

Leading the way for a better tomorrow

JSE Climate Disclosure Guidance

June 2022



www.jse.co.za

JSE

let's connect

Johannesburg Stock Exchange

In support of



Supported by



Contents

A message from the JSE Group CEO	2
Introduction	4
Chapter 1: Climate disclosure – Setting the scene	6
1.1 Key trends	8
Chapter 2: How might an organisation approach climate disclosure?	12
2.1 Differential reporting	15
2.2 Assessment of material climate-related impacts, risks and opportunities	16
2.3 Carbon reporting	18
2.4 Location and timing of climate-related disclosure	19
2.5 Frameworks for disclosure	20
2.6 Data verification and assurance	21
Chapter 3: What climate-related information should a company disclose	22
3.1 Governance	24
3.2 Strategy	26
3.3 Management	31
3.4 Metrics and targets	31
Chapter 4: Education and resources	36
Annex 1: Alignment of TCFD recommended disclosures with other frameworks	41
Annex 2: Recent studies on potential aggregated financial impacts of climate change	44
Annex 3: Glossary	45
Annex 4: Acknowledgements	48
Project team	48
External stakeholder input	48
JSE Sustainability Advisory Committee	48

List of boxes, tables and figures

Boxes

Box 1.1: What are the TCFD and the ISSB?	10
Box 2.1: Benchmarking climate transition readiness with TPI	14
Box 3.1: King IV Guidance Paper	25
Box 3.2: Tips on conducting a scenario analysis	27
Box 3.3: IPCC, IEA and NGFS scenarios	29
Box 3.4: Setting Science-Based Targets	33

Tables

Table 4.1: Additional resources for TCFD implementation	36
---	----

Figures

Figure 2.1: Double Materiality Perspective	16
Figure 2.2: Overview of GHG Protocol scopes and emissions across the value chain	18

A message from the JSE Group CEO



Dr. Leila Fourie
Group CEO

Recent extreme weather events in South Africa, including droughts and floods, have underlined the urgent need for an accelerated response to the risks posed by climate change. According to the Intergovernmental Panel on Climate Change (IPCC), Africa is one of the most vulnerable continents to climate change, with southern Africa identified as a “hot spot” for extreme temperatures and reduced water availability.

South Africa, which is among the world's largest greenhouse gas emitters, is highly exposed to the risks resulting from the transition to a low emission economy due to its reliance on fossil fuels, including coal-fired power and related mining activity. Therefore, it is critical that communities and workers that rely on these sectors are not neglected as we shift toward a low-carbon economy. The Presidential Climate Commission, which was appointed by President Cyril Ramaphosa in December 2020, notes that “tackling climate change will require significant and unprecedented changes across all sectors of the economy”.

Around the world, there has been increased pressure on business to accelerate action on climate change. As this new guidance highlights, this is not only evident in impending changes to policy and regulation, societal concern, and growing legal and reputational risks, but in changing investment trends. Investors are increasingly focused on deploying capital to investments that are better positioned to address the risks and opportunities created by the transition to a low-carbon economy.

Climate disclosure is an important component of the response to this pressure. Investors are interested in whether companies have the governance structures in place to oversee and manage an adequate response to climate change. They want to understand the metrics and targets that a company uses to measure its performance over the short, medium and long term.

As co-chair of the Sustainable Stock Exchanges Initiative Committee on Climate Disclosure Guidance, as well as co-chair of the Global Investors for Sustainable Development Alliance (GISD), and member of the Net Zero Service Providers Alliance (NZSPA), the JSE sees climate-related disclosures as a critical tool in ensuring that South Africa's response to climate change is transparent, equitable and aligned with international standards.

This Climate Disclosure Guidance accompanies the broader Sustainability Disclosure Guidance, both of which are intended to be a tool for all companies regardless of size or sector. It is our hope that this guidance will be a valuable resource to issuers on the journey towards better disclosure and better action on tackling the climate crisis.

I would like to thank our Chief Sustainability Officer, Shameela Soobramoney, and the Incite team led by Jonathon Hanks, for their work in supporting this guidance note. I would also like to thank the International Finance Corporation (IFC) for their support and expert technical input through their global network.

We look forward to working with our issuers and the broader ecosystem in encouraging the uptake of this guidance and working together to help achieve the aims of sustainable development.

Dr Leila Fourie
Group CEO

JSE Guidance and Requirements: Understanding the distinction

This paper is issued as a guidance tool that may be used by issuers on a voluntary basis to:

- assist local companies to navigate the global ESG landscape;
- provide for South Africa's specific ESG challenges;
- improve the quality of ESG information available to enable more informed investment decisions;
- drive improved ESG performance, accountability, and business leadership.

The paper does not constitute disclosure or reporting obligations for issuers pursuant to the provisions of the JSE Listings Requirements.

Introduction

While climate change is often seen as a defining obstacle among sustainability issues, the consequences of it can amplify other sustainability issues, such as inequality, poverty and food availability, and water and resource scarcity. Not addressing climate change can carry a far greater cost in the future than dealing with it today.

The estimated financial impacts related to climate change have led investors, policy makers and financial service providers to request additional data from issuers to effectively assess and price risks in the market.

South Africa's National Climate Change Response White Paper 2011 recognised that the corporate sector has a fundamental role to play in the country's response to climate change and that private sector funding would play an important role in achieving national climate change goals. Treasury has also recognised that improved disclosure of environmental and social performance is necessary for efficient capital allocation and the pricing of risk and that strengthening the resilience of the financial systems depends on integrating environmental and social factors into risk management systems.¹

As noted by the Sustainable Stock Exchange (SSE) initiative, stock exchanges are in a unique position to advance climate disclosure by providing guidance to issuers and the wider markets. The Johannesburg Stock Exchange (JSE) plays a leading role in the SSE initiative, which brings together various UN agencies, the UN Global Compact and the UNEP Finance Initiative and the Principles of Responsible Investment (PRI). This guidance draws on the SSE's Model Guidance on Climate Disclosure, which was released in June 2021 to support stock exchanges to guide issuers on climate-related disclosures.

The Guidance is also aligned with the Exposure Draft of the IFRS S2 *Climate-related Disclosures* (Climate Exposure Draft)², which was released by the International Sustainability Standards Board (ISSB) in March 2022.

The ISSB was established by the IFRS Foundation to develop a comprehensive global baseline of sustainability disclosures for the capital market. The Climate Exposure Draft builds on the Task Force for Climate-Related Financial Disclosures (TCFD), which released its recommendations in 2017, enhancing them with additional guidance in 2021. While numerous organisations are already utilising the TCFD recommendations, there is an expectation that the ISSB proposals will become the dominant international standard and will supersede the TCFD recommendations that have been incorporated into the IFRS standard.

The JSE believes that this Climate Disclosure Guidance is a relevant addition to the ISSB proposals as it provides both local context and addresses additional policy and regulatory developments such as those contained in the King IV Guidance Paper on Responsibilities of Governing Bodies in Responding to Climate Change. As discussed below, the King IV Guidance Paper includes significant differences to the ISSB proposals and the TCFD recommendations that are important to consider particularly in light of the increasing urgent need for climate action.

The Climate Disclosure Guidance complements the JSE's Sustainability Disclosure Guidance, which provides an overarching approach to disclosure on environmental, social and governance issues, including climate change.



Climate Disclosure – Setting the scene

By 1992 at the Rio Earth Summit, it was already established that “human influence on the climate system is clear and growing, with impacts observed across all continents and oceans”.



How might an organisation approach climate disclosure?

The starting point is that all companies regardless of sector need to consider and disclose information on how the impact of climate change and the economic transition to net zero will impact their business and how their business will impact on the wider environment and society.



What climate-related information should a company disclose?

Organisations that have recognised the need for action on climate should integrate climate-related impacts, risks and opportunities into their governance, strategy and management processes. By reporting meaningfully on climate, organisations are able to signal to investors and other stakeholders that they have a sound appreciation of the issues.



Education and resources

As both the science behind climate-related issues as well as organisations should ensure they are working with the most up-to-date information. the reporting requirements evolve and grow, organisations should ensure they are working with the most up-to-date information.

¹ National Treasury, *Financing a Sustainable Economy: Technical Paper*, 2021.

² IFRS, *Exposure Draft ED/2022/S2 Climate-related Disclosures*, 2022.



01

Climate Disclosure – Setting the scene

By 1992 at the Rio Earth Summit, it was already established that “human influence on the climate system is clear and growing, with impacts observed across all continents and oceans”.³

Since then, the scientific and economic understanding of the impacts and risks of climate change has grown substantially. Sustainable Development Goal 13, which forms part of the 2030 Agenda for Sustainable Development that was adopted by all United Nation Member States in 2015, is to “take urgent action to combat climate change and its impact”.

Climate-related risks and the expected transition to a low-carbon economy affect all economic sectors and industries and therefore financial markets are increasingly pricing these risks as well as looking to identify and measure new investment opportunities. Globally, investors and other stakeholders are recognising this and are demanding higher quality, consistent data to inform their investment strategies and decisions. This requires a dramatic improvement in climate-related disclosures globally. Where companies are already advancing on this topic, with unprecedented support for climate action including setting science-based targets and net zero emissions commitments, they require support to make sure that this is being effectively communicated to investors.

The first step to ensuring that climate-related issues are sufficiently addressed is recognising the changing landscape and identifying an organisation’s current progress. Climate change science is constantly evolving and issuers are encouraged to continually update their knowledge on this topic. This chapter provides an overview of key trends, and Chapter 4 provides further resources to help stay up-to-date on this topic.



1.1 Key trends

In addition to the urgent need to significantly reduce greenhouse gas emissions to avoid runaway climate change, there are three key business-related trends placing pressure on business for accelerated action on climate change, namely a rapid change in investment trends, new policy and regulation integrating climate-related disclosures, and increased legal and reputational risks related to climate.

Changing investment trends

Studies (see Annex 2) suggest that climate-related financial risks are not just limited to fossil fuel or high carbon sectors but exist across industries and asset classes. As a result, both investors and issuers are adopting an increasingly long-term outlook for more efficient and risk-adjusted allocation of capital and need to set out their strategies in response to this economic transition.

Investors and asset managers are also shifting their investments towards companies that are better positioned on climate change and often assume poor corporate disclosure will mean a company is poorly prepared for the climate transition. As a result, investments are being diverted away from those companies seen to have poor disclosure on their climate-related strategies and risk-management and towards those seen as leaders. There is a high level of coordination between investors in both measuring companies’ climate performance and interlinked engagement with companies on climate action. There is also increasing awareness of the interconnection between climate change and other critical sustainability issues such as deforestation and biodiversity loss, which are reducing nature’s potential to act as a carbon sink for significant levels of carbon emissions.

Impending changes to policy and regulation

A 2019 whitepaper⁴ written by the PRI highlighted the dramatic increase in attention paid by financial policy makers to sustainability issues in recent years. The PRI’s Responsible Investment Regulation Map found over 730 hard and soft law policy revisions across approximately 500 policy instruments within the world’s 50 largest economies to support, encourage or require investors to consider long-term value drivers, including ESG factors. This trend has only accelerated, with the 2021 TCFD status report indicating a number of governments beginning to embed the recommendations in policy and guidance and moving toward requiring TCFD disclosures through legislation and regulation.



In South Africa, changes to policy and regulation that address sustainability issues in the financial sector include:

- The 2011 amendment to Regulation 28 of the Pension Fund Act, 1956 that requires “appropriate consideration to any factor which may materially affect the sustainable long-term performance of a fund’s assets, including factors of an environmental, social and governance character.”⁵
- The Financial Sector Conduct Authority’s (FSCA) Guidance Notice 1 of 2019 on the Sustainability of Investments and Assets in the Context of a Retirement Fund’s Investment Policy Statement, which provide guidance on the FSCA’s expectations for compliance with Regulation 28, and disclosure and reporting requirements for retirement funds on sustainability factors.⁶

South African markets need to prepare themselves for changes to policy and regulation globally to ensure stability and resiliency of financial markets. Issuers and investors can be prepared for regulatory changes aligned with ambitious climate-related policy goals and in doing so will gain competitive advantage and strategic opportunities.

