As such, regulators are increasingly contemplating the introduction of mandatory climate risk disclosure requirements aligned with the TCFD. However, until this is achieved, full adoption of TCFD-aligned disclosure will remain in its infancy, and the need to embed climate-related risks and opportunities into financial considerations will continue to persist.

Leading companies have now provided several years of TCFD-aligned reporting, continuing to enhance their climate-risk disclosures. With two additional years of TCFD-aligned disclosure now publicly available, CDSB (together with the We Mean Business Coalition) set out to identify specific examples of different aspects of effective TCFD reporting across the four TCFD core elements: Governance, Strategy, Risk Management, and Metrics and Targets ([see Figure 1](#)). We also share examples of wider good practices, such as communicating transparent progress, and integrating climate into financial reporting. In addition to showcasing examples of good practice, this handbook also seeks to address the common question of “how do I get there?” by sharing the first-hand experiences of implementing the TCFD recommendations by report preparers themselves (see Chapter 4). The candour provided by these organisations on the challenges they have encountered in preparing disclosure on climate-related risks and opportunities, and the steps they have taken to overcome these, offers valuable lessons for those in the early stages of their TCFD disclosure journey.

Whilst we select examples of good practice from across sectors and geographies, we do not assess the overall quality or effectiveness of the TCFD reporting for each of the companies included in this handbook. For a more comprehensive assessment of the quality or effectiveness of the TCFD disclosures globally, see the TCFD’s [2021 Status Report](#). For each of the companies included in this handbook, we have identified some good practices in their reporting that are worth disseminating to others to help with the iterative process of “learning-by-doing” and enhancing the quality and completeness of TCFD disclosures over time.

It should be noted that all good practice examples shared in this handbook are drawn from mainstream financial filings³. Whilst a common approach to date has been to prepare a separate supplementary TCFD, climate change, and/or sustainability reports, the TCFD is clear in recommending that material climate-related financial disclosure should be provided within the mainstream financial report to facilitate its use by investors. Whilst many disclosures provided outside of the mainstream financial report exemplify elements of good practice, it is important that companies continue to pursue efforts to embed material information into their mainstream financial report, ensuring connectivity to their wider financial and strategic disclosures. As noted by the TCFD in its [2019 Status Report](#), “disclosing climate-related information consistent with the TCFD recommendations is possible and is a journey of continuing improvement.” The good practices collated in this handbook aim to facilitate this progression.

The handbook is structured as follows:

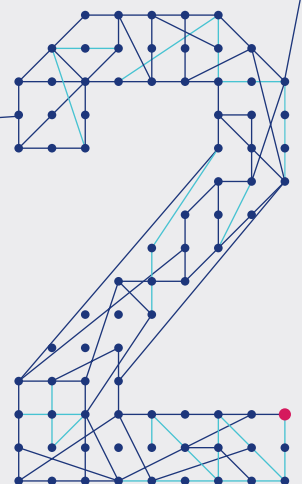
- **Chapter 1** introduces the handbook, its origins and purpose;
- **Chapter 2** provides a brief overview of the current state of TCFD disclosures globally;
- **Chapter 3** highlights examples of good practice globally, aligned to the four core elements of the TCFD;
- **Chapter 4** shares the practical experiences of a range of companies to implement the TCFD recommendations; and
- **Chapter 5** shares a selection of resources that can support companies to enhance their disclosures under the four core elements.

¹ In June 2021, SASB merged with the International Integrated Reporting Council (IIRC) to create the [Value Reporting Foundation \(VRF\)](#)

² TCFD, 2021 Status Report (2021)

³ For the purposes of this report, mainstream financial reports will be defined as the annual reporting packages in which organisations are required to deliver their audited financial results under the corporate, compliance and securities laws of the jurisdiction in which they operate. These are sometimes referred to as general-purpose financial reports, and include documents such as 10-K filings.

2. TCFD overview



TCFD overview

Released in 2017, the TCFD recommendations set out eleven recommended disclosures around four core areas for companies to report material climate-related information to the market via the mainstream financial report, as shown in Figure 1, below.⁴ In focusing on these four core areas of business practice and disclosure, the TCFD sought to ensure that consideration for climate-related matters were adequately embedded throughout the organisation’s governance, strategy, and risk management processes and transparently reflected for both preparers and users alike. In doing so, this addresses the demand for information that is consistent, comparable, reliable and clear.

The TCFD recommendations also promoted the use of climate scenario analysis for the assessment of corporate strategic resilience. Climate scenario analysis is offered as a means to inform users⁵ about a company’s

strategic resilience, and enable companies to prepare and respond to the uncertainties of climate change and decarbonisation efforts over different time horizons, both in terms of the timings of potential impacts as well as their magnitudes.⁶ By exploring a range of plausible and coherent climate futures and assessing the potential corporate risks and opportunities of each, companies can test their thinking and strategies, better understand the key drivers that will likely affect their business going forward, and adapt their strategies and ambitions accordingly. Whilst potentially challenging, scenario analysis is an essential component to TCFD reporting. It brings considerations of the short-, medium-, and long-term impacts of climate change into the present day, enabling companies and investors can act in a more informed and effective manner.



Figure 1: Overview of the core elements of the TCFD recommendations. Source: TCFD Final Recommendations Report (2017)

⁴ TCFD, Final Recommendations Report (2017)

⁵ According to the TCFD 2021 Status Report, the term “user” refers primarily to investors, lenders, or insurance underwriters through credit rating agencies and regulatory authorities, as well as preparers of their own disclosures.

⁶ TCFD, Technical Supplement: The use of scenario analysis in disclosure of climate-related risks and opportunities (2017)

State of TCFD Reporting

The TCFD’s latest analysis of global reporting demonstrates that there is continued improvement across the eleven recommendations, but the pace of development is sluggish.⁷

Particular areas of concern for adoption noted by the TCFD were the resilience of the company’s strategy and management’s role in assessing and managing climate-related risks and opportunities, with only 13% and 18% of companies analysed disclosing against these recommendations, respectively. But the TCFD’s analysis also showed some surprising areas of lower rates of disclosure in the market, such as board oversight of climate-related risks and opportunities (25%) and disclosing Scopes 1, 2, and 3 greenhouse gas (GHG) emissions (37%). In its [2021 Status Report](#), the TCFD found that companies were more likely to disclose potential financial impacts of climate-related risks and opportunities in their sustainability reports, rather than their mainstream financial report. This is counter to the expectation set out by the TCFD recommendations. It further raises the question of “if these climate-related risks and opportunities are material [to stakeholders], then why are they not reported alongside other material information, i.e., in financial statements?”.

Additionally, EY’s global analysis of climate-risk reporting presents an impression that companies are trending towards a more “tick-box” approach, with quality of disclosures found to significantly lag coverage.⁸ This is particularly the case for reporting on corporate strategies to respond to climate risks and opportunities and scenario analysis, with the report concluding that companies are more comfortable reporting on targets and ambitions and not how they will get there. In last year’s report, *Measuring TCFD Disclosures*, Vigeo Eiris similarly found that only 6% of companies analysed reported that climate change was

factored into financial planning and that only 5% has developed low-carbon transitions plans.⁹ Indeed, Carbon Tracker’s 2021 analysis of the reporting of over 100 publicly-listed, carbon-intensive companies found no examples of good practice for the consideration of climate-related matters in the companies’ financial statements. They further offered that 72% of the companies’ financial reporting raised significant concern around consistency with their wider reporting.¹⁰

Latest guidance and regulatory developments

Since the publication of CDSB’s first [TCFD Good Practice Handbook](#), the TCFD has released several additional pieces of guidance to accompany its recommendations to assist financial and non-financial companies and report preparers in improving the quality and coverage of the eleven recommended disclosures throughout their mainstream financial reports. Summarised in the box below, this range of guidance has been developed to respond to the difficulties and challenges evident in current reporting. Chapter 5, Further Resources, offers further examples of useful tools and guidance, aimed to aid companies in their TCFD reporting.

⁷ TCFD, 2021 Status Report (2021)

⁸ EY, Global Climate Risk Disclosure Barometer (2021)

⁹ Vigeo Eiris, *Measuring TCFD Disclosures* (2020)

¹⁰ Carbon Tracker, *Flying Blind: The glaring absence of climate risks in financial reporting* (2021)

TCFD Supplementary Guidance



TCFD Overview Booklet – This overview introduces topics such as the need for climate-related financial disclosure, potential financial implications of climate change, as well as summarises the TCFD recommendations and detailing benefits of implementing them.



Guidance on Scenario Analysis for Non-Financial Companies
– This guidance provides practical, process-oriented guidance to companies on how to conduct and use climate scenario analysis, and further guidance on how they may report on strategic resilience effectively in the mainstream financial report.



Guidance on Risk Management Integration and Disclosure
– After setting out the unique characteristics of many climate-related risks, this guidance provides companies with principles and steps to guide integration, and further sets out features of decision-useful risk management disclosures with good-practice examples.



Guidance on Climate-related Metrics, Targets, and Transition Plans – As well as offering seven metrics applicable to all companies, and characteristics and process for quality target-setting and reporting, this report presents suggested changes to guidance that accompanies the TCFD recommendations to support the disclosure of transition plans.



Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures – This annex provides both general and sector-specific guidance on implementing the TCFD recommendations, updating and superseding the 2017 version of the same document. A summary of the changes made between 2017 to 2021 can be found [here](#).



Measuring Portfolio Alignment: Technical Supplement – Following an earlier consultation with financial companies, this technical supplement, developed with the Portfolio Alignment Team, sets out the importance and rationale of reporting forward-looking metrics to measure alignment with the Paris Agreement and provides a comprehensive set of practical recommendations to financial companies in building tools for and reporting on portfolio alignment.

These additional guidance to the TCFD recommendations support regions and countries around the world as they begin to mandate the disclosure of climate-related financial information, starting with the biggest companies. In New Zealand, the government has introduced legislation that will require the financial sector to report on climate change impacts and the management of climate-related risks and opportunities from 2022.¹¹ Hong Kong, Switzerland, Brazil, Japan, and Singapore are also in the process of introducing TCFD reporting mandates across sectors.^{12 13} In the UK, meanwhile, plans have been announced to require companies across the economy to produce TCFD-aligned disclosures by 2025, expanding on the proposals that all UK listed companies and large asset owners should disclose in line with the TCFD recommendations by 2022.¹⁴ The EU's proposed updates for a Corporate Sustainability Reporting Directive would mandate the reporting of climate-related financial information by the largest companies across member states.¹⁵

In hand with these developments in reporting regulation, the EU is currently working to develop a suite of sustainability reporting standards to bring quality, consistency, and comparability to reporting across EU member states, with a climate reporting standard building on the TCFD Recommendations as a key component of this work.¹⁶

At an international level, in its proposals to establish the International Sustainability Standards Board (ISSB) to complement the International Accounting Standards Board (IASB), the International Financial Reporting Standards (IFRS) Foundation has outlined that a "climate-first" approach would be adopted before widening scope to other sustainability issues.¹⁷ The IFRS Foundation has recently consulted on amendments to its constitution to accommodate the ISSB and has also established a Technical Readiness Working Group, of which CDSB is a member alongside the TCFD and others, to provide the new board with foundational material and content for issuing IFRS International Sustainability Standards.

11 New Zealand Ministry of Environment, Mandatory climate-related disclosures (2021)

12 Hong Kong Monetary Authority, Press Release (2020)

13 Switzerland Federal Council, Press Release (2021)

14 UK Department for Business, Energy & Industrial Strategy, Consultation outcome on mandatory climate-related financial disclosures by publicly quoted companies, large private companies and LLPs (2021)

15 European Commission, Proposals to amend Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC, and Regulation (EU) No 537/2014 (2021)

16 European Commission, Reports on development of EU sustainability reporting standards (2021)

17 IFRS Foundation, Consultation paper and comment letters: Sustainability Reporting (2021)

3. Highlights of good practice in TCFD disclosures





Governance

Swiss Re Financial Report 2020

Swiss Re's climate governance disclosure outlines responsibilities at both board and management level clearly, demonstrating both *Governance A) and B)* in accordance to the TCFD recommendations. A useful amount of information is provided, outlining not just where accountability lies, but also the distinct role that different board-level committees and management-level business functions play in providing oversight on climate-related risks and opportunities.

Climate governance

Swiss Re's governance around climate-related risks and opportunities

At Swiss Re's highest governance level, four Board of Directors committees are charged with overseeing the implementation and execution of Swiss Re's Group Sustainability Strategy and Climate Action Plan.

The Chairman's and Governance Committee, presided over by the Chairman, has the overall responsibility for monitoring and reviewing the Group's strategic priorities on enabling sustainable progress, including initiatives and actions specifically addressing climate change.

The Compensation Committee establishes and reviews the compensation framework, guidelines and performance criteria. Performance criteria include sustainability and climate change-related topics.

The Finance and Risk Committee defines the Group Risk Policy, reviews risk capacity limits, monitors adherence to risk tolerance, and reviews all key risk issues and exposures, including those with a specific climate dimension.