Legal and reputational risks

Both issuers and stakeholders are increasingly cognisant of the legal and reputational risks related to the failure to act on climate change. As of February 2022, the total number of climate change legal cases filed globally reached over 1,890 for the year, continuing an upward trend of such cases.⁷ The most recent update by Norton Rose Fulbright notes that climate change litigation “poses unique reputational risks for defendants given current community and business focus on environmental, social and governance (ESG) issues, particularly sustainability and climate risk”.

In the climate change context, McKinsey & Company define reputation risk as “the probability of profitability loss following a business’s activities or positions that the public considers harmful.” A damaged reputation can for example, impact sales, through consumer boycotts or local community protests. Knock on effects include damage to its investor relationships, and adjusting opinions of potential future employees.

Further, not only are customers and civil society pushing for climate action from companies, but so are shareholders. Shareholder resolutions are increasingly

³ IPCC, *Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014.

⁴ PRI, *Taking stock: Sustainable finance policy engagement and policy influence*, 2019.

⁵ National Treasury, *Amendment of Regulation 28 of the Pension Funds Act*, 2011.

⁶ FSCA, *Guidance Notice 1 of 2019 on the Sustainability of Investments and Assets in the Context of a Retirement Fund’s Investment Policy Statement*, 2019.

⁷ Norton Rose Fulbright, *Climate change litigation update*, February 2022.

BOX 1.1: WHAT ARE THE TCFD AND THE ISSB?

The Financial Stability Board (FSB) established the Task Force for Climate-Related Financial Disclosures (TCFD) in 2015 to develop recommendations for more effective climate-related disclosures to support informed capital allocation.

The TCFD's recommendations, which were released in 2017 and enhanced in 2021, are structured around four thematic areas that represent core elements of how organisations operate: governance, strategy, risk management, and metrics and targets. The four thematic areas are intended to interlink and inform each other, and therefore issuers will also find an overlapping of information between these four categories.

 Governance	 Strategy	 Risk Management	 Metrics and Targets
Disclose the organisation's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.	Disclose how the organisation identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
Recommended Disclosures	Recommended Disclosures	Recommended Disclosures	Recommended Disclosures
a. Describe the board's oversight of climate-related risks and opportunities. b. Describe management's role in assessing and managing climate-related risks and opportunities.	a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term. b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning. c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	a. Describe the organisation's processes for identifying and assessing climate-related risks. b. Describe the organisation's processes for managing climate-related risks. c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

Source: TCFD recommendations, 2021, p15.

Since the publication of these milestone recommendations, the TCFD has issued four status reports, most recently in October 2021, describing the alignment of companies' reporting with the TCFD recommendations. The number of organisations expressing support for the TCFD has grown significantly, spanning across 89 countries. Financial institutions responsible for assets of more than US\$194 trillion, including the largest asset managers and asset owners in the world, support the TCFD.

On the corporate side, support for TCFD has grown to include companies representing more than US\$25 trillion in market capitalisation. There were 30 South African TCFD supporters as of April 2022, 18 of which declared their support in 2021 suggesting a growing trend. Local supporters include several of the largest asset managers and several of the largest listed companies.

BOX 1.1: WHAT ARE THE TCFD AND THE ISSB? continued

The IFRS Foundation announced the formation of the International Sustainability Standards Board (ISSB) to develop a comprehensive global baseline of sustainability disclosures for the capital markets at COP26. The ISSB issued two proposed standards ("exposure drafts") in March 2022 as part of a consultation period ending on 29 July 2022. The first standard set out general sustainability disclosure guidance and the second addresses specific climate-related disclosures.

The exposure drafts build on the TCFD recommendations and incorporate industry-based disclosure requirements. Like the TCFD, the Exposure Draft IFRS S2 Climate-related Disclosures has four thematic areas: governance, strategy, risk management, and metrics and targets. However, in certain instances, the ISSB requires more granular information and proposes additional specific disclosures.

addressing climate-related topics and putting pressure on issuers to make significant changes to business strategies and operations.

Recent developments in South Africa

As in other jurisdictions, the pace and scale of South Africa's response to climate change has accelerated in recent years. Significant developments include:

- The publication of National Treasury's Financing a Sustainable Economy: Technical Paper in October 2021. The Paper identifies "the need to develop or adopt additional methodologies, to include specifically the identification, management and disclosure of climate-related risks" as one of four "immediate practical priorities and focus areas for the South African financial sector".⁸
- The establishment of the Presidential Climate Commission in 2020 to provide independent expert advice on the country's climate change response and facilitate a common vision for a net zero and climate resilient economy and society by 2050.
- The July 2021 release of the King IV Guidance Paper on Responsibilities of Governing Bodies in Responding to Climate Change to support boards and other governing bodies in their response to climate change.⁹
- The introduction of the National Climate Change Bill to parliament in October 2021. The Bill aims to provide a coordinated and integrated response to climate change and its impacts by, among other things, setting a national greenhouse gas (GHG) trajectory and setting carbon budgets for high emitters.
- The introduction of the carbon tax, which came into effect on 1 June 2019 after President Cyril Ramaphosa

signed the Carbon Tax Act into law. The tax, which is intended to provide a price signal to help shift the economy to a more sustainable growth path, had an introductory base rate of R120 per ton of CO₂ equivalent before various allowances, such as a basic tax-free allowance and a trade exposure allowance, were taken into consideration. In the February 2022 Budget, Minister of Finance Enoch Godongwana extended the first phase of the Carbon Tax for three years, but announced that it would increase progressively from R144/t in 2022 to US\$20/t by 2026 and US\$30/t by 2030.

- The submission of the updated Nationally Determined Contribution (NDC) under the Paris Agreement in September 2021 that sets a new target range of 398–510 Mt CO₂ equivalent for 2025 and 350–420 Mt CO₂ equivalent for 2030. This is compared to the target range of 398-614 Mt CO₂ equivalent for 2025 and 2030. Whereas the initial NDC expected emissions to decline from 2035, the updated NDC expects emissions to decline from 2025.
- The publication of the South African Green Finance Taxonomy in March 2022, which provides a catalogue of assets, projects and sectors that can be defined as "green" in accordance with international best practice and national priorities.
- The release of National Treasury's Climate Risk Forum and Disclosure Working Group's Principles and Guidance for Minimum Disclosure of Climate Related Risks and Opportunities in December 2021. It aims to guide and inform regulators and financial sector users of the minimum expectations of good financial disclosure of climate-related risks and opportunities.¹⁰

⁸ National Treasury, *Financing a Sustainable Economy: Technical Paper*, 2021.

⁹ Institute of Directors, *King IV Guidance Paper: Responsibilities of Governing Bodies in Responding to Climate Change*, 2021.

¹⁰ Climate Risk Forum, *Principles and Guidance for Minimum Disclosure of Climate Related Risks and Opportunities*, 2021.

02

How might an
organisation approach
climate disclosure?

The primary objective of this guidance is to support JSE-listed companies in considering how they can approach climate disclosure in a manner that is aligned with the ISSB, which is informed by the TCFD recommendations, and the King IV Guidance Paper on Responsibilities of Governing Bodies in Responding to Climate Change.¹¹

The starting point is that all companies regardless of sector need to consider and disclose information on how the impact of climate change and the economic transition to net zero will impact their business and how their business will impact on the wider environment and society.

In accordance with the King IV Report on Corporate Governance for South Africa, 2016, a stakeholder-inclusive approach is encouraged where the governing body “balances the needs, interests and expectations of

material stakeholders in the best interests of the organisation over time”.¹²

Companies reporting on climate should be aware that investors and other stakeholders are looking for information that gives them confidence that companies understand climate-related issues, how they impact the business, and what action they are taking as a result. According to the King IV Report, the board should ensure that reports allow stakeholders to make informed assessments of performance and the prospects over the short, medium and long term.

BOX 2.1: BENCHMARKING CLIMATE TRANSITION READINESS WITH TPI



The **Transition Pathway Initiative (TPI)** is a global initiative led by asset owners and supported by asset managers. Aimed at investors and free to use, it assesses companies’ preparedness for the transition to a low-carbon economy, supporting efforts to address climate change. Through robust and independent research, the tool aims to empower investors to assess the alignment of their portfolios with the goals of the Paris Agreement and to drive real world emission reductions through actions.

Using publicly disclosed company information, the TPI does the following assessments:

- Evaluates and tracks the quality of companies’ management of their greenhouse gas emissions and of risks and opportunities related to the low-carbon transition;
- Evaluates how companies’ planned or expected future carbon performance compares to international targets and national pledges made as part of the Paris Agreement;
- Publishes online the results of this analysis through a publicly-available tool hosted by its academic partner, the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science (LSE).
- The TPI complements existing initiatives and frameworks, by aligning with prevailing disclosure initiatives and with investors’ climate change and sustainability expectations. It is also being aligned with the requirements of the TCFD and is used for the disclosure assessment of the Climate Action 100+ Net Zero Company Benchmark - an assessment of the world’s largest corporate greenhouse gas emitters on their progress in the transition to the net zero future.

How investors can use the TPI

Investors are using the TPI for a broad range of activities, including ESG integration, active ownership, informing proxy voting, exclusions, product creation due diligence, and demonstrating commitment to environmental sustainability.

Source: SSE initiative, with data from The Transition Pathway Initiative website and the Climate Action 100+ website.

¹¹ Institute of Directors, *King IV Guidance Paper: Responsibilities of Governing Bodies in Responding to Climate Change*, 2021.

¹² Institute of Directors, *King IV Report on Corporate Governance for South Africa*, 2016, p41.



2.1 Differential reporting

Although climate risk is relevant for companies of all sizes and sectors, the depth and detail of reporting that investors and other stakeholders expect will not be the same for all companies. There is a growing expectation that larger companies and especially those in industries that are highly exposed to the risks of climate change (both physical and/or transition) – such as extractives, energy, finance, agriculture, steel, cement, and tourism and travel – will provide more detailed disclosures. However, smaller companies in less vulnerable industries and/or those with fewer resources available for reporting procedures may wish to map a plan for future disclosures. Progress can be disclosed so that stakeholders are aware of the issuer’s plans.

Issuers that choose to map a plan towards full disclosure may wish to use an existing staged process (see Box 2.1: Benchmarking climate transition readiness with TPI). It is important to note, however, that a staged approach should only be considered when limited resources do not permit an organisation to integrate all the recommendations from the start. Issuers in climate-vulnerable industries should consider either immediate alignment or an accelerated progression (within 1–2 years).

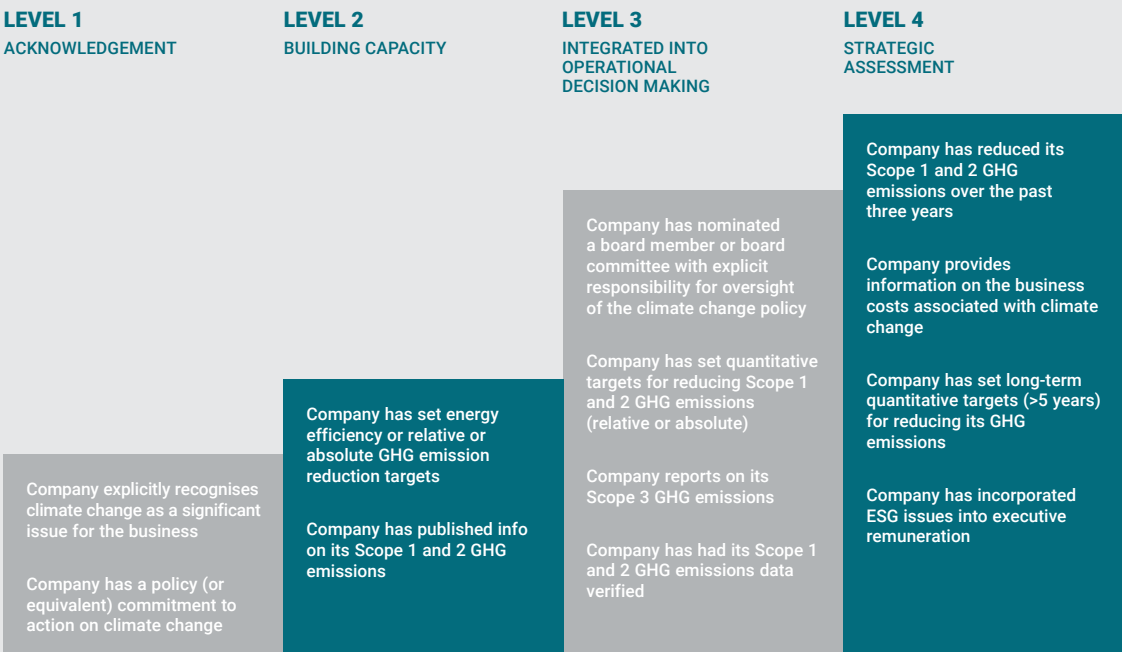
BOX 2.1: BENCHMARKING CLIMATE TRANSITION READINESS WITH TPI continued



How listed companies can use the TPI

Companies can use the analysis already conducted by TPI on their own company, or if they have not been evaluated by TPI, they can use the analysis of a competitor or similar industry analysis to determine the baseline scenario analysis. Additionally, companies are also using TPI for other ESG-related exercises such as helping suppliers to align climate policies across a global value chain. The TPI’s four level staircase can also be used to help companies chart a pathway of constant progression and set objectives for their climate-related disclosure journey.

TPI’s four levels of TCFD alignment



Source: Transition Pathway Initiative’s report “How can investors use the transition pathway initiative? Version 1.0 – 11 January 2016”, p4.

2.2 Assessment of material climate-related impacts, risks and opportunities

As with the JSE's Sustainability Disclosure Guidance, this guidance adopts the double materiality approach, which considers both:

- **Financial materiality**, referring to sustainability issues that could affect the organisation's operational and financial position; and
- **Impact materiality**, referring to the organisation's impacts on people, the environment and the economy.

This approach, which was introduced by the European Commission in 2017, is aligned with the suggested practice that governing bodies should recognise the concept of double materiality recommended in the King IV Guidance Paper on Responsibilities of Governing Bodies in Responding to Climate Change.

A materiality assessment can help companies determine which issues are best included in reporting, and which may be communicated or disclosed to specific stakeholder groups through other channels. It is noted that over time materiality will change and that time horizons impact whether or not information is relevant to a decision.

The materiality processes should identify both climate-related risks and opportunities that affect enterprise value and climate-related impacts that affect the wider environment and society, and assess which ones are

material. Sustainability-related issues can move (gradually or very quickly) between these areas, which is known as dynamic materiality.

Companies that do not find climate-related impacts, risks or opportunities material to their organisation are encouraged to report how they came to this conclusion, and the time horizon used. As the TCFD notes, however, climate-related risks are a non-diversifiable risk that affects nearly all industries, and therefore it requires special attention.

While climate change is a global challenge, it also has unique local implications. Whether an issuer is operating in one or many countries, they should consider both global and domestic risks confronting their operations.

Climate risks and opportunities

There are two key categories of climate-related risks (see Figure 2.1) with implications for enterprise value that report preparers should consider:

1. Risks related to the *transition* to a lower-carbon economy; and
2. Risks related to the *physical* impacts of climate change.

As part of the transition to a lower-carbon economy, companies may face risks relating to policy and legal changes, new or obsolete technologies, changing market behaviours, and reputational risks. Physical risks that companies may face include those relating to extreme weather events or resource constraints due to shifts in climate patterns.

It is important also to appreciate that efforts to mitigate and adapt to climate change are producing substantial opportunities for organisations and their investors. Climate-related opportunities may come through the implementation of new resource efficiency and cost savings programmes, the adoption of low-emission energy sources, the development of new products and services, access to new markets, and building resilience along the supply chain. The potential social costs relating to climate opportunities should also be considered as part of the cost-benefit analysis.

Climate-related risks and opportunities, which should be considered in the strategic planning and risk management process, may affect financial performance as reflected in the income statement, cash flow statement and balance sheet.¹³

One significant challenge in reporting opportunities is defining which product and service categories to identify. A solution for this can be found in the growing development of green and sustainable finance "taxonomies" by various regulators. The EU has been pioneering in this regard, while the South African Green Finance Taxonomy was released in March 2022. The green finance taxonomy provides a catalogue of assets, projects and sectors that can be defined as "green" in accordance with international best practice and national priorities. Benefits to the financial sector include greater clarity and certainty in selecting and issuing green financial instruments and greater regulatory support.

Climate impacts

While climate-related risks and opportunities have financial implications for enterprise value, a company can also have positive and negative impacts on climate and, as a result, the wider environment and society (see Figure 2.1).

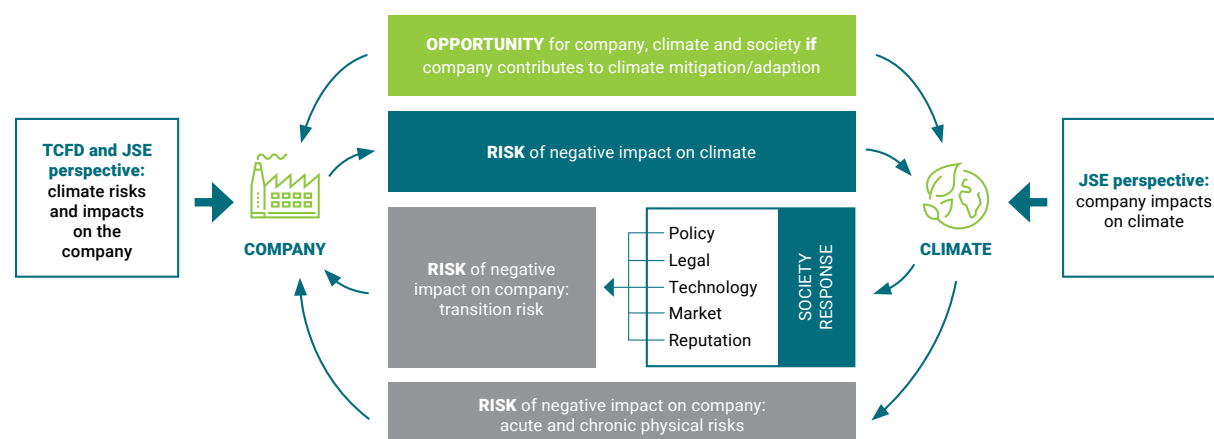
The most significant negative impact companies have on climate stems from the release of gases that are linked to the greenhouse effect and climate change. These GHG emissions come from various sources including those owned or controlled by the company, from the generation of electricity and as a consequence of the activities of the company (see Carbon reporting below).

Corporate plans to transition to a lower-carbon economy in response to international commitments and national regulations can have both a positive and negative impact on the wider environment and society. The Paris Agreement incorporated the notion of a "just transition", which originated in the labour movement, to signal the importance of minimising the negative impacts and maximising the positive opportunities for communities and workers as part of the shift toward a low emission economy.

South Africa, which is the world's 12th largest GHG emitter, is highly exposed to the risks resulting from the transition to a low emission economy due to its reliance on fossil fuels, including coal-fired power and related mining activity. The Presidential Climate Commission has identified the coal, automotive, agricultural, and tourism value chains as those most immediately "at-risk" in South Africa.¹⁴ However, the transition will also have significant positive impacts through the creation of new industrial jobs, the opening of new markets, cost reductions and resource efficiencies. The transition can also improve environmental conditions, community health, lives and livelihoods as benefits such as those from renewable energy and climate-smart agriculture are realised.

Given the importance of the just transition, it will be critical for issuers to pay increasing attention to the related impacts, risks and opportunities. In mid-2021, the TCFD undertook a public consultation on its Proposed Guidance on Climate-related Metrics, Targets, and Transition Plans and the associated Measuring Portfolio Alignment: Technical Supplement. Similarly, the draft IFRS S2 Climate-related Disclosures calls for the disclosure of information that allows users to understand the impact of climate-related risks and opportunities on an organisation's strategy and decision-making, including its transition plans. Specific requirements include disclosure of how climate-related targets will be achieved, the resources required, assumptions regarding the use of offsets, and the direct and indirect mitigation and adaption efforts being undertaken.

Figure 2.1 – Double Materiality Perspective



Source: Adapted from EU Guidelines on reporting climate-related information

¹³ TCFD, *Implementing the Recommendations*, 2021, p5.

¹⁴ Presidential Climate Commission, *Draft Framework for a Just Transition in South Africa*, 2022.

Issuers should also be cognisant of how these developments impact on communities and workers. It is recommended that they incorporate disclosure of related social and environmental impacts into their reporting in line with the double materiality perspective set out in Chapter 3, which includes recommended metrics on the just transition such as:

- Does the issuer have a just transition plan that commits to stakeholder engagement with workers and communities?
- How many engagements have been undertaken with affected parties by group, geography etc?
- How many workers in the past year have been retrained/retrained/compensated due to their decarbonisation plans?
- How do lobbying activities and those of associations and membership group align with the objectives of the Paris Agreement?
- How is executive remuneration aligned to the transition plan?
- Do climate scenarios include impacts on workers and communities?
- How much capital or expenditure is deployed toward climate adaptation or climate mitigation projects?

2.3 Carbon reporting

Carbon reporting is now an integral part of many corporations' reporting, and is used to set targets, identify opportunities, and show progress. Carbon reporting standardises into one metric the combined climate impact in CO₂ equivalent units for the measurement of the release of all gases linked to the greenhouse effect and climate change. Also referred to as 'carbon footprinting', this activity measures what amount of these gases an organisation is responsible for through a system which classifies emissions as Scope 1, 2 or 3, depending on the source of the emissions (Figure 2.2). As per the GHG Protocol Corporate Accounting and Reporting Standard,¹⁵ Scope 1, 2 and 3 emissions can be broadly understood as:

- **Scope 1 (Direct GHG emissions):** Emissions that occur from sources that are owned or controlled by the company. For example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.
- **Scope 2 (Electricity indirect GHG emissions):** Emissions from the generation of purchased electricity, steam, heat and cooling consumed by the company. Purchased electricity is defined as

electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

- **Scope 3 (Other indirect GHG emissions):** Emissions that are a consequence of the activities of the company, but occur from upstream and downstream sources not owned or controlled by the company. Some examples of Scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; business travel and employee commuting, use of sold products and services, and investments.

Issuers should disclose the approach they use to determine which GHG emissions to include. Many reporting frameworks provide guidance on reporting and measuring GHG emissions, such as Sustainability Accounting Standards Board's (SASB) Implementation Supplement which provides an overview of SASB's approach to GHG emissions and related topics in the SASB Standards. It also offers guidance for reporting entities that wish to disclose Scope 1, 2, or 3 emissions.

GHG Protocol (Figure 2.2) has been widely adopted by many companies to measure GHG emissions and has been referenced by many standards and frameworks including TCFD, the Global Reporting Initiative (GRI), the Carbon Disclosure Project (CDP) and the SASB. Meanwhile, the Partnership for Carbon Accounting Financials (PCAF) has been established to enable financial institutions to assess and disclosed GHG emissions of loans and investments.

It is recommended that Scope 3 emissions are disclosed with an explanation of which activities have been included. This is in line with the draft IFRS S2 Climate-related Disclosures and the TCFD's 2021 update. The disclosure of Scope 3 emissions allows investors and other stakeholders to gain an understanding of the risk and opportunities in the value chain. In many cases, Scope 3 are the largest portion of an organisation's carbon footprint by a considerable margin. Without Scope 3 disclosure it is difficult to identify the most significant opportunities for GHG emission reduction across an organisation's value chain. If Scope 3 emissions are not disclosed, issuers should provide an explanation for the reasons for this.