The Investment Committee reviews Swiss Re's asset management-related activities and, as part of this, receives regular updates on Group Asset Management's Responsible Investing Strategy and implementation, including in the area of climate change.

The Board of Directors oversees the development and adoption of sustainability policies and Swiss Re's climate strategies, while the Group Executive Committee (Group EC) ensures their implementation.

To optimise coordination and alignment at the Group level and to monitor progress on the implementation of the Group Sustainability Strategy, the Group EC has established the Group Sustainability Council (GSC), chaired by the Group Chief Risk Officer. The GSC is an advisory body to the Group EC. It is composed of Group EC members and other senior management representatives.

Group Functions also have specific responsibilities relating to climate change: a team located within Group Risk

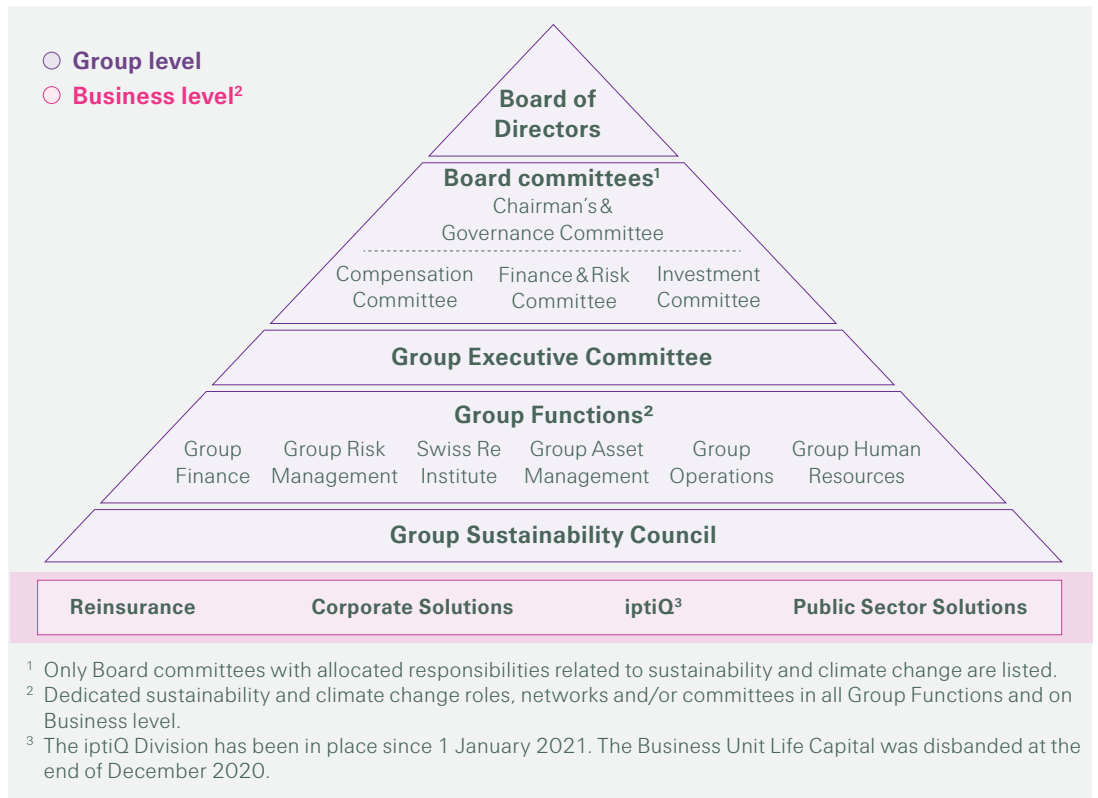
Management is responsible for coordinating sustainability-related activities across the Group. Group Risk Management is responsible for maintaining a suitable risk policy framework, including sustainability and climate-related risks. Swiss Re Institute, which is headed by our Group Chief Underwriting Officer, provides the basis for pricing and, more specifically, all weather-related physical risks, eg through a dedicated natural catastrophes team and proprietary natural catastrophe models. Group Asset Management is responsible for developing and implementing the Group's Responsible Investing Strategy, which includes a dedicated approach to climate change. Group Operations implements the net-zero strategy to manage the firm's operational carbon footprint.

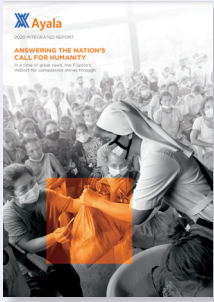
At the business level, the Business Units Reinsurance and Corporate Solutions, the iptiQ Division and Public Sector Solutions implement the Group Sustainability Strategy, including the Climate Action Plan.

A simple diagram is used to illustrate the relationship between the different levels of governance, and a cross-reference is also provided to the Sustainability Report 2020 for further supplementary detail.

Sustainability and climate change-related KPIs linked to compensation
 We have introduced sustainability as an additional assessment dimension for determining our Group Annual Performance Incentive (API) pool. This establishes a clear connection between sustainability and climate change-related targets and compensation for all employees, including Group EC members. The sustainability assessment in 2020 is primarily based on qualitative key performance indicators (KPIs) and targets. In 2021, the assessment will be expanded to include quantitative KPIs and targets. Our KPIs and targets are aligned with our 2030 Sustainability Ambitions and net-zero commitments. Please see pages 120–121 of this Financial Report for details on the API pool funding process, and pages 133–134 for details on performance outcomes of the qualitative assessment.

Swiss Re’s sustainability and climate-related governance





Governance

Ayala 2020 Integrated Report

Ayala include a simple diagram to outline their governance of climate-related risks and opportunities at both board and management level. The diagram is also accompanied by a table where each governing body's responsibilities are described in further detail as per *Governance A) and B)* of the TCFD recommendations.

Climate-related risks and opportunities Governance Structure



GOVERNANCE

Board of Directors

- The Ayala Board leads the governance system and meets with relevant Board Committees six times a year to gain insights and review, and ensure proper implementation of internal control mechanisms and risk management process for good governance.

Risk Management and Related Party Transactions (RMRPT) Committee

- RMRPT Committee has been delegated with the responsibility of overseeing climate-related risks and opportunities to assist the board in its oversight function.
- Climate-related risks and opportunities are a scheduled agenda item in all its meetings which are scheduled semi-annually or as often as needed
- Climate-risks and opportunities are integrated in the committee's review and guidance on the risk management policies.
- Top risks and emerging risks of the subsidiaries are reported in the RMRPT Committee.

The descriptions of the different governing bodies include helpful clarity on the specific nature of their climate-related accountabilities. It is stated how many times per year the body meets, or how many times climate-related aspects are an agenda item, and the information that is reported to different functions and committees is clarified. The integration of climate-related matters into the organisation's governance processes is therefore clearly evidenced and succinctly described.



Chief Risk Officer (CRO)	<ul style="list-style-type: none"> ▪ The CRO is the highest management-level position with responsibility for climate-related risks and opportunities. ▪ The CRO has also been mandated to lead the identification, assessment and management of climate-related risks and opportunities. The following are his additional responsibilities: <ul style="list-style-type: none"> – Lead the management in the identification and assessment of climate-related risks and opportunities – Report to the Board-level committee the climate-related risks and opportunities identified by the management with their corresponding potential financial impact to the Company – Monitor the management of climate-related risks in relation to the overall risk exposure of the Company – Ensure that the Group Risk Management and Sustainability receives appropriate organizational support to establish a framework and process for the inclusion of climate-related risks in the enterprise risk management program
Group Risk Management and Sustainability Unit (GRMSU)	<ul style="list-style-type: none"> ▪ The GRMSU, as a support to the CRO, in the identification, assessment and management of climate-related risks and opportunities has additional responsibilities: <ul style="list-style-type: none"> – Present sustainability megatrends and climate change updates during the annual risk assessment as part of establishing the context – Design a framework for the identification and assessment of climate-related risks – Establish a process to integrate climate-related risks in the enterprise risk register – Provide disclosures on the financial impact of climate-related risks in the annual Integrated Report
Enterprise Risk Management Council	<ul style="list-style-type: none"> ▪ Composed of representatives of risk management experts across the group ▪ Semi-annually, the ERM Council provides the top and emerging risks to GRMSU for reporting to CRO and RMRPT. ▪ Platform for risk framework alignment, continuous risk process improvement, and other group-wide projects ▪ Meets at least thrice a year
Sustainability Council	<ul style="list-style-type: none"> ▪ Composed of representatives of sustainability experts across the group ▪ Platform for sharing best practices and cascading programs across the group ▪ Meets at least thrice a year



Strategy

QBE 2020 Annual Report

Here, QBE include a summary of the key climate-related impacts they have assessed over the short-, medium- and long-term as a result of their climate-related scenario analysis. The uncertainties associated with outcomes under different scenarios are discussed, with the potential implications for the business, for example on costs due to increased insurance claims.

What did we find?

The impact of climate change will differ across specific perils/regions

Our analysis showed that the impact of climate change will differ significantly across the catastrophe perils and the regions we studied. From the perils/regions studied so far, flood claims in Europe potentially could be the most impacted, while cyclones and convective storms may take a little longer (mid-century) before the impact of climate change becomes more significant.

There is a significant level of uncertainty regarding the localised impact of climate change

We found during our review of scientific literature that most of the climate change research and modelling are of a global nature and subject to significant uncertainty associated with: whether or not concerted global efforts are taken to achieve the scenario; the range of possible temperature outcomes under each scenario; the behaviour of perils in each region under each scenario; the year-on-year natural variability of each peril; and the estimation of claims costs under each scenario given the inherent approximation of each model. Further, there is additional uncertainty in resolving the impact of perils at a local address level for underwriting and pricing risks. To understand the impact on our claims cost, we need to understand the local impact of climate change on specific perils. Given those limitations, predictions of the local impact of climate change is subject to much more uncertainty than predictions of the global impact.

The greenhouse gas concentration pathway will impact future catastrophe claims

Higher greenhouse gas emissions will result in significant increases in annual average losses expected in 2050 and 2090, with less impact on costs in 2030.

In the short term, the overall impact of climate change may be difficult to discern from the normal volatility of catastrophe events

Our analysis generally indicates that changes in claims related to climate change over the next 10 years will be less than the expected annual variability in natural catastrophe losses. There are minimal impacts to most of the perils and

regions we studied, through to 2030, with the exception of flood in Europe and Australia which could potentially see up to a 25% increase in annual average losses under a high emissions scenario.

Factors such as distance between our accumulations of insured properties and the locations of severe weather events, and the wide variation of intensity and footprints of such events, result in a large range of potential catastrophe claims even under stable climate assumptions. This will make assessing the impact of climate from observing claims information more difficult. It is likely to take 10 to 30 years before our actual claims experience confirms our climate change analysis. This lag gives us time to adapt our products and services, but also makes it very important to continue to refine our analysis to better anticipate future fluctuations of claims.

In the medium term, greater divergence starts to show between the high and low emissions scenarios across all perils and regions

By 2050, the impact of climate change under a high emissions scenario starts to rise more noticeably across all perils/regions. Flood continues to be the biggest driver of claims, followed by cyclone in North America.

In the long term, there is potential for climate change to impact certain perils/regions very significantly

Due to climate change, some of our product offerings may have to be adjusted to continue to be commercially viable while still meeting the evolving needs of our customers. Our analysis illustrated the potential for large increases in claims in specific perils and regions by 2090. The impact under a low emissions scenario is not much greater in 2090 than in 2030. However, under a high emissions scenario the impact is considerable with the most affected perils/regions being flood in Europe and Australia, and cyclone in North America.

Importantly, we will continue to monitor the evolving scientific literature to maintain the best possible understanding of the potential impact of climate change on our products and our customers and to use this information to evolve our product offerings to better serve our customers, our shareholders, and the communities in which we operate.

It is important that specific time horizons for impacts are also discussed. A supporting table to summarise key information for the reader would be a beneficial addition to the disclosure.



Strategy

Mercury 2021 Annual Report

Mercury, an electricity generation and electricity retailing company from New Zealand, disclose their top 5 climate-related risks and opportunities in a clear and concise table. Not only does this disclosure meet the requirements of TCFD recommendations *Strategy A) and B)* by identifying the climate-related risks and opportunities to the organisation over different time horizons (definitions of which were provided elsewhere in the document) and connecting them to the impact they could have, but this table then links each risk and opportunity with descriptions of management responses, meeting the requirement of TCFD recommendation *Risk Management B)*.

THE TOP FIVE CLIMATE-RELATED RISKS & OPPORTUNITIES FOR MERCURY

A comprehensive list of risks and opportunities were identified through the process. In the following table, these have been broken into the top five risks and opportunities for Mercury. A second table (on the next pages) provides details of the other risks also identified against the TCFD categories.

RISKS & OPPORTUNITIES.