Both absolute GHG emissions and emissions intensity, which is expressed as the metric tonnes of CO₂ equivalent per unit of a particular physical or economic output (such as a unit of production or value), should be disclosed.

2.4 Location and timing of climate-related disclosure

The purpose of disclosing climate-related information is that market participants and stakeholders can access and use the information provided by issuers for their own internal decision-making processes.

The TCFD recommends that organisations provide climate-related financial disclosures in mainstream financial reports. The TCFD considers governance, as well as risk management, to be essential information required by investors to assess an organisation's financial and operating results. As such, the recommended disclosures pertaining to risk management and governance are recommended to be disclosed in the annual financial reports of all listed companies.

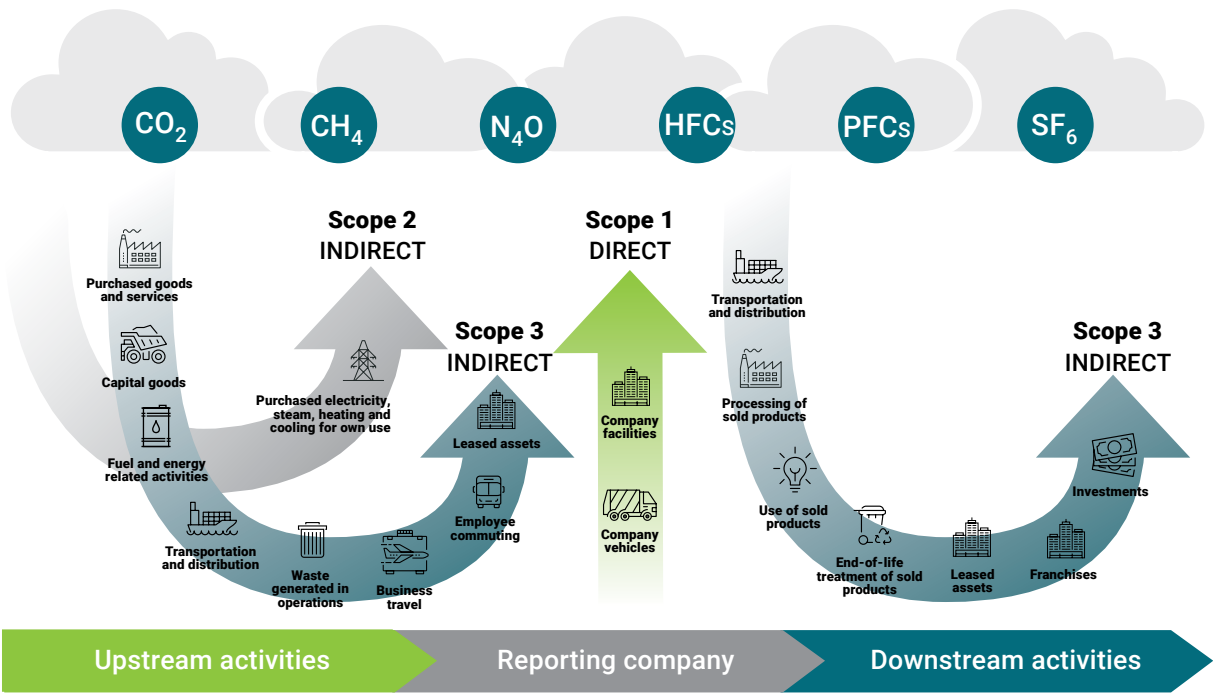
Similarly, the suggested practices in the King IV Guidance Paper on Responsibilities of Governing Bodies in Responding to Climate Change is that climate risk impacts on governance, the business model, strategy, risk management, and performance and prospects are disclosed in the Annual Report and Integrated Report, not in a separate Sustainability Report, and that the climate-related disclosure in the financial statements are consistent with those in other reports. The JSE supports the TCFD's recommendation and the King IV suggested practices.

Climate-related information that may not be compatible with the current reporting requirements or deemed financially material may be disclosed in other official company reports, such as a sustainability report or a separate TCFD report. This may include information on a company's climate-related impacts on the wider environment and society.

These other company reports should be issued at least on an annual basis, be widely distributed and available to investors and other stakeholders. The reports should be subject to internal governance processes that are the same, or substantially similar to, those used for financial reporting.

Ideally, these reports should be issued simultaneously with the annual integrated report and cover the same reporting boundaries and time periods to aid comparison and analysis.

Figure 2.2: Overview of GHG Protocol scopes and emissions across the value chain



Source: Greenhouse Gas Protocol, *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*, 2011.

¹⁵ The Greenhouse Gas Protocol, *A Corporate Accounting and Reporting Standard (revised edition)*, 2004.



2.5 Principles for useful disclosure

Issuers should aim to follow the JSE Sustainability Disclosure Guidance's key principles for useful ESG data and an effective ESG report to ensure they achieve high-quality and decision-useful disclosures that enable users to understand the impact of climate change on organisations.



Relevance: Sustainability information is relevant when it is capable of making a difference in assessments and decisions of the primary users of that information.



Faithful representation: Sustainability information should faithfully represent the reality it depicts. Faithful representation requires information to be (i) complete, (ii) neutral and (iii) accurate. A **complete** depiction includes all material aspects related to the reportable content, including appropriate descriptions and explanations. A **neutral** depiction is without bias in its selection and/or presentation of sustainability information. It should be balanced, so as to cover favourable/ positive and unfavourable/negative aspects: both negative and positive material impacts from an impact materiality perspective as well as the risks and opportunities from a financial materiality perspective should receive equal attention. **Accurate** information implies that the undertaking has implemented adequate processes and internal controls to reduce errors or material misstatements.



Comparability: Information is comparable when it is consistent over time and, to the greatest extent possible, presented in a way that enables comparisons between undertakings across sectors and within a specific sector. Consistency refers to the use of the same approaches or methods for the same sustainability matter, from period to period by the undertaking, as well as by other undertakings to the maximum extent possible.



Verifiability: Sustainability information is verifiable if it is possible to corroborate such information itself or the inputs used to derive it. Verifiability is about ensuring the reliability of the presented information and of the process of its generation. Reliability is when

different independent observers with reasonable expertise would be able to reach a similar conclusion and consider that a particular disclosure conveys a faithful representation. Information is verifiable if it is possible to trace it, which is a prerequisite of information being auditable, as it allows for appropriate evidence on the audit assertions to be obtained.



Understandability: Sustainability information is understandable when it is clear and concise. Understandable information enables all (knowledgeable) intended users to readily comprehend the information being communicated. For sustainability disclosures to be concise, they need to (i) avoid generic 'boilerplate' information, that is not specific to the undertaking; (ii) avoid unnecessary duplication of information; and (iii) use clear language and well-structured sentences.



Materiality: Sustainability information is material if omitting, misstating, or obscuring that information could reasonably be expected to influence the decisions reached by:

providers of finance concerning the ability of the organisation to create value over the short, medium or long term; and/or

stakeholders more broadly concerning the organisation's actual or potential significant impacts on the economy, environment, or society, over the short, medium or long term.



Timeliness: Timeliness means having information available to decision-makers in time to be capable of influencing their decisions. Generally, the older the information is, the less useful it is. For the purposes of sustainability disclosure, organisations should disclose relevant sustainability information in a manner consistent with its financial disclosure, and at least annually.

While companies have several frameworks at their disposal for disclosing climate, as well as social and corporate governance information, most, if not all, have now been mapped and aligned to ensure consistency and efficiency. It has been recognised



2.6 Data verification and assurance

Reports are generally more credible when they are supported by robust internal assessment processes involving existing internal audit, risk, and data control verification systems. If resources allow, and when properly managed, external assurance can provide an added degree of trust, credibility, and recognition. It is important to recognise, however, that while third-party assurance can be valuable in strengthening internal sustainability reporting systems and enhancing the credibility of reports, an overemphasis on external assurance can be a distraction; it is better to start with reporting with no assurance rather than not start reporting at all.¹⁷

The King IV Guidance Paper on Responsibilities of Governing Bodies in Responding to Climate Change notes that assurance should contribute to consistent and reliable reporting and that the presentation of climate change information should "ultimately meet the requirements of being auditable or capable of being subject to assurance being expressed thereon."¹⁸

that consistency among reporting frameworks is essential to ensure information provided by companies is decision useful. To this end, several initiatives have been launched to ensure consistency among reporting frameworks. In 2020, the CDP, CDSB, GRI, IIRC and SASB released a statement of intent that presented a summary of alignment discussions and a commitment towards working together towards a comprehensive corporate reporting system.¹⁶

To help map issuers' current disclosure formats to the TCFD, Annex 1 indicates alignment of indicators between main reporting frameworks, including the draft IFRS S2 Climate-related Disclosures, to the TCFD. If issuers already report using GRI and CDP, for example, they can use Annex 2 as a cross-reference. To ensure consistency throughout the market and globally, the metrics recommended in this guidance are aligned with the IFRS Exposure Draft: IFRS S2 *Climate-related Disclosures*. The JSE Sustainability Disclosure Guidance also includes a set of suggested core and leadership metrics that address climate change.



¹⁶ CDP, CDSB, GRI, IIRC and SASB, *Statement of Intent to Work Together Towards Comprehensive Corporate Reporting*.

¹⁷ Sustainable Stock Exchanges Initiative, *Model Guidance on Reporting ESG Information to Investors*, 2015, p18.

¹⁸ Institute of Directors, *King IV Guidance Paper: Responsibilities of Governing Bodies in Responding to Climate Change*, 2021

03

**What climate-related
information should a
company disclose?**

Organisations that have recognised the need for action on climate should integrate climate-related impacts, risks and opportunities into their governance, strategy and management processes.

In order to do this, it is important that the board and senior-level management recognise the climate-related impacts, risks and opportunities that are relevant to their organisation, their industry, their supply chain and their geographic location.

By reporting meaningfully on climate, organisations are able to signal to investors and other stakeholders that they have a sound appreciation of the issues.

The Climate Disclosures provided in this section have been structured in broad alignment with the IFRS Exposure Draft: IFRS S2 Climate-related Disclosures, which in turn is informed by the TCFD recommendations. The JSE's disclosures have been slightly revised to ensure alignment with a 'double materiality' approach: the review of management issues has been extended beyond risk management, and explicit provision is made for an assessment of the organisation's impacts on the people, the environment and the economy, in addition to the risks and opportunities impacting enterprise value.



3.1 Governance

In addition to the other guidance and requirements provided by the JSE on corporate governance requirements and best practices, including the JSE's Sustainability Disclosure Guidance, issuers should consider to what extent their current corporate governance accounts for and takes into consideration climate-related risks and opportunities.

A key aspect of ensuring that climate-related risks and opportunities are sufficiently integrated into an issuer's internal processes is through its governance mechanisms. Investors and other stakeholders have an interest in understanding the role played by the organisation's board in overseeing climate issues – such information informs an assessment as to whether these issues are receiving appropriate board and management attention. Good governance should include climate governance. Climate-related data is specialised and complex, and boards should ensure that the appropriate experience, skills and competencies are available to oversee strategies designed to respond to climate-related risks and opportunities.

Recommended disclosure

An organisation should describe the board's oversight of climate-related impacts, risks and opportunities, and its process for integrating sustainability issues into the overall governance approach.

In describing the board's oversight of climate-related issues, the organisation should disclose the following information:

Board direction and tone

1. How the board sets the direction and tone for considering climate-related impacts, risks and opportunities in the organisation, including disclosing:
 - a. committee/s responsible for oversight of climate-related issues;
 - b. how these responsibilities are reflected in the board's terms of reference, mandates, and other related policies;

- c. how the board ensures that the appropriate skills and competencies are available to oversee strategies designed to respond to climate-related impacts, risks and opportunities;
- d. how the board ensures that the organisational structure/s and management-level responsibilities are appropriate for managing climate-related issues.

Board role in integrating climate-related issues in strategy, business planning, and remuneration

2. The processes and frequency with which the board and/or board committees are informed about the organisation's material climate-related impacts, risks and opportunities, and how these material climate-related considerations are integrated in the organisation's:
 - a. strategy development and risk management processes, including any assessment of trade-offs or sensitivity to uncertainty that may be required;
 - b. capital allocation plans and decisions on major transactions;
 - c. performance targets, including climate-related goals and targets; and
 - d. remuneration policies and performance incentives at an executive level.

BOX 3.1: KING IV GUIDANCE PAPER



The King IV Report on Corporate Governance for South Africa 2016 recommends that organisations should take responsibility for the environmental impacts of their activities and acknowledges climate change as among the challenges testing the leadership of organisations. The King IV Guidance Paper on Responsibilities of Governing Bodies in Responding to Climate Change highlights how the relevant King IV principles can be applied in the context of responding to climate change.

The main principles in the King IV Guidance Paper are summarised as follows:¹⁹

- "Organisations are exposed to risks arising from climate change, particularly physical risk and transition risk. How the organisation experiences these risks depends on firstly, how these risks materialise and secondly, what actions are taken to mitigate them. Physical risk arises from the impacts of climate change. The response from Governing Bodies will mitigate or potentially lessen the risks, but the risks arise regardless. Transition risk arises outside the organisation.
- Governing Bodies have a critical role to play in responding to climate change which is an imperative and no longer optional.
- Governing Bodies must ensure that business strategy and decision-making include a broader, integrated consideration of social, economic, and environmental (including climate change) performance and impacts. This incorporates an assessment of externalities (see below), as well as determining risks and opportunities for both the short and long term.
- Insofar as environmental and climate change reporting and performance is concerned, Governing Bodies should consider the principle of 'externalities'. In simple terms, externalities refer to societal costs not included in the cost of production resulting in costs that do not reflect the true impact on society or the environment.
- While accountability remains with the Governing Body, responsibility for the management and monitoring of risk and impact must be delegated to management with defined indicators and targets to measure and assess performance.
- Governing Bodies should make every effort to mitigate their organisations' contribution to climate change (reduce the organisation's impact on the drivers of climate change).
- The Governing Body should ensure that the organisation is transparent about its response to climate change and disclose quantitative and qualitative information which could affect a user's decisions, irrespective of whether a common reporting framework exists or not."

¹⁹ Institute of Directors, *King IV Guidance Paper: Responsibilities of Governing Bodies in Responding to Climate Change*, 2021.

Board oversight of implementation of strategy

3. The process followed by the board and/or its committees to monitor:
 - a. management's activities in assessing and managing climate-related impacts, risks and opportunities, including whether that role is delegated to specific management-level positions or committees and how oversight is exercised over that position or committee;
 - b. the outcomes of impact, risk and opportunity assessments, evaluations, and responses;
 - c. the controls and procedures relating to the management of climate impacts, risks and opportunities, and how these are integrated with other internal functions;
 - d. the organisation's progress against climate goals and targets; and
 - e. the views of affected stakeholders and the quality of the organisation's stakeholder engagement processes.

Board oversight of disclosure and communication

4. The process followed by the board and/or its committees to provide oversight of the organisation's disclosure and communication activities, including its approach to:
 - a. approving management's determination of the reporting frameworks and standards to be used, considering the intended audience and purpose of each report; and
 - b. ensuring the integrity of external reports and deciding the scope and type of assurance of climate-related controls and information.



3.2 Strategy

Investors and other stakeholders need to understand how climate-related issues may affect an organisation's business model, strategy, and financial planning over the short, medium, and long term; such information is used to inform expectations about the future performance and impacts of the organisation.

Recommended disclosure

An organisation should describe how an assessment of climate-related impacts, risks and opportunities has influenced the organisation's strategy, and what impact this has had on the organisation's overall performance, both positive and negative.

In describing how climate-related issues inform strategy, the organisation should disclose the following information:

Climate-related impacts, risks and opportunities

1. The organisation's most significant climate-related impacts (positive and negative) on people, the environment and the economy, over the short, medium, and long term, noting the nature of its dependencies and impacts on specific resources and relationships ('impact materiality'); and
2. The organisation's most significant climate-related risks and opportunities across its value chain that the organisation reasonably expects could positively or negatively impact its business model, strategy, cash flows, access to finance, and its cost of capital, over the short, medium, and long term ('financial materiality'); this should include a description of where in the value chain these risks and opportunities are concentrated and indicate whether the risks are physical risks or transition risks.
3. How the organisation defines short, medium, and long term, and how these definitions are linked to the organisation's strategic planning horizons and capital allocation plans, noting that these time frames can vary significantly between organisations and industry sectors.

Strategy and decision-making

4. How the identified material climate-related issues have informed the organisation's business model, its strategic objectives and targets, transition plans, and financial planning, over the short, medium, and long term, recognising that climate-related issues often manifest themselves over the medium and longer term. This should address how the organisation is responding to material climate-related issues and plans to achieve any climate-related targets including disclosure of:

- a. the changes the organisation is making in strategy and resource allocation;
- b. information, including the amount of capital or expenditure deployed, on the direct adaptation and mitigation efforts being undertaken;
- c. information, including the amount of capital or expenditure deployed, on the indirect adaptation and mitigation efforts being undertaken;
- d. how changes are being resourced;
- e. the processes to review objectives and targets;
- f. the potential use of carbon offsets to achieve objectives and targets, including the type of carbon offset, verification schemes used and other factors relevant to establish credibility of offsets;
- g. qualitative and quantitative information regarding the progress of plans disclosed in prior reporting periods;
- h. whether transition plans commit to stakeholder engagement with workers and communities.

Financial position, performance and cash flows

5. How any of the significant climate-related risks and opportunities have affected the organisation's most recently reported financial position, financial performance, and cash flows. This should include any information on whether there is a significant risk of material adjustments that may be reported in the next financial year.
6. How the financial position and performance is expected to change over time given the organisation's strategy to address significant climate-related impacts, risks and opportunities.

Resilience

7. The nature, extent, and outcomes of any analysis, including scenario analysis, undertaken to test the resilience of the organisation's strategy, operations, products and services, value chain, and investment research and development activities – and how these might impact the organisation's financial position, and its capacity to respond, adjust or adapt its strategy and business model, over time. This should include disclosure of:
 - a. how the analysis was conducted, over what time frame, using which inputs and assumptions, and the significant areas of uncertainty considered;
 - b. if relevant, which scenarios were used including:
 - i. whether they included a comparison of a diverse range of scenarios;
 - ii. whether the scenarios used are associated with transition risks or increased physical risks;

BOX 3.2: TIPS ON CONDUCTING A SCENARIO ANALYSIS



The Centre for Climate and Energy Solutions (C2ES) launched a report in 2018 that identifies best practices companies are employing when they conduct a TCFD recommended scenario analysis. They include:

- **Make use of publicly available scenarios and leverage them by customising corporate scenario exercises around company-specific risks and opportunities.** Stakeholders are familiar with the parameters and assumptions in publicly available scenarios, but companies need to explain how the scenarios were modified and used to stress test their particular portfolio and circumstances.
- **Focus scenario exercises and disclosures on a few key variables associated with long-term climate-related risks and opportunities that could have a material impact on the business.** Stakeholders want to understand how companies manage the uncertainty and long-term risks of climate change. A scenario analysis is not intended to be a predictive exercise, nor an exhaustive one. Rather, it provides an opportunity to evaluate potential strategies compatible under a range of outcomes to make companies more financially resilient.
- **Use a range of scenarios when conducting a scenario-based risk analysis, including those that do not meet 2°C.** Exploring a broad range of futures and testing those against a company's strategy will help illustrate financial resilience under a variety of climate-related outcomes. Beyond assessing the risks and opportunities related to an energy transition, companies should also consider the physical impacts of climate change and analyse them along the entire value chain.
- **Scenario exercises should be reviewed on a regular basis as part of a strategic management process.** Outcomes from scenario exercises are unlikely to change significantly from year to year if assumptions and inputs remain stable, but companies should regularly monitor signposts that might indicate a potential need to change strategy or positioning on a regular basis.

Source: Center for Climate and Energy Solutions (C2ES), "Using Scenarios to Assess and Report Climate-Related Financial Risk", 2018.

- iii. whether a scenario aligned with the latest international agreement on climate change was among the scenarios;
 - iv. whether the scenarios consider impacts on workers and communities;
 - v. an explanation of why the chosen scenarios are relevant to assessing the organisation's resilience to climate-related risks and opportunities;
 - vi. the inputs used in the analysis including the scope of risks, the scope of operations, and assumptions, including those relating to how transition risks will impact the organisation.
8. Commentary on the value created, preserved, or eroded for the organisation, its stakeholders, and society and the environment more broadly, as a result of implementing its strategy.

Key issue: Scenario analysis

Scenario analysis (see Box 3.2) helps to identify and effectively assess the potential implications of a range of plausible future conditions due to the uncertainty of climate-related changes. Scenarios are hypothetical constructs that consider how the future might look if certain trends continue or certain conditions are met. Scenario analysis is not an exercise in forecasts, predictions or sensitivity analyses, but rather in evaluating resilience to different possible future scenarios. For example, while governments have agreed upon the target of limiting global average temperature rise to well below 2°C, and preferably to 1.5°C, above pre-industrial levels, corporations should consider the impact on their business in the scenario that this target is met, or not. This analysis can be qualitative, relying on descriptive, written narratives, or quantitative, relying on numerical data and models, or a combination of both.

While climate change can impact organisations both today and in the future, the implications often vary over time in severity and conditions. A scenario analysis is a method for developing strategic plans that are more flexible or robust and has become a useful tool for businesses to understand the strategic implications of climate-related risks and opportunities. While this is an important step to climate-related disclosure, it is also often the stage for which companies have the least experience. It is important to note, that while the initial process of developing a scenario analysis may be challenging, it pays dividends in the years ahead. After the first analysis, only adjustments will be needed on a yearly basis; revisiting the whole process is less often required.

Organisations have numerous resources available to them, including the TCFD's Guidance on Scenario Analysis for Non-Financial Companies (2020), the TCFD's Knowledge Hub, among others (see Chapter 4). For example, the TCFD's guidance on scenario analysis provides a detailed step-by-step guide on how to conduct a scenario analysis and provides a detailed

analysis on available scenarios and models. The same guidance also provides a list of key messages that organisations should understand about scenario analysis. If issuers have not worked on a scenario analysis before, they may wish to use the many resources available through the TCFD.

To conduct a scenario analysis, companies may wish to follow the following (simplified) three stage process:

1. **Identify appropriate scenarios** – Each organisation has the choice of using “out-of-the-box” scenarios or developing their own. In either case, it should choose the scenarios that align with the organisation's underlying assumptions and the key risks and opportunities of its sector or industry. The scenarios used should be clearly explained. It is also important that organisations recognise the importance of consistent and comparable disclosures and therefore existing scenarios will help ensure consistency with scientific data underpinning the exercise. Scenarios aim to evaluate a company's resilience to what ‘may’ happen, therefore, more than one scenario will help identify resilience in the various possible futures.
2. **Set the boundaries of your scenario analysis** – Before analysing the impact of climate-change in the scenarios chosen, organisations may wish to set boundaries to their analysis. This simple process determines how far your analysis will extend. While smaller organisations may feel that an analysis of the direct operations sufficiently covers the climate-related risks and opportunities within each scenario, given that many significant impacts and vulnerabilities are found in the supply chain, it will be beneficial for most larger companies and all financial-sector companies to expand their analysis beyond their headquarters. Boundaries may be set for financial institutions to include their portfolio, and all large organisations should consider including their supply chain and customers.