	RISKS		
	M REGULATION THAT DOES NOT BALANCE THE ENERGY TRILEMMA	M DECREASE IN ELECTRICITY DEMAND	M EXTREME WEATHER EVENTS
DESCRIPTION	Regulation could be introduced that does not consider management of New Zealand's energy trilemma, negatively impacting some elements of the trilemma (e.g. security or affordability) for others (e.g. renewability).	Electricity demand could decrease due to de-industrialisation in the short to medium term as carbon prices increase. In the longer term there may be decreased winter demand due to warmer temperatures.	Physical damage to generation assets caused by flood or other extreme weather events.
LIKELIHOOD	Likely	Possible	Unlikely
IMPACTS	Increased costs and/or decreased revenue. Reduced ongoing investment. Reduced ability to attract investment.	Decreased revenues.	Decreased revenue and/or increased SIB capex.
TIME PERIOD	S M L	S M	M L
FINANCIAL IMPLICATIONS	Not quantified.	Not yet quantified.	Not quantified.
METHODOLOGY	Current high levels of regulatory reform present a very broad range of outcomes that are too uncertain to meaningfully quantify at this point in time.	We continue to work through the quantification of potential EBITDAF impacts of a decrease in demand in a way that takes into account the dynamic response.	We continue to increase the granularity of information we have on extreme weather events. This will help inform the quantification of any investment required to mitigate physical asset risk.
MANAGEMENT RESPONSE	Maintain engagement with government, regulators and media commentators. Maintain/lead the narrative on the positive contributions of renewable electricity to New Zealand. Continue to make submissions on legislation, regulation and planning instruments.	Continue to work closely with our large commercial and industrial customers. Active promotion of electrification of transport. Continue to work with industry to explore fossil fuel substitution to electricity opportunities. Explore potential business models for green hydrogen production and data centres.	Continue to conduct scenario modelling and review outcomes to inform operating plans and any changes required to resource consent conditions and high flow management plans.

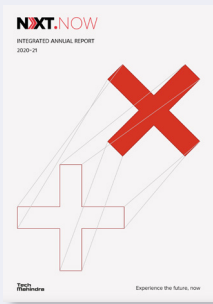
TIMELINE: **S** Short **M** Medium **L** Long-term **RISK RATING:** **H** High **M** Medium

(Continued) This disclosure could be enhanced with additional information regarding the methodology which determines the likelihood of each risk and opportunities. It is also important to note that whilst the financial implications for climate-related risks have not yet been quantified, the financial implications for climate-related opportunities have been monetised.

RISKS & OPPORTUNITIES.

OPPORTUNITIES		
	M INCREASE IN ELECTRICITY DEMAND	M INCREASED INFLOWS
DESCRIPTION	Increase in electricity demand from significant electrification of transport (EVs, trucking and air), industrial process heat conversions to electricity, data centres, export hydrogen production and population growth.	Increases in average precipitation in the catchment provide the potential for increased generation.
LIKELIHOOD	Likely	Possible
IMPACTS	Increased revenues.	Increased revenues.
TIME PERIOD	S M L	M L
FINANCIAL IMPLICATIONS	\$6m (S), \$35m (M), \$98m (L), p.a. EBITDAF uplift.	EBITDAF uplift of \$8.5m p.a. (M) and \$9m (L).
METHODOLOGY	Using Climate Change Commission 'Tailwinds' scenario and our current 15% generation market share.	A small (circa 2%) increase in average precipitation within the catchment (assuming 2020 prices).
MANAGEMENT RESPONSE	We are well-positioned to grow market share of generation in New Zealand with good prospects in wind and geothermal, investment in Tilt Renewables and the pipeline of wind generation development.	Continue to conduct scenario modelling and review outcomes to inform operating plans and any changes required to resource consent conditions and dispatch decisions.

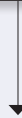
TIMELINE: **S** Short **M** Medium **L** Long-term **RISK RATING:** **H** High **M** Medium



Strategy

Tech Mahindra Integrated Annual Report 2020-21

Indian technology company Tech Mahindra provides valuable disclosure over its efforts to assess its strategic resilience using climate scenarios, as per *Strategy C*) of the TCFD recommendations. A clear presentation structure is used to outline the two scenarios it has used in its analysis, the timescale over which they were applied, the key assumptions that were adopted for each scenario, and the external sources they used to inform these.



Scenario 1

Global Warming limit to 2°C transition,

Considering that society will act vigorously to reduce greenhouse gas emissions.

Scenario 2

Global Warming limited to 4°C,

Assuming that there is less government action and regulation to combat climate change and emissions remain high, leading to global warming and other physical changes in global climate.

Timescales

We used FY30 as the timescale for both transition and physical scenarios. We assumed that we will be carrying out the same business activities as we do today.

Transition Risk - Regulatory Risk of Carbon Tax

In alignment with the commitment under the Paris Agreement, the Government may impose National Emission Reduction Targets for the industry.

Policy instruments may be imposed to incentivise renewable energy, promote energy efficiency and discourage fossil fuel.

Carbon tax (ranging from USD 14 to USD 700 /tCO₂*) may be imposed on the industry which may lead to increase in compliance expenditure, and business disruption.

The transition scenario assessed the impact on our business for regulatory risk only.

*Source: International Energy Agency's AIM-CGE model for India

Physical Risk - Increased Global Warming

Precipitation patterns are changing within the Indian Sub-continent because of global warming. Increase in temperature is leading to an increase in the number of warm days. Areas where heavy rainfall was observed traditionally are seeing reduced precipitation and some drought-prone areas are experiencing delayed monsoon.

The physical manifestations of climate change by FY30 are the increasing radiative forcing of 3.276 W/m²- 8.5 W/m² and temperature by 4°C**.

The 'Business As Usual' scenario was assessed for the impact of physical risk only on the business.

**Source: RCP 8.5 data for India.

For each of the two scenarios, high-level qualitative insight is provided on the expected business impacts. Financial implications of these impacts are noted, however Tech Mahindra could further enhance this disclosure by providing quantitative and monetised information on the expected nature and magnitude of financial impacts. The approach taken to providing a clearly structured and concise summary of progress to date in analysing climate scenarios, however, provides a valuable level of transparency.



Business Impact

We focussed on understanding the impact on our profit and loss (P&L), in particular, operations and sourcing costs.

- + Carbon pricing mechanism and policies have been introduced in key countries due to which there has been a shift in customers' & clients' preferences. Non-compliance with regulations to manage climate changes like carbon pricing may lead to reputational & revenue risks.
- + Investments in greening the operations and migrating to renewable energy may increase both operating and sourcing costs which eventually affect the P&L.
- + Increased frequency of extreme weather (storms and floods) causes increased incidents of disruption to our operations and delivery.
- + Temperature increase and extreme weather events reduce economic activity, affect employees and assets. Hence, efficiency to deliver our services decreases, leading to revenue loss.
- + Temperature increase would also increase the fossil fuel consumption to meet the energy demand by our campuses.

Data Used

Both Internal & External data was considered for the scenario analysis, where the data from FY16 & forecasted external data for year 2100 was used to calculate the impact for 2030 (for our SBTi target).

- + **External data** was used to understand the climate-related risks and opportunities. This data was extracted from International Energy Agency's AIM-CGE & RCP 8.5.
Temperature & carbon pricing outcome in FY30 (i.e. 2°C vs 4°C) for India locations
- + **Internal data** – We used historic internal data of FY 2015-16 greenhouse gas (GHG) emissions and internal financial data (as our base year data)

We used these to understand the potential impact on our business in FY30.



The scenario analysis summary concludes with a brief description of the external and internal data sources used, as well as the time horizon in which the assessment was conducted, and insight into the methodology.

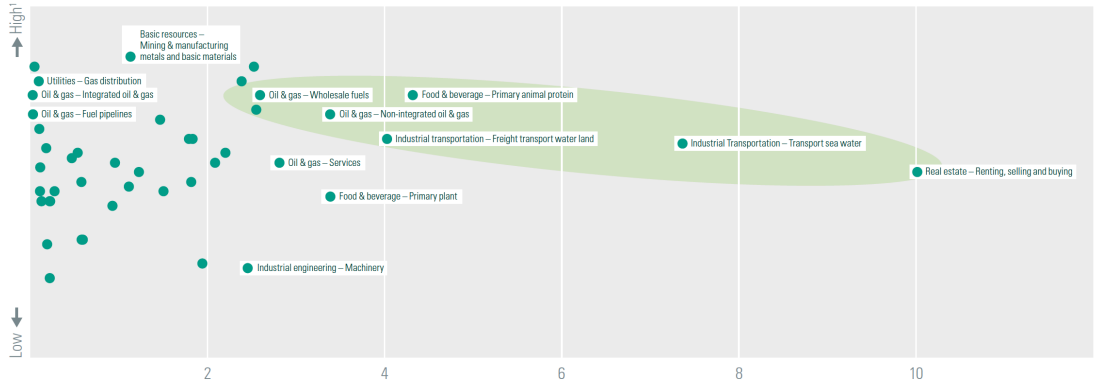


Strategy

ABN AMRO Annual Report 2020

Dutch bank ABN AMRO include a summary of their climate risk analysis assessments in their 2020 Annual Report.

Climate sensitivity



¹ Climate sensitivity is the average between physical and transition sensitivity.

EAD in EUR billion

This table shows the different asset types in our commercial real estate portfolio and the corresponding potential and expected damage as a percentage of the market value of that segment of our portfolio.

	Expected damage percentage	Potential damage percentage
Business	0.18%	66.53%
Health care	0.04%	26.77%
Hotel	<0.01%	3.07%
Logistics	0.02%	51.75%
Mixed object	<0.01%	13.67%
Office	0.03%	20.70%
Recreation	<0.01%	0.50%
Residential	<0.01%	4.71%
Restaurant	<0.01%	2.95%
Shop	0.02%	25.77%
Studenthousing	<0.01%	3.21%
Other	<0.01%	5.99%

This map shows all the properties in our mortgage portfolio in the Netherlands and their risk of pole rot and subsidence occurring within the next 30 years.

Wooden pole rot risk the coming 30 years



A climate risk heatmap is outlined, which identifies the potentially material sources of climate risk across the bank's lending scenario, and helps to illustrate how it identified priority areas for further detailed risk and scenario analysis.

Following the climate risk heatmap, the disclosure then presents the key results of further in-depth analysis, conducted for areas of particular concern, such as flooding risk in the residential and commercial real estate of its mortgage portfolio. The extracts above show some of the outputs included in the report to demonstrate the expected potential damage from flooding, and from drought, subsidence and pole rot.



Risk Management

Banco Davivenda Annual Report 2020

Across these two extracts, Banco Davivenda describe organisation's processes for identifying and assessing climate-related risks in the context of their investment decisions, as per TCFD recommendation *Risk Management A*).



SARAS 2020 Methodology and Results

We identify and mitigate environmental and social risks in the financing of sensitive projects and sectors.

The Environmental and Social Risk Analysis System - SARAS is part of our comprehensive risk management process and is managed by the Environmental and Social Risk Department of the Vice-Presidency of Credit Risk, reporting to the Corporate Risk Committee, the Credit Risk Committees and the Sustainability Committee. It includes policies and procedures to apply it in loan evaluations in the corporate, construction, business and leasing segments, as well as in investment decisions and in the management of strategic suppliers.

The SARAS methodology has established outreach policies, considering amounts, terms, sensitive activities, and local regulations, when required by credit approval bodies; it is also aligned with IFC standards, performance standards and exclusion list. In evaluating large infrastructure projects, the evaluation considers the elements of the methodological Equator Principles benchmark, including due diligence by an independent consultant.

Assessed Items:

- > Compliance with applicable local legislation
- > Labor and working conditions
- > Assessment and management of environmental and social risks and impacts
- > Resource efficiency and pollution prevention
- > Cultural heritage
- > Environmental and/or social certifications and awards
- > Community education and income programs
- > Indigenous peoples
- > Community health and safety
- > Climate change mitigation and adaptation
- > Land acquisition and involuntary resettlement
- > Biodiversity conservation and sustainable management of living natural resources
- > Promotion of good practices

The applicable methodology allows us, based on existing information, to generate a categorization of environmental and social risk A, B or C, taking into account the probability of greater to lesser environmental or social impact, assess possible environmental and social risks, generate an environmental and social concept, establish action plans when required and follow-up measures (covenants) to verify the performance of environmental and social aspects during the term of the loan with the Bank. In infrastructure projects (project finance), we support the process since the credit structuring stage.

As part of the SARAS process, we include procedures and work plans for climate change risk management and human rights risk management.

Not only do they disclose information regarding their “SARAS 2020” methodology for how they identify and mitigate environmental and social risks in the financing of sensitive projects and sectors, but they detail a step-by-step process of how this is considered in the context of climate change.



Climate Change

Climate change risk management is part of the Social and Environmental Risk Analysis System (SARAS) when reviewing loan applications, by focusing on historical data on climate events such as floods, droughts, and landslides, and using geographic tools to profile risks and identify existing or required mitigation and adaptation measures.

We developed a work plan aligned with TCFD's recommendations aimed at analyzing and prioritizing the way in which climate change, physical and transition risks may impact the business in the Bank's credit and investment portfolios. It also focuses on identifying opportunities arising from the low-carbon economy in projects and investments to be financed directly contributing to climate change management, such as renewable energies, energy efficiency and sustainable building.

These are among the activities conducted for climate change risk management in 2020:

- > Conducting a pilot test to identify physical risks associated with the mortgage loan portfolio, classifying them by flood and landslide threat levels.
- > Analysis and prioritization of physical climatic variables associated with various types of loans in the Bank's portfolio, as a basis for further evaluation.

- > Extraction, review, and analysis for initial understanding of climate change scenarios data for Colombia.
- > Identifying regulations related to climate change that could lead to changes affecting industries that generate the most CO₂ emissions and, therefore, pose a transition risk.
- > Adhering to the TCFD framework, joining a group of leading companies committed to taking action on climate change and thinking about how it may impact business.
- > Special training for the team of employees directly involved in managing and identifying climate change risks and renewable energy opportunities within the framework of the Green Banking - Renac program.
- > Raising awareness and training Bank employees through the "Good things multiply" sustainability culture program, focusing on the efficient use of water and energy, the fundamentals of biodiversity and climate change, and the importance of waste management.
- > Participating in the task force convened by the Financial Superintendence of Colombia to review green finance taxonomy in Colombia.



Risk Management

AstraZeneca Annual Report and Form 20-F Information 2020

Risk or opportunity

Potential impact

Physical risks

Increased frequency of extreme weather and climate-related natural disasters.

R

In 2020, we conducted a screening study of two future climatic scenarios to explore our physical climate related risks (floods, water scarcity, extreme heat, cyclones and wildfires) across 61 business critical sites.

Eight sites were predicted to be exposed to increased risk of severe or very severe climate-related hazards in the next 10 years based on the worst-case scenario.

Out of the eight 'at-risk' sites, a deep dive was conducted at the manufacturing site in Wuxi, China to verify the global screening results with help from local climate data and infrastructure. The outcome indicated increased risk of (a) heavy rainfall causing localised flooding, and (b) an extreme heat event in combination with air pollution that could cause increased need of cooling capacity, impact workers' health and potentially impact our licence to operate in the long term.

How it is managed

In 2021, indicative findings of increased risks (extreme heat, floods, drought and wild fires) will be verified by local assessments (based on learnings from the Wuxi study) across other potentially 'at risk' strategic sites (Södertälje, Maihara, Chennai, West Chester, Guadalajara, Gothenburg, Cairo, Canovanas, Mount Vernon, Newark, Frederick, Bensalem, North Ryde and Taizhou). Any climate risks identified will be integrated into our existing risk management processes including local site and business continuity plans to ensure they contain measures to proactively manage any physical climate risks and embed climate resilience in their short-, medium- and long-term planning.

Business resilience has also been increased as a result of exposure to extreme weather events like hurricane Maria at Canovanas (Puerto Rico, 2016), an extended period of heat in Södertälje (Sweden, 2018) and water scarcity in Chennai (India, 2019).

Our site in Canovanas has taken proactive steps to increase its resilience and mitigate the risks posed to our business operations by installing its own heat and power plant to reduce reliance on the local power network.

In 2019, we restored two lakes next to our site in Chennai, together with the local community, to help protect against extremes in water stress and availability.

In 2021, physical risk assessments will be conducted on the broader value chain and our critical suppliers for (i) our top ten products, and (ii) our long-term strategic suppliers responsible for bulk drug production.

AstraZeneca have clearly summarised each identified their physical and transition risks in a table, detailing the risk, its potential impact, as well as "how it is managed". By providing information on the management processes, AstraZeneca are disclosing in accordance to TCFD recommendation *Risk Management B*).

Cross-references are also provided to other aspects of the disclosure for further detail on actions where relevant. It is beneficial that the management actions are directly connected to addressing the specific risks that the organisation has identified.

Transitional risks and opportunities

Increased demand for sustainable low Global Warming Potential (GWP) products and services from healthcare providers in some countries may result in the potential for green substitution of medicinal products with a high GWP (e.g. anaesthetics and respiratory products).

Business opportunities will exist with increased future demand for low GWP alternatives and where earlier diagnosis and clinical intervention can reduce the carbon footprint of healthcare pathways.



Some healthcare providers and professionals are actively looking to substitute medicinal products based on their Greenhouse Gas (GHG) footprint in order to reduce their own Scope 3 footprint, as part of their net-zero targets (e.g. UK NHS). This could impact market access and revenue in some countries for high GWP products. Future revenue from our pMDI inhaled medicines portfolio could be 'at risk' should substitution become widespread before the transition to our next-generation low GWP pMDIs. These risks are currently low and limited to a few countries.


Transitioning to low GWP respiratory products as part of AstraZeneca Ambition Zero Carbon, and understanding the positive impacts that early diagnosis and clinical intervention can have on the carbon footprint of specific patient care pathways, will provide business opportunities to improve the standard of care and clinical outcomes with a lower environmental footprint.

How it is managed

- > AstraZeneca has life-cycle assessments (LCAs) in place for key brands (respiratory and wider) that includes the GHG footprint to help assess and manage risks and target interventions to reduce the environmental footprint of our products.

 For more information on product environmental stewardship, see our Sustainability Report available on our website, www.astrazeneca.com/sustainability.

- > In 2020 we developed a Product Sustainability Index (PSI) as part of our Product Environmental Stewardship strategy. The PSI captures carbon and water intensity metrics per product, per patient, per annum – as well as measures of % renewable power and resource efficiency used to make that product.
- > As part of our \$1 billion AstraZeneca Ambition Zero Carbon commitment, we will transition to low GWP propellants across our asthma and COPD products between 2025 and 2030.

 For more information on our GHG footprint, see our Sustainability Report available on our website, www.astrazeneca.com/sustainability.

- > Patients whose treatment is optimised are more likely to have a lower carbon impact overall, through reduced reliever pMDI use and fewer unscheduled healthcare interventions.
- > We are working with academics and healthcare agencies to understand the environmental impact of respiratory care pathways for patients with controlled and uncontrolled asthma and the opportunities for improved clinical care with a lower environmental footprint. The output of these environmental and clinical studies will be communicated at scientific conferences and via peer-reviewed literature in 2021.



Risk Management

CLP Holdings 2020 Annual Report

The TCFD recommended disclosure *Risk Management C*) calls for organisations to describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management. CLP include a specific case study within the risk management section of their 2020 Annual Report which outlines how it has embedded climate risk into its wider risk processes. The description includes helpful clarity on the specific steps it has taken to both assess climate as a standalone risk, but also to understand which other material risks may have transition or physical risk drivers. This mapping is then included within subsequent disclosure of individual material risks.

Case Study

How CLP Identifies, Assesses and Manages Climate Change Risks

Climate change risks are embedded in CLP's risk management process and risk register. CLP identifies, assesses, and manages climate change risks alongside all other types of risk as an integral part of its Group-wide Risk Management Framework.

According to the recommendations of the Task Force on Climate Related Financial Disclosure (TCFD), climate change risks can be classified into two major categories:

- **Transition Risks** – Transitioning to a lower-carbon economy may entail policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change, and may pose varying levels of financial impacts as well as reputational risk to the Group.
- **Physical Risks** – Physical risks resulting from climate change can be event-driven (acute) or longer-term shifts (chronic) in climate patterns, causing direct damage to assets and indirect impacts from supply chain disruption.

CLP recognises the wide-ranging implications of climate change and considers climate change risks a combination of standalone risks and cross-cutting risk drivers of other material risks. As shown in CLP's top-tier risk tables on pages 152 to 157, climate change transition risk and physical risk have been identified as standalone risks and categorised under Regulatory Risk and Operational Risk respectively. In addition, the tables illustrate other material risks with either **Transition** (↑) or **Physical** (⚙️) risk drivers, or both.

As with other material risks, CLP adopts the same set of risk profiling criteria in assessing the climate change risks. Climate change risks are managed across the Group according to CLP's risk governance structure and risk management process, with management oversight and assurance provided to the Board. In addition, Climate Vision 2050 is integrated into CLP's strategies on asset portfolio management, guiding the Group in managing climate-related risks as well as opportunities.

Additional references: Natural Capital on pages 102 – 103, [2020 Sustainability Report](#).



Risk Management

Fresnillo 2020 Annual Report

Risk management

Our risk management system is based on risk identification, assessment, prioritisation, mitigation and monitoring processes, which are continually evaluated, improved and enhanced in line with best practice (See Managing Our Risks and Opportunities on pages 110-129). Climate change was identified as an emerging risk in 2019 and elevated to a principal risk in 2020. The pervasive and complex nature of climate change means that it can act as an amplifier of other risks such as environmental incidents, access to water, health and safety of our people, government regulations, and social licence to operate. The Head of Sustainability supports the process to refine the identification and risk assessment of physical and transitional risks.

The risk assessment of transition risks has been conducted considering a well below 2 °C scenario decarbonisation pathway. The Head of Sustainability is responsible for monitoring risks and opportunities, mitigation and performance monitoring of transition risks. We are committed to maturing how we evaluate physical risks and mitigation measures. This will be based on collaborating with the scientific community on regional and site-specific climate modelling to support the identification of vulnerabilities and adaptation measures.

Risk identification, assessment and management

Physical risks

Category	Type	Description	Impacts	Management approach
Acute	Risk	<p>Changes in extreme climate and weather events such as rainfall, droughts and heatwaves affecting our operations and neighbouring communities</p> <p>Likelihood: Very likely. Timeframe: Medium and long term. Impact: Loss of revenue and increase in operating and insurance costs caused by droughts and floods.</p>	<p>An increase in the frequency and intensity of floods could affect the health and safety of our people and the continuity of our operations and construction projects in multiple ways: damaging mine infrastructure and access roads; disrupting transportation and supply chains; damaging energy infrastructure; discharging untreated water into surrounding areas; and reducing slope and tailings storage stability. Extreme weather events have a negative impact on our neighbouring communities.</p> <p>Droughts could lead to reductions in revenue from decreased throughput. Droughts have a negative impact on the livelihood of our neighbouring communities.</p> <p>Heatwaves represent a health and safety risk for our workforce in the form of heat-related illnesses and inhibited decision-making capacities, increasing the risk of accidents. Increased energy demand during heatwaves can increase our own demand and the national demand for energy and strain the national grid's transmission capacity.</p>	<p>We rely on emergency response plans to protect our people and facilities. Our mining infrastructure takes into consideration measures and capacity to handle excess water. For example, our tailings ponds incorporate infrastructure to prevent runoff water from entering the impoundments. Nonetheless, additional regional and site level climate modelling is necessary to increase our understanding of vulnerabilities and the appropriate adaptation measures. We collaborate with our communities to respond and recover from natural disasters.</p> <p>Our sources of resilience to droughts and chronic water stress are similar and are presented as chronic risks.</p> <p>Our response to more frequent heatwaves relies on our health and safety programmes that evaluate hazards and monitor temperature conditions. Operations already implement energy efficiency measures to reduce electricity demand in peak hours, in order to reduce costs. This is the most common approach to managing the risk of strained capacity in the grid.</p>

In its description of Risk Management, Fresnillo provides the climate-related risks (physical and transition) and opportunities it has identified as an emerging risk in 2019 and a principle risk in 2020. Through the use of tables, this example clearly presents descriptions of the climate-related risks and opportunities, their likelihood, the timeframe in which they have been assessed, as well as descriptions of impacts to the organisation and the management approaches in response. In the paragraph above, Fresnillo describe how the Head of Sustainability is responsible for monitoring (climate-related) risks and opportunities, mitigation, and performance monitoring of transition risks. As such, this example demonstrates the interconnectedness amongst TCFD recommended disclosures *Governance B), Strategy A), B), and Risk Management B), C)*.

It is important to note, however, that whilst the risk identification process has been conducted using a 2°C scenario decarbonisation pathway, this disclosure does not describe the resilience of the organisation and/or its strategy (*Strategy C*). Additionally, this disclosure could be enhanced by providing further information on the methodology in which the climate-related risks and opportunities were initially identified, how the scenario analysis was conducted, how likelihood and timeframes have been defined and categorised, as well as monetising estimated impacts.

Transition risks and opportunities				
Category	Type	Description	Impacts	Management approach
Regulatory	Risk	Emerging regulations such as carbon taxes and cap and trade systems	Mexico's current pilot (non-binding) Emissions Trading System (ETS) programme excludes direct emissions from haulage and indirect emissions from electricity. However, an increase in ambition to curb climate change may drive a change in regulations of the ETS to increase the emissions sources regulated and their thresholds. Other carbon pricing mechanisms such as national carbon taxes on fuels may also rise.	A resilient Energy Strategy supported by renewables and cost-effective energy efficiency projects. We engage constructively with regulators and law makers on energy and climate change regulations, directly or through the Sustainable Development Commission for the Mexican Private Sector (CESPEDES).
		Changes in the regulatory framework of renewables	The growth of renewables relies on a regulatory framework that provides certainty in the long term. Changes to the Mexican electricity industry to curtail renewables may reduce the options for decarbonisation and increase the cost of energy.	
Market	Opportunity	Increase in demand of silver for solar panel manufacturing	Silver is used in the manufacturing of solar photovoltaic (PV) cells. Solar energy is expected to increase its role in the global energy mix as decarbonisation ambitions rise globally. PV manufacturing is expected to be one of the drivers of greater silver demand.	We monitor the progress of this opportunity through the Silver Institute and specialised reports.