BOX 3.3: IPCC, IEA AND NGFS SCENARIOS

Intergovernmental Panel on Climate Change (IPCC)

The IPCC has developed a new basis for the construction of comparable scenarios across research and modelling groups – Representative Concentration Pathways (RCPs) and Shared Socioeconomic Pathways (SSPs). RCPs are “emissions scenarios” that include time series of emissions and concentrations of the full suite of greenhouse gases, aerosols, and chemically active gases, as well as land use/land cover. RCPs are used to develop climate projections by informing physical climate system models; these models, in turn, project how the physical climate may change under different levels of radiative forcing driven by greenhouse gas concentrations. SSPs were developed to complement the RCPs with varying socioeconomic challenges to adaptation and mitigation. The combination of SSP-based “socioeconomic scenarios” and RCP-based climate projections provides an integrative framework for climate impact and policy analysis. The following table outlines the RCPs:

Mean Temperature and Full Range Associated with Each RCP

Scenario	Atmospheric carbon dioxide concentrations in 2100	Temperature increase to 2081–2100 relative to a 1850–1900 baseline		Global mean sea level rise for 2081–2100 relative to a 1986–2005 baseline	
		Average	Likely range	Average	Likely range
RCP2.6	421ppm	1.6°C	0.9–2.3°C	0.40m	0.26–0.55m
RCP4.5	538ppm	2.4°C	1.7–3.2°C	0.47m	0.32–0.63m
RCP6.0	670ppm	2.8°C	2.0–3.7°C	0.48m	0.33–0.63m
RCP8.5	936ppm	4.3°C	3.2–5.4°C	0.63m	0.45–0.82m

The SSPs describe five alternative socioeconomic futures over the course of the 21st century assuming no explicit policies to mitigate or adapt to climate change, as follows:

- sustainable development (SSP1);
- middle-of-the-road development (SSP2);
- regional rivalry (SSP3);
- inequality (SSP4); and
- fossil–fuelled development (SSP5).

International Energy Agency (IEA)

In contrast to the IPCC approach, the IEA focuses on energy and emission scenarios. The IEA's World Energy Model runs three main scenarios describing the future energy mix:

- **Current Policies Scenario (CPS):** This scenario considers policies that are in place at the preceding year of publication (i.e., mid-2019 for the 2019 World Energy Outlook), without any additional government policy intervention.
- **Stated Policies Scenario (SPS):** This scenario is designed to explore all policies enacted in the preceding year, plus the policies that have been firmly communicated or committed to by national authorities. The SPS scenario assumes that there is a slow implementation of these policies, based on the IEA's assessment of the many political, institutional, and societal barriers that exist to a rapid transition.
- **Sustainable Development Scenario (SDS):** This scenario assumes the world is successful in achieving Sustainable Development Goals by 2030. The SDS holds the temperature rise to below 1.8°C with a 66% probability without reliance on global net-negative CO₂ emissions.

BOX 3.3: IPCC, IEA AND NGFS SCENARIOS continued



In May 2021, the IEA released a new Net Zero Emissions by 2050 Scenario (NZE) based on detailed modelling of the energy sector. The NZE looks to hold energy-related and industrial process CO₂ emissions to 2030 in line with reductions in 1.5°C scenarios.

The Network for Greening Financial System (NGFS) Scenario

The Network for Greening the Financial System (NGFS), a group of over 80 central banks, including the South African Reserve Bank, focused on addressing climate risks, worked with an academic consortium from the Potsdam Institute, IIASA, University of Maryland, Climate Analytics and the Swiss Federal Institute of Technology (ETHZ). It set out three reference scenarios and five additional scenarios that cover a comprehensive range of transition pathways and climate outcomes, meeting the needs of the financial sector. The scenarios include multiple IAMs (REMIND, GCAM, and MESSAGE), climate models (on the physical risk side) and macro models (added in phase II) to provide more complete macro pathways. NGFS consulted the wider scientific and financial communities to ensure the scenarios are robust, effective, and usable, and will continue to evolve the scenarios, increasing sectoral and geographic granularity of emissions/energy data, and adding more climatic events, regulatory policy indicators, and macro variables.

As central banks and supervisors globally will likely ask the institutions they supervise to use these scenarios, who in turn could make the same request upon their corporate clients, there will likely be a net efficiency to the financial system using these scenarios and working with NGFS to ensure their robustness and usefulness.

Sources: UN SSE, with data from the TCFD Technical Supplement titled “The use of scenario analysis in disclosure of climate-related risks and opportunities” and the NGFS website.

3. Analyse both transitional and physical risks within the scenarios chosen – Once the scenarios are chosen and boundaries are set, the organisation undergoes an exercise of evaluating its physical and transitional risks. This exercise can also be used to identify the opportunities that may appear within the scenario. Mapping the severity and likelihood of the risks enables the organisation to develop a strategic plan for future scenarios.

Scenario selection

When conducting a scenario analysis for the first time, organisations have a plethora of resources to help develop in-house scenarios or to make use of publicly available scenarios. Publicly available scenarios may be used as they are, be adapted, or used to help create an in-house scenario, or combined scenarios. However, it is important to remember that investors require consistent and comparable disclosure.

There are a number of publicly available scenarios which organisations can use to conduct a scenario

analysis or to act as guidance for developing in-house scenarios, such as the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency (IEA) and the Network for Greening Financial System (NGFS) scenarios (see Box 3.3). While the aforementioned scenarios are the most prominent and widely used scenarios in the public domain, other organisations, such as the International Renewable Energy Agency, and the Deep Decarbonization Pathways Project (DDPP) among others, have published their own scenarios, which provide a different narrative and outlook to those listed above. Some of these groups have taken a specific focus, such as using 100% renewable energy, or built a regional specific model that takes a deeper look into the energy mix for specific countries (such as the DDPP). The Prudential Authority is also developing scenarios that should assist users to consider South Africa's particular dynamics.

Organisations should choose science-based scenarios that best align with their own underlying assumptions in managing climate risks and opportunities and should also align with the country's

Nationally Determined Contributions (NDCs) under the Paris Agreement. NDCs are refreshed every five years in accordance with the Paris Agreement. The sum of all countries' NDCs, however, fail to achieve even a 2°C temperature goal, so companies using NDCs as another basis of scenarios should understand both NDC pathways and limitations, as many NDCs are not seen as being aligned with the Paris Agreement commitments.

South Africa formally ratified the Paris Agreement in November 2016. Its NDC was updated in September 2021 with a new target range of 398–510 Mt CO₂ equivalent for 2025 and 350–420 Mt CO₂ equivalent for 2030. This is compared to the target range of 398–614 Mt CO₂ equivalent for 2025 and 2030. Whereas the initial NDC expected emissions to decline from 2035, the updated NDC expects emissions to decline from 2025. Climate Action Tracker rated South Africa's initial NDC as “insufficient”, which means that warming would reach over 2°C and up to 3°C if all countries were to follow this approach. The Climate Action Tracker assessment of the updated NDC is that it is “almost sufficient”, which

means that it could be 1.5°C compatible with moderate improvements.

Simplified approach for first time scenarios

For those companies starting a scenario analysis for the first time, the steps and guidelines available may seem overwhelming and daunting. Choosing existing scenarios, or using aspects of existing scenarios, are often the easiest way to begin a scenario analysis, and after scenarios are chosen the process may become much more clear. As an important aspect of the TCFD recommendations, companies should always choose a simplified scenario over no scenario. In order to simplify the process, companies can ask themselves **what would the implications be for the business if:**

- countries were successful in achieving the goals of the Paris Agreement and there is an orderly transition to a low-carbon economy?
- there is an abrupt and disorderly transition as countries belatedly catch up on climate goals?
- there is a failure to transition?



3.3 Management

Investors and other stakeholders need to understand how an organisation has integrated climate-related issues into the organisation's management processes; such information informs assessments of the organisation's overall risk profile and performance prospects.

Recommended disclosure

An organisation should describe how climate-related impacts, risks and opportunities are identified, assessed, and integrated into the organisation's management processes.

In describing the integration of climate-related issues in the organisation's management processes, the organisation should disclose the following information:

1. The processes in place for identifying, assessing, prioritising, monitoring, and managing climate-related impacts, risks and opportunities including:
 - (a) how it assesses the likelihood and effects associated with its identified climate-related impacts, risks and opportunities (such as the qualitative factors, quantitative thresholds and other criteria used);
 - (b) how it prioritises climate-related risks and opportunities relative to other types of risks and opportunities;
 - (c) the input parameters it uses (for example, data sources, the scope of operations covered, and the detail used in assumptions);
 - (d) whether it has changed the processes used compared to the prior reporting period.
2. How these various processes are integrated into the organisation's existing impact, risk and opportunity management systems.
3. The steps taken to access a diversity of perspectives (both internal and external to the organisation) in identifying and organisation climate-related impacts, risks, and opportunities.



3.4 Metrics and targets

Investors and other stakeholders need to understand how an organisation measures and monitors its climate strategy, performance, and impacts. Access to the metrics and targets used by an organisation allows investors and other stakeholders to better assess the organisation's exposure to climate-related issues, and its progress in managing those issues and its impacts, as well as providing a basis to compare organisations within a sector or industry.

Recommended disclosure

An organisation should describe the performance metrics and targets used by the organisation to measure, monitor, and manage its sustainability impacts, risks and opportunities, and its performance against these metrics and targets.

In describing how the organisation assesses its climate-related performance, including progress towards the targets it has set, the organisation should disclose the following information, including for historical periods, where relevant, to allow for trend analysis:

1. Absolute gross greenhouse gas emissions expressed as metric tonnes of CO₂ equivalent and measured in accordance with the Greenhouse Gas Protocol for:
 - (a) Scope 1 emissions;
 - (b) Scope 2 emissions.

Scope 1 and Scope 2 emissions should be disclosed separately for (i) the consolidated accounting group (the parent and its subsidiaries) and (ii) associates, joint ventures, unconsolidated subsidiaries or affiliates not included in (i).

The approach used (e.g. the Greenhouse Gas Protocol's equity share or operational control) should be included.

2. Absolute gross greenhouse gas emissions expressed as metric tonnes of CO₂ equivalent and measured in accordance with the Greenhouse Gas Protocol for Scope 3 emissions including:
 - (a) a breakdown of GHG emissions according to relevant upstream and downstream categories;
 - (b) the basis for measurement used by entities providing information within the organisation's value chain;
 - (c) reasons for omitting any particular Scope 3 emissions in the value chain.
3. Greenhouse gas emissions intensity for Scope 1, 2 and 3, expressed as metric tonnes of CO₂ equivalent per unit of physical or economic output.
4. The amount and percentage of assets or business activities vulnerable to transition risks.
5. The amount and percentage of assets or business activities vulnerable to physical risks.
6. The amount and percentage of assets or business activities aligned with climate-related opportunities.
7. The amount of capital expenditure, financing or investment deployed towards climate-related risks and opportunities.
8. The internal price of carbon per metric tonne of greenhouse gas emissions that the entity uses to assess the costs of its emissions and an explanation of how this is applied in strategy implementation and decision-making.
9. Disclosure on how climate-related considerations are factored into executive remuneration policies including:
 - (a) the percentage of executive management remuneration recognised in the current period that is linked to climate-related considerations, and the split between long-term and short-term incentives;
 - (b) the rationale for the chosen metrics, noting how these metrics are tied to the organisation's business drivers;
 - (c) whether executive remuneration is aligned to the organisation's transition plan.

BOX 3.4: SETTING SCIENCE-BASED TARGETS

The Science Based Targets initiative (SBTi) is a collaboration between CDP, the United Nations Global Compact (UNGC), World Resources Institute (WRI), and the World Wide Fund for Nature (WWF) and one of the We Mean Business Coalition commitments. Central to SBTi's mission is ensuring that companies have the tools they need to set targets in line with climate science, recognising that the science itself is nuanced and dynamic. Due to the complexity of the science, the SBTi plays an important role by conducting in-depth research and analysis, as well as consulting with scientists and sustainability professionals, in order to develop science-based targets (SBT) and setting methods that are transparent, robust, and actionable.