Risk Management

Citi Group 2020 Annual Report

This disclosure is an example of how a 10K filing (United States) has been embedded into an annual report, and successfully demonstrates the interconnected nature the TCFD recommendations – in this case, between Governance and Risk Management, as Citi Group have importantly identified that “climate risk is an overarching risk that can act as a driver of other types of risk”. This example cites the Board’s oversight of climate-related risks and opportunities (*Governance A*), and how climate-related risks are integrated are embedded into the organisation’s (existing) risk framework (*Risk Management C*).

Climate Risk

Climate change presents immediate and long-term risks to Citi and to its clients and customers, with the risks expected to increase over time. Climate risk refers to the risk of loss arising from climate change and is divided into physical risk and transition risk. Physical risk considers how chronic and acute climate change (e.g., increased storms, drought, fires, floods) can directly damage physical assets (e.g., real estate, crops) or otherwise impact their value or productivity. Transition risk considers how changes in policy, technology and market preference to address climate change (e.g., carbon price policies, power generation shifts from fossil fuels to renewable energy) can lead to changes in the value of assets, commodities and companies.

Climate risk is an overarching risk that can act as a driver of other types of risk in the Citi risk taxonomy, such as credit risk from obligors exposed to high climate risk, reputational risk from increased stakeholder concerns about financing high carbon industries and operational risk from physical climate risks to Citi’s facilities.

Citi currently identifies climate risk as an “emerging risk” within its risk governance framework. Emerging risks are risks or thematic issues that are either new to the landscape, or in the case of climate risk, existing risks that are rapidly changing or evolving in an escalating fashion, which are difficult to assess due to limited data or other uncertainties. For additional information on climate risk, see “Risk Factors —Strategic Risk” above.

With the increased importance and focus on climate risk, Citi has continued to expand its governance of climate risk and integrate climate considerations into the priorities of Citigroup’s Board of Directors and senior management. In particular, Citi has:

- appointed a Chief Sustainability Officer;
- appointed a Head of Climate Risk to partner with the Head of Environmental and Social Risk Management to deliver a Company-wide strategy concerning climate risk;
- formed a global, cross-functional senior-executive level Climate Risk Advisory Council to provide oversight of and guidance to Citi’s climate risk integration efforts; and
- increased the frequency and depth of Board and senior-level review of climate-related matters.

Citi manages and mitigates the credit and reputational risks from climate change through a number of internal initiatives, including Citi’s Environmental and Social Risk

Management (ESRM) Policy. First established in 2003, the ESRM Policy is part of Citi’s broader credit risk management policy and is applicable to all Citi entities globally. The ESRM Policy provides the framework for how Citi identifies, mitigates and manages the potential environmental and social risks (including climate risks) associated with clients’ activities that could lead to credit or reputation risks to the Company. It guides how Citi evaluates lending, underwriting and advisory in environmentally sensitive and/or high-carbon sectors, and presents opportunities for Citi to engage clients on solutions to thematic risks.

In project-related lending, Citi’s ESRM Policy incorporates the updates from the fourth iteration of the Equator Principles, which Citi helped shape, that expands climate risk requirements to include physical risk as well as transition risk. Citi’s ESRM Policy covers lending and underwriting with identified use of proceeds directed to physical assets and activities, as well as sector standards for corporate relationships in higher-risk sectors, including carbon-intensive sectors. In 2020, Citi updated its sector standards for thermal and coal mining, coal-fired power and Arctic oil and gas.

Citi has also made climate risk one of the three key pillars of its 2025 Sustainable Progress Strategy. Under this pillar,

To improve this disclosure, Citi Group could provide further detail regarding the increased frequency and depth of which the Board and senior-level review climate-related matters.



Metrics & Targets

AXA's 2020 Annual Report

French insurance firm AXA disclose an assessment of their 2012-2020 objectives, their 2019-2025 performance targets, as well as their 2020 environmental performance data alongside accompanying narrative for each.

ASSESSMENT OF THE 2012-2020 OBJECTIVES

In 2012, AXA had set objectives to reduce its internal environmental footprint by 2020. These objectives have mainly been met or exceeded, illustrating the efforts made by AXA to control its greenhouse gas emissions and its water and paper consumption.

2012-2020 Objectives	Units	Target			AXA performances	Target reached
		2012/2020	2012	2020		
Reduce our CO ₂ emissions pe_FTE (energy, business travel, car fleet and paper)	TCO ₂ eq/FTE	-25%	2,4	1,5	-38%	Yes
Reduce energy consumption (Scope 1 et 2)	KWh/FTE	-35%	4,408	2,219	-50%	Yes
Reduce car fleet travel distance (Scope 1)	km/FTE	-15%	2,550	1,248	-51%	Yes
Reduce business travel distance (Scope 3)	km/FTE	-5%	2,395	750	-69%	Yes
Reduce office paper consumption (Scope 3)	kg/FTE	-45%	28.0	9.2	-67%	Yes
Reduce marketing and distribution paper consumption (Scope 3)	kg/client	-50%	0.1	0.04	-62%	Yes
Reduce use of water	m ³ /FTE	-15%	10.0	4.8	-52%	Yes
Source paper from recycled or responsible sources	%	> 95%	66%	74%	-	No
RE 100 engagement: 70% renewable electricity in 2020	%	70%	NA	57%	-	No

PERFORMANCE TARGETS 2019-2025

As its 2020 objectives are coming to an end, AXA has been working to roll out new objectives for 2025 based on year 2019. With this new cycle, AXA aims at continuing its efforts to reduce the footprint of its operations on all the "Scopes" of its greenhouse gas emissions⁽¹⁾:

- Scope 1: Emissions related to fuel combustion on AXA's sites (fuel oil...) as well as by its vehicle fleet (fuel);
- Scope 2: Emissions from purchased energy (mainly electricity consumed by AXA buildings);
- Scope 3: Emissions from business travel and IT activities. Emissions related to paper consumption, monitored until 2020, have become less material and are excluded from these new targets. Note: "Indirect" Scope 3 emissions related to our investments are described in Section 4.3 "Investments" of this Annual Report.

AXA has developed new objectives, based on the approach promoted by the Science Based Targets initiative (SBTi), which AXA joined in 2015. More specifically, AXA has chosen the "Sectoral Approach to Decarbonization" to define its 2019-2025 objectives, aimed at achieving the goals of the Paris agreements. AXA has submitted to the SBTi a target of -25% for the energy, car fleet and business travel perimeter.

This objective is part of a broader framework that integrates the new measures related to AXA's IT activities and which translates into an overall reduction of the Group's CO₂ emissions of -20% by 2025 compared to 2019 (energy, car fleet, business travel and office automation and IT activities perimeter).

In doing so, AXA report against TCFD recommendation *Metrics and Targets B*), disclosing Scope 1, 2, and 3 GHG emissions data. These have also been disaggregated into business activity, such as power consumption, vehicle fleet, business travel, etc., and provides multiple years of historical data for direct comparison. AXA have also reported against their 2012-2020 objectives, and disclose their 2019-2025 targets, which have been submitted to SBTi.

Environmental indicators AXA Group ^(a)	UNIT	2020	2019	2018	Target 2019 - 2025	Evolution 2020/2019
Number of group FTEs from HR	FTE	117,623	121,337	124,355	-	-3%
Internal area: occupied and vacant	m ²	1,538,964	1,629,198	1,705,774	-	-6%
CO₂ emissions						
KPI: Total CO₂ energy, car fleet and business travel	T. eq. CO₂	84,647	191,238	172,887	-25%	-56%
Total CO ₂ per person (energy, car fleet and business travel)	T. eq. CO ₂ /FTE	0.72	1.58	1.39	na	-54%
Scope 1 CO ₂ emissions (Energy ^(b) and car fleet ^(d))	T. eq. CO ₂	26,292	37,889	38,778	-25%	-31%
Scope 2 CO ₂ emissions (Energy ^(d))	T. eq. CO ₂	40,894	62,765	69,160	-35%	-35%
Scope 3 CO ₂ emissions (Business Travel ^(e))	T. eq. CO ₂	17,460	90,584	64,948	-18%	-81%
CO ₂ emissions: power consumption (b+c)	T. eq. CO ₂	49,415	73,431	80,652	-35%	-33%
CO ₂ emissions: AXA vehicle fleet ^(d)	T. eq. CO ₂	17,771	27,223	27,287	-20%	-35%
CO ₂ emissions: business travel airplane and train ^(e)	T. eq. CO ₂	17,460	90,584	64,948	-18%	-81%
CO ₂ emissions: home/workplace commute ^(f)	T. eq. CO ₂	86,166	123,094	109,389	na	-30%
CO ₂ emissions: home/workplace commute per person ^(f)	T. eq. CO ₂ /FTE	0.71	1.01	0.88	na	-30%

Key Performance Indicators (KPIs) highlighted in bold. AXA sites with fewer than 50 FTEs are not included in data collection, but are part of extrapolation process.

(a) En 2020, environmental indicators were collected for 98,691 FTEs working on AXA sites (unless otherwise indicated in these footnotes), and were then extrapolated, continent by continent, to cover all 117,623 salaried FTEs (all types of contrat), working at the AXA Group in average in 2020.

(b) Includes naturalgas, biogas, heating oil

(c) Includes electricity, steam and chilled water

(d) The AXA vehicle fleet data was collected from entities representing 98,004 FTEs.

(e) Business travel data have been collected from entities representing 95,526 FTEs.

(f) Home/workplace commute estimations are based have been estimated based on 2019 data and the COVID-19 effect on other indicators. Does not include company cars, to avoid double counting with the AXA vehicle fleet data.

To enhance this disclosure, AXA could directly link their Scope 1, 2, and 3 GHG data to related-risks, such as through monetising the potential impact of hypothetical carbon prices.



Metrics & Targets

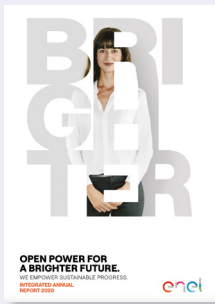
UBS Group AG Annual Report 2020

Swiss bank UBS include a summary table within their 2020 Annual Report, which directly maps climate-related metrics to those connected to climate risk management, as well as those related to its climate-related opportunities. This provides helpful connection between key risks and the indicators that are being tracked to monitor progress in managing these issues.

Climate-related metrics 2020

	For the year ended			% change from
	31.12.20	31.12.19	31.12.18	31.12.19
Risk management				
Identified significant climate-related financial risk on balance sheet ¹	None	None	None	
Carbon-related assets (USD billion) ²	5.4	6.1	7.5	(10)
<i>Proportion of total banking products exposure, gross (%)</i>	<i>1.9</i>	<i>2.3</i>	<i>2.8</i>	
Total exposure to climate-sensitive sectors (USD billion) ³	38.7	35.2	36.1	10
<i>Proportion of total banking products exposure, gross (%)</i>	<i>13.7</i>	<i>13.3</i>	<i>13.5</i>	
Weighted carbon intensity of Climate Aware strategies (in tonnes CO ₂ e per USD million of revenue) ⁴	68.2	74.5	89.6	(9)
<i>Compared to weighted carbon intensity of composite benchmark (%)⁵</i>	<i>(51.0)</i>	<i>(54.0)</i>	<i>(54.0)</i>	
Number of climate-related shareholder resolutions voted upon ⁶	50	44	43	14
<i>Proportion of supported climate-related shareholder resolutions (%)</i>	<i>88.0</i>	<i>81.8</i>	<i>88.0</i>	
Opportunities				
Climate-related sustainable investments (USD billion) ⁷	160.8	108.0	87.5	49
<i>Proportion of UBS clients' total invested assets (%)</i>	<i>3.8</i>	<i>3.0</i>	<i>2.8</i>	
Total deal value in equity or debt capital market services related to climate change mitigation and adaptation (CCMA) (USD billion) ⁸	69.8	52.7	31.6	32
Total deal value of financial advisory services related to CCMA (USD billion)	29.1	34.5	24.9	(16)
Number of strategic transactions in support of Switzerland's Energy Strategy 2050	11	12	8	(8)
Own operations				
GHG footprint (kilotonnes CO ₂ e) ⁹	75	104	132	(28)
<i>Percentage change from baseline 2004 (target: -75% by 2020) (%)</i>	<i>(79.0)</i>	<i>(71.2)</i>	<i>(63.4)</i>	

For each metric, two years' prior performance is provided, supporting comparability over time. Additionally, the percentage change to the previous year is indicated. The target reduction in GHG emissions from UBS' own operations is also stated. It would be beneficial to clarify targets connected to any of the other metrics presented, if applicable, just as it would be helpful to include a reference to the underlying methodology for each metric, whereby the investor has a chance of better understanding the data.



Metrics & Targets

Enel Integrated Annual Report 2020

Increasingly, companies are aligning their climate-related strategies and targets to a net-zero commitment. Enel provide a very useful summary in their annual report, demonstrating how their different climate targets contribute to their overall net-zero commitment. The timeframe, scope, and scenario applicable to each target is clearly stated. Each target is also reported alongside whether it has been SBTi certified.

Net-Zero commitment

Enel, as a signatory of the "Business Ambition for 1.5 °C" campaign promoted by the United Nations and other institutions, is committed to setting a long-term goal to achieve net-zero emissions across the entire value chain by 2050, including both direct emissions (Scope 1) and indirect emissions (Scope 2 and 3), together with science-based targets in all relevant areas and in line with the criteria and recommendations of the Science Based Targets initiative (SBTi).

	GHG Target	Scope	Climate scenario	Main drivers and actions to achieve target
Short term (2023)	148 gCO_{2eq}/kWh by 2023	100% of Scope 1 GHG emissions ⁽¹⁾	1.5 °C ⁽²⁾	<ul style="list-style-type: none"> > Gradual phase out of 90% of coal-fired capacity in 2021-2023 period (percentage weight of coal capacity in total consolidated capacity reduced from 10% in 2020 to about 1% in 2023) > Invest €16.8 billion to accelerate the development of renewable energy by installing 15.4 GW of new renewables capacity in 2021-2023 period, reaching 60 GW of consolidated renewables capacity by 2023
Medium-Long term (2030)	82 gCO_{2eq}/kWh by 2030 (80% reduction compared with 2017)	100% of Scope 1 GHG emissions ⁽¹⁾	1.5 °C, SBTi certified	<ul style="list-style-type: none"> > Accelerate the exit from coal to 2027 from 2030 (phasing out of 16 GW of coal capacity over 2017-2027) > Invest €65 billion to accelerate the development of renewable energy by installing 75 GW of renewables capacity in 2021-2030 period, reaching 120 GW of consolidated renewables capacity by 2030 (3 times installed renewables capacity in the 2017 base year)
	21.2 MtCO_{2eq} (16% reduction compared with 2017)	100% of Scope 3 emissions connected with sale of natural gas on end-user market (Scope 3, "use of products sold")	2 °C, SBTi certified	<ul style="list-style-type: none"> > Promote the switch of customers from gas to electricity (especially residential customers) > Optimization of the gas portfolio of customers (especially industrial customers)
Long term (2050)	~0 gCO_{2eq}/kWh by 2050	100% of Scope 1 GHG emissions ^{(1) (3)}	1.5 °C ⁽²⁾	<ul style="list-style-type: none"> > Aim for the gradual elimination of thermal capacity and achieve a 100% renewable energy mix

- (1) Although Enel constantly monitors Scope 2 emissions and is actively committed to reducing them, the Group has not set a specific reduction target, as they represented less than 4% of total Scope 1 and Scope 2 emissions in 2017 (base year of the target certified by SBTi). Therefore they are considered marginal and fall within the exclusion criteria under the SBTi methodology, which sets a margin of 5% on total Scope 1 and Scope 2 emissions.
- (2) The target could not be officially validated by SBTi because the targets must cover a minimum of 5 years and a maximum of 15 years from the date the target is presented to SBTi for official validation. However, they meet the 1.5 °C path established by the SBTi for the electricity services sector (sectoral decarbonization approach, SDA).
- (3) In compliance with the Group's net-zero commitment, which comprises both direct and indirect emissions, targets will be set for Scope 2 and Scope 3 emissions in accordance with the Net-Zero Standard under development by SBTi.

Another valuable aspect of this disclosure format is that the specific actions that will be taken to achieve each of the targets is also clarified, with some detail provided on the capital investment that is planned to support their achievement. This demonstrates that Enel are integrating their net-zero commitment into their wider financial and strategic planning.



Other good practices

Providing a transparent roadmap: FirstRand Annual Integrated Report 2020

For the majority of companies, full implementation of the TCFD recommendations will be an iterative process, with continual improvement of disclosures across reporting cycles. To provide transparency to your investors over your plans to make future enhancements to your TCFD reporting, inclusion of a clear roadmap is recommended.

CLIMATE CHANGE PROGRAMME ROADMAP

FirstRand’s climate change disclosures will evolve over time as the availability of sufficiently reliable and relevant data permits.

FirstRand is a signatory to the TCFD’s recommendations and is aware of increasing investor interest in climate-related disclosure practices. The group has every intention of incrementally increasing its disclosure going forward.

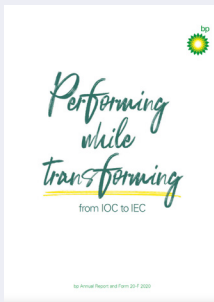
FirstRand’s roadmap for the development of a complete framework for managing climate change, together with the requirements of TCFD, will inform the group’s disclosure going forward.

	PHASE 1	PHASE 2	PHASE 3	PHASE 4
	High-level design and analysis	Analysis of portfolio exposure and risk prioritisation	Ongoing scenario analysis, measurement and incremental analysis of all portfolio exposures	Ongoing reinforcement and long-term strategy development
	FY 2020	FY 2021	FY 2022 – 2023	FY 2024 – 2025
Governance	<ul style="list-style-type: none"> Established climate change specialist committees. Integration of climate risk into existing board governance structures. Ongoing board training on relevant climate-related risks and opportunities. 	<ul style="list-style-type: none"> Cascade climate change considerations (risk and opportunity management) into segment committees. Develop strategies for climate change adaptation and mitigation specific to segments. Define roles, responsibilities and mandates. Ongoing policy development. 	<ul style="list-style-type: none"> Measure progress. Internal audit of climate change management processes. Ongoing board and management oversight. 	<ul style="list-style-type: none"> External assurance of climate-related finance disclosure in the annual financial statements.
Strategy	<ul style="list-style-type: none"> Elevate climate change as a strategic risk and opportunity, and a long-term driver of financial and non-financial risk. Stakeholder engagement and establishment of the relevant technical partnerships, e.g. UNEP-FI* and PCAF**. Benchmarking – global and local peer gap analysis, emerging green taxonomies from different regulators, climate disclosure and sustainable finance. The group’s strategy includes supporting climate resilience and transition to a lower-carbon economy. 	<ul style="list-style-type: none"> Define strategic climate objectives and risk appetite. Develop climate change policy. Assess climate risk within agriculture and commercial property portfolios. Further embed climate change considerations – incorporating externalities – into the pricing of financial resources and performance measurement. Build capacity and train risk professionals on climate change. Integrate group climate change strategy into investment and insurance activities. 	<ul style="list-style-type: none"> Define climate metrics and targets. Align origination strategies with the group’s understanding of climate change considerations. Ensure that performance measurement and remuneration promote and reward sustainable value creation. Integrate climate targets and/or goals into remuneration models. Build capacity and train risk professionals on climate change. Board-level agreement through Stratco that the level of climate-related disclosure is proportionate to the materiality of climate-related risks and opportunities and complies with mandatory reporting requirements. Consideration of mandatory climate-related reporting in other jurisdictions in which FirstRand operates. 	<ul style="list-style-type: none"> Ongoing assessment of the group’s climate strategy and alignment with desired climate outcomes.

* The United Nations Environment Programme Finance Initiative.

** Partnership for Carbon Accounting Financials.

In its 2020 Annual Integrated Report, FirstRand includes a transparent roadmap, identifying the actions it will take over a four-phase period to implement the TCFD recommended disclosures. Actions are mapped to each core element of the TCFD, with Governance & Strategy shown in the extract, above.



Other good practices

Integrating disclosure into the mainstream financial report: BP Annual Report and Form 20-F 2020

The TCFD recommendations advocate for the disclosure of material information on climate-related risks and opportunities to be integrated with companies' mainstream financial filings. However, for many companies, it can be challenging to determine the best approach for doing this. Here, BP have included a TCFD index table in their Annual Report and Form 20-F 2020 which illustrates where relevant information for each TCFD recommended disclosure can be located across the document. It also provides cross-references to supplementary information, where necessary, to disclosure outside of the mainstream financial report. This can be a particularly helpful mean of navigating disclosure for the user.

TCFD index table

Our expanded TCFD disclosures can be found on the following pages.

TCFD recommended disclosure		Where reported
Governance Disclose the organization's governance around climate-related issues and opportunities.	a. Describe the board's oversight of climate-related risks and opportunities.	Page 52.
	b. Describe the management's role in assessing and managing climate related risks and opportunities.	Page 53.
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy and financial planning where such information is material.	a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Pursuing a strategy that is consistent with the Paris goals, pages 26-27. Strategy – page 54. Risk factors, pages 67-70.
	b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	Risk factors, pages 67-70 – description of principal risks. Strategy – page 54.
	c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Our strategy, page 15. Pursuing a strategy that is consistent with the Paris goals, pages 26-27. Strategy – page 54.
Risk management Disclose how the organization identifies, assesses and manages climate-related risks.	a. Describe the organization's processes for identifying and assessing climate-related risks.	Risk management – pages 54-55. How we manage risk, pages 64-66. Risk factors – page 67.
	b. Describe the organization's processes for managing climate-related risks.	Risk management, pages 54-55. How we manage risk, pages 64-66.
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Risk management, pages 54-55. How we manage risk, pages 64-66. Risk factors – pages 67-70.
Metrics and targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Our strategic focus areas and metrics, pages 18 and 19. Our group-wide principal metrics and relevant targets – page 55.
	b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.	GHG emissions data – pages 49-50.
	c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	Our net zero targets and aims at a glance – pages 49-51.

Sustainability at bp

More information on our sustainability reporting.



More information on our sustainability performance bp.com/sustainability



Key environmental, social and governance data* bp.com/ESGdata



For our mapping to key sustainability frameworks and standards, including SASB and GRI, see bp.com/reportingcentre



Other good practices

Embedding climate in financial statements: National Grid plc Annual Report and Accounts 2020/21

In addition to providing TCFD-aligned narrative disclosure, organisations should take steps to integrate climate-related financial information into their financial statements. National Grid provide a useful example of adopting this approach, by providing information on the potential implications of the UK's net-zero target for the useful economic life (UEL) of their gas assets, in note 13 on "Property, plant and equipment" to their financial statements.

(b) Gas asset lives

The role that gas networks play in the pathway to achieving the greenhouse gas emissions reductions targets set in the jurisdictions in which we operate is currently uncertain. However, we believe the gas assets which we own and operate today will continue to have a crucial role in maintaining security, reliability and affordability of energy beyond 2050, although the scale and purpose for which the networks will be used is dependent on technological developments and policy choices of governments and regulators.

- In the UK, the useful economic life of gas mains, services and regulating assets relating to the National Transmission System (NTS) are frequently reviewed throughout the year and subject to a detailed review at the year end. The most material components of these are our pipeline assets, which are due to be fully depreciated by 2070, with other assets being depreciated over various periods between now and then. Those reviews considered a number of scenarios, which consider the implications of the UK's net zero by 2050 legislation for the NTS. Our most recent review concluded that the most likely outcome was for the NTS network assets to remain in use beyond 2050, including in those scenarios where the greenhouse gas emissions of gas networks were largely eliminated.
- With respect to our US gas distribution assets, asset lives are assessed as part of detailed depreciation studies completed as part of each separate rate proceeding. Depreciation studies consider the physical condition of assets and the expected operational life of an asset. We believe these assessments are our best estimate of the UEL of our gas network assets in the US.

The weighted average remaining UEL for our US gas distribution fixed asset base is circa 50 years, however a sizeable proportion of our assets are assumed to have UELs which extend beyond 2080. We continue to believe the lives identified by rate proceedings are the best estimate of the assets' UELs, although we continue to keep this assumption under review as we learn more about possible future pathways towards net zero. Whilst the targets, goals and ambitions have now been formalised in legislation in the states in which we operate, there is widespread recognition that work needs to be done to define the possible future decarbonisation pathways. We continue to actively engage and support our regulators to enable the clean energy transition in a safe, reliable and affordable way.

Asset depreciation lives feed directly into our US regulatory recovery mechanisms, such that any shortening of asset lives and regulatory recovery periods as agreed with regulators should be recoverable through future rates, subject to agreement, over future periods, as part of wider considerations around ensuring the continuing affordability of gas in our service territories.

13. Property, plant and equipment continued

Given the uncertainty described relating to the UELs of our gas assets, below we provide a sensitivity on the depreciation charge for our UK and US regulated segments were a shorter UEL presumed:

	Increase in depreciation expense for the year ended 31 March 2021		Increase in depreciation expense for the year ended 31 March 2020	
	UK regulated £m	US regulated £m	UK regulated £m	US regulated £m
UELs limited to 2050	35	160	37	151
UELs limited to 2060	12	70	13	66
UELs limited to 2070	1	28	—	26

Note that this sensitivity calculation excludes any assumptions regarding the residual value for our asset base and the effect shortening asset depreciation lives would be expected to have on our regulatory recovery mechanisms.