Methods endorsed by the SBTi are instructive frameworks that may be used by companies to set emissions reduction targets consistent with the best available climate science. These methods are constructed from three main elements: a greenhouse gas budget, a set of emission scenarios, and an allocation approach. The SBTi's procedure for developing a method begins with determining a representative set of emissions scenarios that are considered plausible, responsible, objective, and consistent and that are aligned with specific temperature goals (1.5°C - 2°C of global warming). In general, SBTi scenarios must not exceed the GHG budget associated with the temperature goal prior to reaching global net zero emissions, in addition to meeting other criteria. An allocation approach is used to translate the resulting global or sector-specific emissions pathway into practical requirements that align company emissions with the pathway.

The SBTi has also developed methodologies to support net zero targets. In 2019 SBTi launched a process to develop the first science-based global standard for corporate net zero targets, to ensure that companies' net zero targets translate into action that is consistent with achieving a net zero world by no later than 2050. In July 2021, in response to the increasing urgency for climate action, SBTi launched a new strategy that increased the minimum target ambition from "well below 2°C" to "1.5°C" above pre-industrial levels.

Source: SSE initiative, with data from the Science-Based Targets initiative website – www.sciencebasedtargets.org

Key issue: Setting targets

Many countries have started to explore the pathways towards achieving net zero emissions before 2050, which according to the scientific community, is needed to keep global average temperature increases below 1.5°C. South Africa's Low-Emission Development Strategy, which was released in February 2020, initiated the country's path to "ultimately moving towards a goal of net zero carbon emissions by 2050." Work is now underway under the auspices of the Presidential Climate Commission to realise this vision.

Recognising the importance of keeping global warming to 1.5°C, companies are themselves increasingly adopting net zero climate targets. Achieving net zero emissions means reducing value-chain emissions in line with 1.5°C pathways and neutralising any residual emissions that cannot be eliminated.

To achieve climate-resilient markets and net zero emissions, issuers will need to set both attainable and impact-driven targets that are based on widely understood and accepted definitions and linked to climate-science. Time-bound short-, medium-, and long-term targets should be defined and progress towards reaching these targets should be reported. To ensure that targets align with climate-science, resources such as the Science Based Targets initiative (SBTi - see Box 3.4) can be consulted or used to validate the process.

The TCFD recommends that organisations describe their climate-related targets such as those related to GHG emissions, water usage, energy usage, etc. in line with the anticipated regulatory requirements or market constraints. Organisations should also align their climate-related targets with other goals such as efficiency or financial goals, financial loss tolerance, avoidance of GHG emissions through the entire product life cycle, or net revenue goals for products and services designed for a lower-carbon economy.

It is important that common definitions are used when setting climate-related targets. First and foremost, issuers should always refer to the relevant law and guidance provided by their regulatory authority, using this guidance as a supplement to legal requirements. Investors are interested in consistency across companies as well as within companies over time. Trend lines, or proof of progress are more useful than static targets or long-off objectives. Therefore, companies should endeavour to show how they have progressed over time on the climate-related targets chosen. Whether providing historical data to show this trendline or setting up new programmes to collect this data, it is important to set targets that can be measured progressively and that allow performance

to be monitored. When targets are changed or abandoned, this should be explained.

It also recommended that, where relevant, the internal carbon price that is used to measure impact and set targets be disclosed. The draft IFRS S2 Climate-related Disclosures considers two types of internal carbon prices. A shadow price, which is not charged, is a theoretical cost that an organisation may use to assess the economic implications or trade-offs when assessing risk impacts, investment prospects, net present value of projects and cost-benefit scenarios. An internal tax or fee is a carbon price based on GHG emissions charged to particular business activities, products or business unit. While some JSE-listed companies use the carbon tax to determine an internal carbon price, the current tax rate is significantly below the level estimated to be required in order to achieve the goals of the Paris Agreement. The High-Level Commission on Carbon Prices estimated that an internal carbon price of between US\$50 and US\$100 per metric ton by 2030 would be required to be Paris-aligned, which is considerably higher than even the progressive carbon tax increases to 2030 announced in South Africa's February 2022 budget.

International guidance frameworks, such as the ISSB and TCFD, and global data vendors recommend providing the following details when describing targets:

1. Definition of target, and if an emissions reduction target is set, which Scopes (1,2 and 3) are covered.
2. Whether these are absolute and intensity-based targets. For the intensity-based targets, include the details of the denominator used and its associated changes over the equivalent time.
3. The objective of the target.
4. How the target compares with those established by the latest international agreement on climate change.
5. Time frames over which the target applies.
6. Base year from which progress is measured.
7. Whether there has or will be use of offsets in achieving the target, with associated details.
8. Details regarding how and why the specific target/s were determined.
9. Key performance indicators, including milestones or interim targets, used to assess progress against target.

As noted in the Recommended Disclosures, linking these targets to remuneration is an important consideration. The King IV Guidance Paper also proposes that remuneration should be linked to the performance of sustainability and ESG targets, including those relating to climate change.

10. Disclosure on stakeholder engagement with workers and communities on transition plans and subsequent responses including:
 - (a) how many engagements have been undertaken with affected parties by group and geography;
 - (b) how many workers in the past year have been retrained/retrained/compensated due to their decarbonisation plans.
11. Disclosure of climate-related lobbying activities and membership of all relevant industry associations and groups involved in climate-related lobbying including information on the nature of the climate-policy positions of each association and group; their alignment with the objectives of the Paris Agreement; and the criteria and procedure for determining alignment.
12. The specific targets used manage climate-related impacts, risks and opportunities and the metrics used by the board or management to measure progress against these targets and achieving the organisation's strategic goals including:
 - a) whether the target is absolute or intensity based;
 - (b) the objective of the target;
 - (c) how the target compares with those created in the latest international agreement on climate change;
 - (d) time frames over which the target applies;
 - (e) base year from which progress is measured;
 - (f) a description of the methodologies used to calculate targets and metrics;
 - (g) any milestones or interim targets;
 - (h) whether the target has been validated by a third party.

04

Education and resources



This guidance acts as a starting point for all issuers to evaluate and update their current disclosure practices to ensure their resilience to climate-related issues. It is essential, however, that issuers aim to improve upon and update knowledge on this topic on an ongoing basis.

As both the science behind climate-related issues as well as the reporting requirements evolve and grow, organisations should ensure they are working with the most up-to-date information. A range of resources are available, from financial service providers, NGOs, UN agencies, and local and international organisations to help those companies that wish to delve deeper or access specific resources on a particular issues.

Table 4.1 Additional resources for implementation

Related section of this Guidance	Author	Title
1.1 – Key trends	International Energy Agency (IEA)	Energy Technology Perspectives
2.1 – Differential reporting	A4S (Accounting for Sustainability)	TCFD Top Tips for Finance Teams
	A4S (Accounting for Sustainability)	Maturity Map for TCFD
2.2 – Assessment of material climate-related impacts, risks and opportunities	CDSB	Materiality and TCFD
	SASB	Materiality Map
	Integrated Reporting <IR>	Materiality background paper for <IR>
2.2 – Climate risks and opportunities	International Energy Agency (IEA)	ETP Clean Energy Technology Guide
	FTSE Russell (LSEG)	Sustainable Bond Market at a Glance
	Climate Bonds Initiative (CBI)	Guidance and Data on the Green Bond Market Globally
	FTSE Russell (LSEG)	Case Study: Smart Beta meets Smart Sustainability
	TCFD	TCFD Guidance on Risk Management Integration and Disclosure
	SASB & CDSB	Climate Risk: from Principles to Practice
	S&P Trucost	Interplay of Transition and Physical Risk Report
	National Treasury	South African Green Finance Taxonomy
	European Commission	EU taxonomy for sustainable activities
2.3 – Climate impacts	CDP	Climate Transition Plans
	TCFD	Guidance on Metrics, Targets, and Transition Plans
2.4 – Carbon reporting	The Greenhouse Gas Protocol	A Corporate Accounting and Reporting Standard (revised edition)
	SASB	SASB Implementation Supplement – Greenhouse Gas Emissions and SASB Standards

Related section of this Guidance	Author	Title
2.5 – Frameworks for disclosure	Corporate Reporting Dialogue	Driving Alignment in Climate-related Reporting
	CDSB, TCFD Knowledge Hub	Alignment with Other Frameworks
	CDP	CDP Technical Note on the TCFD
	European Commission	Guidelines on Reporting Climate-related Information
	IFRS	Climate-related Disclosures Prototype
2.6 – Data verification and assurance	Chartered Accountants in England and Wales (ICAEW) and the WBCSD	A Buyer’s Guide to Assurance on Non-financial Information
	CDSB	CDSB Position Paper: Positions on Relevance and Materiality, Organisational Boundaries and Assurance
3.1 – Governance	CDSB	Webinar: Directors Duties and Liabilities around Climate Risk
	King IV	Guidance Paper: Responsibilities of Governing Bodies in Responding to Climate Change
3.2 – Scenario analysis	TCFD	Scenario Analysis and Climate-Related Issues
	TCFD	TCFD Guidance on Scenario Analysis for Non-Financial Companies
	C2ES	Using Scenarios to Assess and Report Climate-Related Financial Risk
	UNFCCC	NDC Registry
	IPCC	IPCC Emission Scenarios
	International Energy Agency (IEA)	IEA Scenarios
	International Renewable Energy Agency (IRENA)	IRENA Scenarios
	International Institute for Applied Systems Analysis (IIASA)	Shared Socioeconomic Pathways (SSP) Database
3.4 – Setting Targets	Science Based Targets initiative (SBTi)	Sector Guidance
	International Energy Agency (IEA)	Achieving Net-zero Emissions by 2050 - World Energy Outlook 2020
	TCFD	Guidance on Metrics, Targets, and Transition Plans
	Science Based Targets initiative (SBTi)	Sector Guidance
	International Energy Agency (IEA)	Achieving Net-zero Emissions by 2050 - World Energy Outlook 2020
	Transition Pathway Initiative (TPI)	The TPI Tool
	Portfolio Alignment Team	Measuring Portfolio Alignment Assessing the Position of Companies and Portfolios on the Path to Net Zero

Related section of this Guidance	Author	Title
All	TCFD Hub	Case Studies on How Organisations are using the TCFD Recommendations
	Bloomberg	A guide to the Task Force on climate-related disclosures
	CDSB and SASB	TCFD Good Practice Handbook
	CDSB and SASB	TCFD Implementation Guide
	CPA Canada	Enhancing Climate-related Disclosure by Cities: A Guide to Adopting the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)
	TCFD	Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (2021)
	A4S (Accounting for Sustainability)	Numerous Case Studies on Applying TCFD
	South Africa Climate Risk Steering Group	South Africa Sustainable Finance Initiative
	Trade and Industrial Policy Strategies	Just Transition Knowledge Portal
	Presidential Climate Commission	Just Transition Framework
	Department of Environmental Affairs	Climate Change Information Portal
	National Business Initiative	Climate Pathways and a Just Transition for South Africa

Annex 1: Alignment of recommended disclosures with other frameworks

GOVERNANCE RECOMMENDED DISCLOSURES		
Describe the board’s oversight of climate-related impacts, risks and opportunities.	EU NFRD	3.2 (Table 2)
	G20/OECD Principles of Corporate Governance	5.a.4, 5.a.9, 6.a, 6.d.1, 6.d.2, 6.d.3, 6.d.4, 6.d.7, 6.e.2, 6.f
	CDP Climate Change Questionnaire 2021	C1.1b
	GRI 102: General Disclosures	102-18, 102-19, 102-20, 102-26, 102-27, 102-29, 102-31, 102-32
	CDSB Climate Change Reporting Framework	4.16, 4.17
	CDSB Framework for Reporting Environmental Information and Natural Capital	REQ-03
	International Integrated Reporting Framework	3.4, 3.41, 4.8, 4.9
	Task Force on Climate related Financial Disclosures 2021	1a
	Exposure Draft IFRS S2 Climate-related Disclosures	4a-f
Describe the process for integrating climate issues into the overall governance approach.	EU NFRD	3.2 (Table 2)
	GRI 102: General Disclosures	102-29, 102-31, 102-32
	CDP Climate Change Questionnaire 2021	C1.2, C1.2a
	CDSB Climate Change Reporting Framework	2.8, 2.9, 4.12, 4.13, 4.16, 4.17
	CDSB Framework for Reporting Environmental Information and Natural Capital	REQ-01, REQ-03
	Task Force on Climate related Financial Disclosures 2021	1b
	Exposure Draft IFRS S2 Climate-related Disclosures	4(g)