The assumptions they have made to assess this uncertainty are provided, as well as the financial impact figures illustrating the potential increase in depreciation expenses they could expect to see over 30-, 40-, and 50-year time horizons.

Top tips for achieving good practice

Governance	Strategy
<ul style="list-style-type: none"> • Ensure that the distinction between board and management-level accountabilities is efficiently distinct and the connection between the two levels is addressed. • Clarify the specific aspects of climate-related risk and opportunities each governing body has oversight for, and how this oversight is provided. • State the frequency with which each body reviews climate-related information. 	<ul style="list-style-type: none"> • Provide a summary table for material climate-related financial risks and opportunities identified by the business, identifying the expected impacts and time horizons for these issues. • Explain how these risks and opportunities inform strategic and financial planning processes, noting any key decisions made as a result of the assessment. • Share ongoing progress in conducting scenario analysis, noting initial findings, any data gaps and plans for future improvement. • Ensure to provide the assumptions made (i.e., the quantified input for the scenario) and the monetised outcome of the scenarios on the result, cash flow and total balance. • Accompany scenario analysis output with an explicit conclusion on the organisation's strategic resilience to the possible outcomes assessed.
Risk Management	Metrics and Targets
<ul style="list-style-type: none"> • Ensure business- and context-specific actions are included alongside the disclosure of material climate-related risks, to evidence the mitigations. • Explain how the relative significance of climate-related risks is assessed, relative to wider business risks, and how risk management actions are prioritised. • Clarify the connection and integration between climate risk assessment processes, and wider risk management, including cross referencing between relevant report sections, if necessary. 	<ul style="list-style-type: none"> • Consider how the climate-related metrics disclosed are connected to the material climate-related risks and opportunities the organisation has identified. • Ensure GHG emissions reporting is aligned to the Greenhouse Gas Protocol standard (see Chapter 5, Further Resources). • Explain how climate-related targets are being included within capital allocation planning, and how targets over different time horizons are connected.

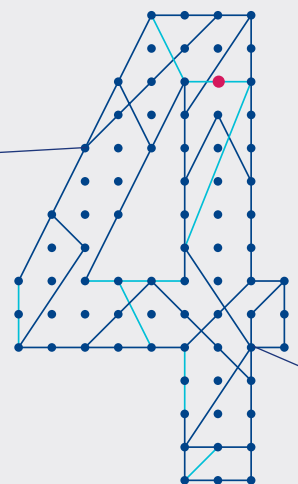
Apply CDSB's Guiding Principles, which were introduced in the CDSB Framework and align heavily with the TCFD's Principles for Effective Disclosure, to ensure that climate- and environmental-related information in the mainstream report is decision-useful, accurate, and complete.

- 1. Relevant and material** – environmental information shall be prepared applying the principles of relevance and materiality.
- 2. Faithfully represented** – to ensure that information is complete, neutral and free from error in order to be useful.
- 3. Connected with other information** – to explain the links between the organisation's governance, strategy, risk management and environmental performance.
- 4. Consistent and comparable** – to elicit information of value to investors in a way

that is consistent so as to enable a level of comparability between similar organisations, reporting periods and sectors.

- 5. Clear and understandable** – to aid understanding by ensuring that disclosures are easy to navigate, read and research.
- 6. Verifiable** – to ensure information that forms the basis for disclosures is verifiable.
- 7. Forward looking** – to ensure that historic information in the mainstream report is complemented with narrative on the future impact of environmental information.

4. The journey to good practice: practical experiences in implementation



State of TCFD Reporting

The examples shared in Chapter 3 illustrate “what good practice looks like” for disclosing in line with the TCFD recommendations. However, achieving good reporting practice may require organisations to overcome a number of practical challenges in implementing the recommended disclosures. Sharing experiences in overcoming these barriers can provide other companies with insights to help them in applying the recommendations within their own organisational context. Here, we share the perspectives of five organisations who have been working to overcome these challenges and enhance their climate-related financial disclosures.¹⁸

DS Smith

What was your approach to implementing the TCFD, and scenario analysis in particular?

“Our Now and Next sustainability strategy guides our approach to leading the way in sustainability, focusing on closing the loop through better design, protecting natural resources by making the most of every fibre, reducing waste and pollution through circular solutions and equipping people to lead the transition to a circular economy. Implementing the TCFD recommendations involved building on our plans to deliver Now and Next, which includes ambitious commitments on climate change issues, such as reaching Net-Zero by 2050 and responding to other impacts, such as water stress.

We applied several climate scenarios to our most material climate-related risks and opportunities. We combined primary data (for example, energy and water consumption, production, current and projected carbon emissions) with secondary data provided in the IEA 1.5°C Pulp & Paper, IEA 2°C Sustainable Development Scenario and the IIPC 6°C climate scenarios to estimate the financial implications of our climate-related risks and opportunities, within the context of each scenario.”

What did you learn from conducting scenario analysis?

“Whilst the climate scenario analysis suggested that there could be some increased costs which would need to be managed, we would not have to make material changes to our circular business model.

As the IEA Pulp & Paper 1.5°C scenario describes, increased demand for recycled cardboard would necessitate greater recycling, shifting societies further to a system in which materials are kept in use for longer. This reinforces opportunities to design products for a lower-impact circular business model, increase resource efficiency and adopt renewable energy sources.

Powering a circular business model is energy-intensive and therefore investments in adopting circular energy in our Paper Mills and Packaging Plants, for example anaerobic digestion, waste heat recovery and self-generation of renewable electricity, is crucial to reduce the life cycle carbon footprint of our packaging solutions.

We recently announced a science-based target for 2030, which will require at least a 40% reduction in carbon emissions per tonne of production compared to 2019 and a commitment to reach Net-Zero emissions by 2050. In the long term, delivering progress in emission reduction will reduce our spend on carbon taxes and help our customers to reduce their Scope 3 value chain emissions.”

What were the barriers, and what did you learn from these?

“We used a combination of quantitative and qualitative methods in our analysis, giving preference to quantitative information where good quality, decision-useful data is available from reputable sources. This was a substantial piece of work and there were several barriers to overcome, which revealed three key learnings:

1. Scenarios are a steep learning curve, so begin early and set aside time.

Climate scenario analysis is a technical undertaking which should not be underestimated. In the first instance, selecting

relevant scenarios from the myriad of possible options requires time to determine which scenario is useful. When beginning, set aside time for familiarisation with the options available.

2. Scenarios rely on data which might not be available, so prepare to be creative.

The recommendations encourage quantification of potential financial impacts, which introduces an avalanche of assumptions and complexity. Although the scenarios provide quantification of some variables, applying this to future emissions and costs can be challenging. When constructing a scenario, be open to drawing on other reputable data, being sure to document assumptions and sources. The intention should not be to calculate a perfect figure, but rather to model a climate scenario that can be used to inform strategic-thinking.

3. Scenarios are stories that require imagination, so encourage open-mindedness.

Climate scenarios describe hypothetical outcomes of plausible future state under a given set of assumptions and constraints. When describing the results of your climate scenario, be sure that the audience understands that, by definition, the scenario is a construct and should not be taken too literally. As multidisciplinary stakeholders need to be involved, it can take time to get everybody on the same page.”

You can find [DS Smith’s TCFD disclosure as part of their 2021 Annual Report](#), [here](#).

Fujitsu

How did you approach implementing TCFD within your organisation?

“The sharing of TCFD information and holding dialogue meetings with outside experts deepened the understanding of TCFD within the company. In addition, at the Sustainability Management Committee, which is chaired by the CEO, we reported on the trends in TCFD to deepen the understanding of management.

Regarding governance, the integrated risk management system and the environment-related governance system, including climate

change, were organized and their roles were also identified.

Based on the analysis of risks and opportunities in line with the TCFD framework, the necessary medium- and long-term policies were formulated and a progress management system was established.

As information disclosure is required in the mainstream financial report, we are working with our publishing division to find the best publication media for this currently.”

What challenges did you face, and how were these overcome?

“In order to deepen internal understanding of TCFD information, efforts were made to utilise outside experts and to provide information on ongoing trends. It was difficult to collect quantitative data on climate risk. In order to overcome this challenge, we conducted hearings with relevant departments regarding past obstacles related to climate change and risks that could arise in the future.”

What advice would you give to other companies who are seeking to work towards good practice on TCFD?

“First, identify medium- and long-term risks and opportunities in line with the framework of the TCFD recommendations. After that, establish a system to implement the plan by setting the necessary medium- and long-term objectives, based on the understanding of management.

As a cautionary note in setting targets, it is important to set targets by working backwards from overall societal expectations and your company’s purpose over the medium- to long-term, rather than by forecasting what you consider to be feasible numerical targets through the accumulation of individual measures. Regarding information disclosure, it is effective to identify risks and opportunities in line with the TCFD framework, and analyse financial impact, through collecting information on past damage cases and cost of risk response measures.”

You can find [Fujitsu’s TCFD disclosures part of their 2020 Integrated Report](#), [here](#).

Hitachi

How did you approach implementing TCFD within your organisation?

“Before the release of the TCFD recommendations, we had already started to consider climate-related risks and opportunities to respond to the CDP questionnaires, and had set a target to identify and review risks and opportunities in our Environmental Action Plan.

After the release of the TCFD recommendations, we endorsed them in June 2018 and have been actively advancing our efforts to clarify and disclose our climate-related information based on the recommendations.

Our environmental management division at the headquarters of Hitachi, Ltd. held discussions firstly with Environment Strategy Officers in each business unit (BU) or Group company and later with the head of each BU or Group company. They then summarized each business’s climate-related risks and opportunities.

Important items related to environmental initiatives, including the climate-related risks and opportunities, have been deliberated by the Executive Sustainability Committee, chaired by the executive chairman and CEO of Hitachi, Ltd., and attended by top Hitachi executives. In addition, detailed action items and targets are set out in our Environmental Action Plan to promote the environmental initiatives, and the progress is discussed and managed in the Eco-Management meetings.”

What challenges did you face and how did you overcome them?

“When we first tried to disclose climate-related information based on the TCFD, we were not sure what to do, or how to do it, as there was still insufficient consensus among investors who would utilise the information.

However, we were able to clarify the requirements for disclosure through dialogue with investors after our disclosure, and through discussions with investors and other companies at the TCFD Study Group by the Japanese Ministry of Economy, Trade and Industry and the TCFD Consortium established later in Japan.

On our first try, we disclosed climate-related risks and opportunities for the entire Hitachi Group. However, despite the fact that we had multiple businesses with different characteristics as a conglomerate, we had not been able to explain the risks and opportunities of each business.

Therefore, from the next year (fiscal 2019), we selected businesses that have a relatively high likelihood of being affected by climate change. We then examined and disclosed the business impact, including risks and opportunities.”

What advice would you give to other companies who are seeking to work towards good practice on TCFD?

“We believe that the TCFD recommendations are a useful framework in which important issues related to climate change can be identified, measures to deal with them considered, linked to specific activities, and these efforts can be systematically expressed.

To promote disclosure in accordance with the TCFD recommendations, it is important to first make climate-related issues recognised by top management as management issues.

In addition, it’s key to consider that climate-related risks and opportunities can be medium- to long-term. It’s also critical to have sufficient discussions not only with environment-related divisions but also with business divisions internally. As suggested in the recommendations, it is also useful to analyse and examine issues using multiple scenarios, in order to assume a wide range of management strategies.

By taking these steps, we believe you will be able to clarify your direction from the perspective of decarbonisation, and you will be able to better understand the issues you need to consider for information disclosure.”

You can find [Hitachi’s TCFD disclosure as part of their 2021 Integrated Report](#), [here](#).

Legal & General

How did you approach implementing TCFD within your organisation?

“As an investor, we understand the importance of good quality climate disclosures. We have, through our investment management business, been a strong supporter of the TCFD recommendations for a number of years. Our 2020 report was our third Group-wide TCFD disclosure and we have made step changes to the report each year.

Initially, we identified what activities we were already undertaking and the metrics we already used. We then used the TCFD recommendations to identify the areas that we wanted to improve and enhance.

In early 2020 we added ‘addressing climate change’ as one of our six strategic growth drivers and our Group Environment Committee (GEC) has evolved alongside the development of TCFD reporting and climate risk management. The GEC approves external commitments, which we are in the process of validating through science-based targets, having signed up to the SBTi earlier in 2021.

This top down approach is complemented by the development of our bespoke ‘Destination’ scenario modelling capability. The Group Finance team now produces the TCFD Report, drawing on expertise from across the Group, including our Divisions (retirement, investment management, capital investment and insurance), Risk, Capital and Group Real Estate functions.”

What challenges did you face, and how were these overcome?

- **“The rapidly changing climate reporting landscape and the lack of consistency in reporting.** We continue to develop our thinking by following the TCFD’s recommendations whilst making them relevant to us and focussing on the material risks and opportunities in relation to climate change. Our predominant focus is on our assets’ transition risk as we consider this to have the greatest potential impact on our business.

- **The complexity of scenario analysis and data availability.** We have a specialist team who have developed a bespoke model, Destination, which is dynamic, flexible and can be used to analyse scenarios which show how the global energy system is likely to evolve over the next 30 years and what the implications are for investors. We have built a dataset using over 100 different public and proprietary sources and over two million variables and assumptions.”

What advice would you give to other companies who are seeking to work towards good practice on TCFD?

1. “Ownership from senior leadership is essential to make change happen, but so is engagement across different areas of the business. Set-up clear governance structures as well as informal working groups to facilitate knowledge sharing.
2. Start collecting appropriate data to understand your starting position, support target setting and monitor progress.
3. Make the TCFD recommendations relevant by focusing on what is material for your business and your stakeholders. Establish a clear strategy which your stakeholders can understand; in our case we have three strategic pillars: invest, influence and operate.
4. Embrace the unknowns, be honest about where you are on the TCFD journey and get started. We have more to do but we intend to play a leading role in the transition to a low-carbon economy.”

You can find **Legal & General’s TCFD disclosure as part of their 2020 TCFD Report**, [here](#).

Lendlease

How did you go about getting started with scenario analysis?

“Early on we decided that creating tailored scenarios for our business would have a far greater impact than using off-the-shelf scenarios. For us, it’s not necessarily the physical impacts of climate change that will impact us as a business, but it’s really society’s response to those physical impacts. We spent a lot of time looking at the off-the-shelf scenarios, such as the World Energy Outlook and IEA, and then using those to formulate some very specific scenarios for us. For each scenario, we looked at what risks and opportunities might eventuate, and how sensitive as a company we would be to those risks and opportunities.

We developed short videos for each scenario as a way of engaging with senior leaders in the business, before we brought them together for a workshop. It became a great way of engaging people on an emotive level, as well as with the strategic and business lens. We created an environment where it was acknowledged that we didn’t expect the rest of our business leaders to become climate scientists overnight, but building scenarios that enabled them to see the connection to their day-to-day within the organisational context. This enabled them to feel confident in bringing their business expertise to the table, from their regions, markets, suppliers etc. to enable us to make much more informed decisions about what is a risk and what is an opportunity for us. It’s about bringing it back to a business mindset, and consider if this was the scenario to play out, how would you make sure that your business was agile and best equipped to manage through that?”

What challenges did you face, and how were these overcome?

“We were quite fortunate that our board was the main driver in committing to TCFD, which meant it was very much a top-down supported implementation. One of the barriers we had to overcome was that, when you’re looking across multiple scenarios, it is very complex. That’s really where the approach we took to the scenarios, using the videos and narrative to step people through the impacts, enabled the complexity to be broken down into digestible steps.

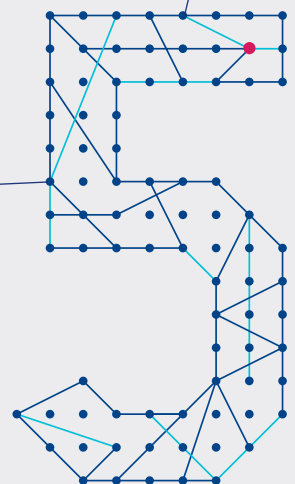
Also, there’s an acceptance from the TCFD that this can take 3-5 years. For us, we looked across the multitude of things we needed to cover within TCFD, and we didn’t feel that we could get risk management aligned with understanding climate risk until we had helped to first get the business to understand how those risks could be evaluated. We made the decision early on not to rush out and just do it for the sake of disclosure, but that we wanted climate risk to become part of our business processes and business rhythm.”

What advice would you give to other companies who are currently considering their approach to scenario analysis?

“If you’re going to go to the trouble of committing to TCFD, ensure you look for the aligned purpose and how you can get something valuable out of it as a business. Don’t just do it for reporting’s sake; it’s important to really look at how you can use the process to understand those impacts of climate to the resilience of your business. It doesn’t have to be complex and hard, there are lots of great case study examples that can help you come along on that journey, so you don’t necessarily have to reinvent the wheel. Ensure you talk to companies who are already doing it, and also to your key investors; when we were creating our scenarios, we tested them with our investors and the feedback was really valuable.”

You can find [Lendlease’s TCFD disclosure as part of their 2020 Annual Report](#), [here](#).

5. Further Resources



Governance

WEF and PwC, [How to Set Up Effective Climate Governance on Corporate Boards](#): A set of principles and questions designed to help practically assess and further guide the development of effective climate governance.

WBCSD, [Modernizing Governance: ESG challenges and recommendations for corporate directors](#): Identifies key challenges to corporate governance and offers means for modernising governance in face of growing sustainability risks, based on research with board members from over 40 companies.

Strategy

WBCSD, [TCFD Preparer Forums](#): Sector-specific guides offering experiences and best practices to help companies developing their understanding, management and reporting on climate-related risks and opportunities.

Chapter Zero, [Principles and frameworks for climate change strategy and action](#): Drawing on case studies, this guidance focuses on three key areas: prioritising climate change at board and management levels; defining the strategy; and ensuring action.

Network for Greening the Financial System, [Scenarios Portal](#): Provides an introduction to scenario analysis and climate scenarios, including the Network for Greening the Financial System's six scenarios for different transition and warming futures, and offers guidance on conducting scenario analysis and provides data sources for companies.

Risk management

COSO and WBCSD, [Applying enterprise risk management to environmental, social and governance-related risks](#): Assists companies in applying COSO's internationally significant enterprise risk framework to sustainability-related risks, setting out in-depth and practical steps and methods for companies from governance, through assessment and prioritisation, to disclosure.

J.A. Bingler and C.C. Senni, [Taming the Green Swan: How to improve climate-related financial risks assessments](#): Research analysing 16 climate transition risk tools available on the market in terms of quality, comparability and decision-relevance. The findings provide guidance to companies in selecting and applying tools to assist with climate risk assessment.

Metrics and targets

WBCSD and WRI, [The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard](#): Provides companies with principles and detailed processes to assist in measuring and reporting on Scope 1, 2 and 3 GHG emissions.

Science Based Targets Initiative, [SBTi Corporate Manual](#): Provides guidance to companies on how to set, validate and report on science-based targets for GHG emissions and sectoral decarbonisation towards the ambitions of the Paris Agreement.

A4S, [Net Zero: A Practical Guide for Finance Teams](#): Aimed at finance teams within companies, but offering lessons applicable across other business functions, this guide explains the meaning of net-zero and its importance, before setting out how companies can practically pursue these ambitions.

Other

CDSB, [Accounting for climate: Integrating climate-related matters in financial reporting](#): Identifies and proposes how companies can integrate material information on climate-related financial risks into their financial statements under existing IFRS requirements and standards which already support the provision of climate-related financial disclosure.

Financial Reporting Council, [FRC Climate Thematic: Reporting – How are companies developing their reporting on climate-related challenges?](#): Assesses the quality and usefulness of narrative and financial reporting on climate-related risks and opportunities in the UK, and provides various learnings, including useful examples of good practice and common areas of unhelpful or erroneous reporting.

Corporate disclosure index

The table below provides a summary of which companies' disclosures were referenced across the TCFD Good Practice Handbook, where they're headquartered, their industry, and where their disclosure is located.

Company	Country	Industry	Disclosure
ABN AMRO	Netherlands	Banks	ABN AMRO Annual Report 2020
AstraZeneca	UK	Pharmaceutical	AstraZeneca Annual Report and Form 20-F Information 2020
Ayala Corporation	Philippines	Diversified Financials	Ayala 2020 Integrated Report
AXA	France	Insurance	AXA 2020 Annual Report
Banco Davivienda	Colombia	Banks	Banco Davivienda 2020 Annual Report
BP	UK	Oil and Gas	BP Annual Report and Form 20-F 2020
Citi Group	USA	Banks	Citi Group 2020 Annual Report / 10K Filing
CLP Holdings	Hong Kong	Electric and Gas Utilities	CLP Holdings 2020 Annual Report
DS Smith	UK	Paper, Packaging and Forest Products	DS Smith Annual Report 2021
Enel	Italy	Electric and Gas Utilities	Enel Integrated Annual Report 2020
FirstRand	South Africa	Banks	FirstRand Annual Integrated Report 2020
Fresnillo	Mexico / UK	Metals and Mining	Fresnillo 2020 Annual Report
Fujitsu	Japan	IT and Communications Services	Fujitsu Integrated Report 2020
Hitachi	Japan	IT and Communications Services	Hitachi Integrated Report 2021
Legal & General	UK	Insurance	Legal & General Group TCFD Report 2020
Lendlease	Australia	Real Estate Management & Development	Lendlease Group 2020 Annual Report
Mercury	New Zealand	Energy	Mercury 2021 Annual Report
National Grid	UK	Multi-Utilities	National Grid plc Annual Report and Accounts 2020/21
QBE	Australia	Insurance	QBE 2020 Annual Report
Swiss RE	Switzerland	Insurance	Swiss Re Financial Report 2020
Tech Mahindra	India	Software & Services	Tech Mahindra Integrated Annual Report 2020-21
UBS Group	Switzerland	Banks	UBS Group AG Annual Report 2020

References

Users of this handbook may also find value in the following CDSB and TCFD materials, including those available on the [TCFD Knowledge Hub](#), as well the available resources referenced throughout this document (listed in order of appearance).

CDSB, *Framework for Reporting Environmental and Climate Change Information*
<https://www.cdsb.net/what-we-do/reporting-frameworks/environmental-information-natural-capital>

CDSB & SASB, *TCFD Good Practice Handbook (1st Edition)*
https://www.cdsb.net/sites/default/files/tcf_d_good_practice_handbook_web_a4.pdf

TCFD, *Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures*
<https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf>

TCFD, *2021 Status Report*
https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Status_Report.pdf

TCFD, *2019 Status Report*
<https://assets.bbhub.io/company/sites/60/2020/10/2019-TCFD-Status-Report-FINAL-0531191.pdf>

TCFD, *Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities*
<https://assets.bbhub.io/company/sites/60/2020/10/FINAL-TCFD-Technical-Supplement-062917.pdf>

TCFD, *Overview Booklet*
https://assets.bbhub.io/company/sites/60/2021/10/TCFD_Booklet_FNL_Digital_March-2021.pdf

TCFD, *Guidance on Scenario Analysis for Non-Financial Companies*
https://assets.bbhub.io/company/sites/60/2020/09/2020-TCFD_Guidance-Scenario-Analysis-Guidance.pdf

TCFD, *Guidance on Risk Management Integration and Disclosure*
https://assets.bbhub.io/company/sites/60/2020/09/2020-TCFD_Guidance-Risk-Management-Integration-and-Disclosure.pdf

TCFD, *Guidance on Climate-related Metrics, Targets, and Transition Plans*
https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf

TCFD, *Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures*
https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf

TCFD, *Technical Supplement: Measuring Portfolio Alignment*
https://assets.bbhub.io/company/sites/60/2021/05/2021-TCFD-Portfolio_Alignment_Technical_Supplement.pdf

EY, *Global Climate Risk Disclosure Barometer*
https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/assurance/ey-if-the-climate-disclosures-are-improving-why-isnt-decarbonization-accerlerating.pdf

Vigeo Eiris, *Measuring TCFD Disclosures*
<https://vigeo-eiris.com/wp-content/uploads/2020/09/Measuring-TCFD-Disclosures.pdf>

Carbon Tracker, *Flying blind: The glaring absence of climate risks in financial reporting*
<https://carbontracker.org/reports/flying-blind-the-glaring-absence-of-climate-risks-in-financial-reporting/>

New Zealand Ministry for the Environment, *Mandatory climate-related disclosures*
<https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/mandatory-climate-related-financial-disclosures/>

Hong Kong Monetary Authority, *Cross-Agency Steering Group Launches its Strategic Plan to Strengthen Hong Kong's Financial Ecosystem to Support a Greener and More Sustainable Future*
<https://www.hkma.gov.hk/eng/news-and-media/press-releases/2020/12/20201217-4/>

Switzerland Federal Council, *"Federal Council sets parameters for binding climate reporting for large Swiss companies"*

<https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-84741.html>

The UK Department for Business, Energy & Industrial Strategy, *Mandatory climate-related financial disclosures by publicly quoted companies, large private companies and LLPs*

<https://www.gov.uk/government/consultations/mandatory-climate-related-financial-disclosures-by-publicly-quoted-companies-large-private-companies-and-llps>

European Commission, *Proposal for a directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting*

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>

European Commission, *Reports on development of EU sustainability reporting standards*

https://ec.europa.eu/info/publications/210308-efrag-reports_en

International Financial Reporting Standards Foundation, *Consultation paper and comment letters: Sustainability Reporting*

<https://www.ifrs.org/projects/work-plan/sustainability-reporting/consultation-paper-and-comment-letters/>



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