STRATEGY RECOMMENDED DISCLOSURES		
Describe how an assessment of climate-related impacts, risks and opportunities has influenced the organisation's strategy.	EU NFRD	3.4 (Table 4)
	G20/OECD Principles of Corporate Governance	5.a.7, 5.a.8
	CDP Climate Change Questionnaire 2021	C2.1a, C2.3, C2.4, C2.4a
	CDSB Climate Change Reporting Framework	4.6, 4.9, 4.10, 4.11, 4.14
	CDSB Framework for Reporting Environmental Information & Natural Capital	REQ-02, REQ-06
	GRI 102: General Disclosures	102-15
	International Integrated Reporting Framework	3.5, 3.17, 4.6, 4.7, 4.23, 4.24, 4.25, 4.26
	Task Force on Climate related Financial Disclosures 2021	2a
	Exposure Draft IFRS S2 Climate-related Disclosures	8, 9
Describe the impact this has had on the organisation's overall performance, both positive and negative.	EU NFRD	3.1 (Table 1)
	G20/OECD Principles of Corporate Governance	5.a.2, 5.a.7, 5.a.8
	CDP Climate Change Questionnaire 2021	C2.3a, C2.4a, C3.1, C3.2a, C3.3, C3.4, C3.4a, C-FS3.7, C-FS3.7a,
	GRI 201: Economic Performance	201-2
	CDSB Climate Change Reporting Framework	2.8, 2.9, 2.10, 4.6, 4.7, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14
	CDSB Framework for Reporting Environmental Information and Natural Capital	REQ-01, REQ-02, REQ-06
	International Integrated Reporting Framework	3.3, 3.5, 3.39, 4.12, 4.23, 4.28, 4.29, 4.34, 4.35, 4.37
	Task Force on Climate related Financial Disclosures 2021	2b
	Exposure Draft IFRS S2 Climate-related Disclosures	13, 14
Describe the nature, extent, and outcomes of any analysis, including scenario analysis, undertaken to test the resilience of the organisation.	EU NFRD	3.1 (Table 1)
	CDP Climate Change Questionnaire 2021	C3.2, C3.2a
	CDSB Climate Change Reporting Framework	4.7
	Task Force on Climate related Financial Disclosures 2021	2c
	Exposure Draft IFRS S2 Climate-related Disclosures	15

MANAGEMENT RECOMMENDED DISCLOSURES		
Describe how climate-related impacts, risks and opportunities are identified, assessed and integrated into the organisation's management processes.	EU NFRD	3.4 (Table 4)
	G20/OECD Principles of Corporate Governance	5.a.2, 5.a.7, 6.d.1, 6.f
	CDP Climate Change Questionnaire 2021	C2.1, C2.2, C2.2a, CFS2.2b, C-FS2.2c, C-FS2.2f
	GRI 201: Economic Performance	201-2
	CDSB Climate Change Reporting Framework	4.6, 4.7, 4.8, 4.9, 4.11, 4.12, 4.13, 4.16, 4.17
	CDSB Framework for Reporting Environmental Information and Natural Capital	REQ-01, REQ-02, REQ-03, REQ-06
	International Integrated Reporting Framework	2.7, 2.8, 2.9, 4.23, 4.24, 4.25, 4.26, 4.40, 4.41, 4.42
	Task Force on Climate related Financial Disclosures 2021	3a-c
	Exposure Draft IFRS S2 Climate-related Disclosures	11c-f, 17a-b

METRICS AND TARGETS RECOMMENDED DISCLOSURES		
Disclose information about how an entity measures, monitors and manages its significant climate-related risks and opportunities to allow users to understand how the organisation assesses its performance, including progress towards the targets it has set.	EU NFRD	3.3 (Table 3), 3.5
	G20/OECD Principles Of Corporate Governance	6.d.1, 6.d.7
	CDP Climate Change Questionnaire 2021	C1.3, C4.1, C4.1a, C4.1b, C4.1c, C4.2, C4.2a, C4.2b, C4.5, C5.1, C6.1, C6.3, C6.5, C7.1, C7.9, C9.1, C-FS14.1, C-FS14.1a, C-FS14.1b, C-FS14.1c
	GRI 102: General Disclosures	102-29, 102-30
	CDSB Climate Change Reporting Framework	2.36, 2.37, 2.38, 4.12, 4.13, 4.14, 4.15, 4.19.1, 4.19.2, 4.29, 4.30, 4.31, 4.32, 4.33
	CDSB Framework for Reporting Environmental Information and Natural Capital	REQ-01, REQ-04, REQ-05, REQ-06
	International Integrated Reporting Framework	3.52, 3.53, 4.30, 4.31, 4.32, 4.38, 4.53, 4.60, 4.61, 4.62
	Task Force on Climate related Financial Disclosures 2021	4a-b
	Exposure Draft IFRS S2 Climate-related Disclosures	20, 21, 22, 23

Source: Compiled from SSE initiative, TCFD Hub, CDP, IFRS and the European Commission

Annex 2: Recent studies on potential aggregated financial impacts of climate change

Year of report	Report title and author	Estimated impact found
2007	Stern Review, The Economics of Climate Change (Cambridge University Press)	- Equivalent to losing at least 5% of global GDP in perpetuity - With a wider range of risks and impacts, estimates of damage could rise to 20% of GDP or more
2014	The Economic Risks of Climate Change in the United States (Risky Business)	- US\$238bn - US\$507bn worth of U.S. coastal property below sea level by 2100 - Average annual losses from hurricanes and other coastal storms along the Eastern Seaboard and the Gulf of Mexico will rise by US\$42bn to US\$108bn
2015	Global non-linear effect of temperature on economic production (Nature)	Unmitigated warming is expected to reduce global incomes by ~23% by 2100
2015	The cost of inaction: Recognising the value at risk from climate change (The Economist Intelligence Unit)	Average expected loss to the total global stock of manageable assets of US\$143tr is expected to be US\$4.2tr by 2100 (present value)
2015	The Economic Consequences of Climate Change (OECD)	1.0 – 3.3% reduction in global annual GDP by 2060 2.0 – 10% reduction in global GDP by 2100
2016	‘Climate value at risk’ of global financial assets (Nature Climate Change)	Mean estimate of present value at risk from climate change, 2015 – 2100, is 1.77% of the value of global assets, and possibly as much as 16.86%
2018	Temperature and Growth: A Panel Analysis of the United States (Federal Reserve Bank of Richmond)	Rising temperatures could reduce U.S. economic growth by up to one-third over the next century
2021	Dasgupta Review of the Economics of Biodiversity (HM Treasury)	Estimates suggest 1.6 Earths would be required to maintain the world’s current living standards

Source: Adapted from Impax Asset Management’s report titled “Physical Climate Risks Designing a resilient response to the inevitable impact of climate change, 2020 ” with additional examples added by the SSE initiative

Annex 3: Glossary

Absolute target	A target defined by a change in absolute emissions over time, for example, reducing CO ₂ emissions by 25% below 1994 levels by 2010.
Carbon offset	An emissions unit issued by a carbon crediting programme that represents an emission reduction or removal of a greenhouse gas emission . Carbon offsets are uniquely serialised, issued, tracked and cancelled by means of an electronic registry.
Climate resilience	The capacity of an organisation to adjust to uncertainty related to climate change. This involves the capacity to manage climate-related risks and benefits from climate-related opportunities , including the ability to respond and adapt to transition risks and physical risks .
Climate-related scenario analysis	Scenario analysis is a process for identifying and assessing a potential range of outcomes of future events under conditions of uncertainty. In the case of climate change, climate-related scenario analysis allows an organisation to explore and develop an understanding of how the physical risks and transition risks of climate change may affect its businesses, strategies and financial performance over time.
Climate-related impacts	Climate-related impacts refer to the potential negative effects of climate change on the wider environment and society. These impacts may include the potential effects on ecosystems and biodiversity, water resources, agriculture and food security, human health, and migration.
Climate-related risks and opportunities	Climate-related risks refer to the potential negative effects of climate change on an organisation. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events (for example, cyclones, droughts, floods and fires). They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (which could result in, for example, sea-level rise). Climate-related risks can also be associated with the transition to a lower-carbon global economy, the most common of which relate to policy and legal actions, changes in technology, market responses and reputational considerations. Climate-related opportunities refer to the potentially positive climate-change generated outcomes for an organisation. Global efforts to mitigate and adapt to climate change can produce climate-related opportunities for entities. For example, a power generating company could increase its revenue due to a growing demand for cooling (achieved by using electricity) in regions that experience more heatwaves. Climate-related opportunities will vary depending on the region, market and industry in which an organisation operates. Climate-related risks and opportunities include climate-related risks and climate-related opportunities as previously described.
CO ₂ equivalent	The universal unit of measurement to show the global warming potential of each of the seven greenhouse gases , expressed in terms of the global warming potential of one unit of carbon dioxide for 100 years. This unit is used to evaluate releasing (or avoiding releasing) any greenhouse gas against a common basis.
Enterprise value	The total value of an organisation. It is the sum of the value of the organisation’s equity (market capitalisation) and the value of the organisation’s net debt.
ESG	Environmental, Social and Governance (ESG) factors are material issues that can be considered in the investment decision-making process.

Financial materiality	Defining why and how certain issues are important for an organisation by whether they have actual or potential significant impacts on the reporting organisation's future cash flows – and thus the 'enterprise value' – of the organisation in the short-, medium- or long-term.
Greenhouse gases (GHG)	The seven greenhouse gases listed in the Kyoto Protocol—carbon dioxide (CO ₂); methane (CH ₄); nitrous oxide (N ₂ O); hydrofluorocarbons (HFCs); nitrogen trifluoride (NF ₃); perfluorocarbons (PFCs); and sulphur hexafluoride (SF ₆).
GHG Protocol	A widely used greenhouse gas accounting standard.
Impact materiality	Defining why and how certain issues are important for an organisation by whether they have actual or potential significant impacts on people, the environment and the economy over the short-, medium-, or long-term.
Intensity target	A target defined by a change in the ratio of emissions to a business metric over time, for example, reduce CO ₂ per tonne of cement by 12% by 2008.
Internal carbon price	Price used by organisations to assess the financial implications of changes to investment, production and consumption patterns, as well as potential technological progress and future emissions-abatement costs. Internal carbon prices can be used for a range of business applications.
IFRS	International Financial Reporting Standards Foundation: "established to develop a single set of high-quality, understandable, enforceable and globally accepted accounting and sustainability disclosure standards—IFRS Standards—and to promote and facilitate adoption of the standards".
ISSB	International Sustainability Standards Board: Established by the IFRS Foundation, with the aim of developing and maintaining a global set of sustainability-related reporting standards.
King IV	The King IV Report on Corporate Governance for South Africa, 2016 set out the "philosophy, principles, practices and outcomes which serve as the benchmark for corporate governance in South Africa".
Latest international agreement on climate change	The latest international agreement on climate change is an agreement by states, as members of the United Nations Framework Convention on Climate Change to combat climate change. The agreements set norms and targets for a reduction in greenhouse gases.
Net Zero	Net zero is a state of balance where greenhouse gas emissions are reduced to as close to zero as possible, while any remaining emissions are re-absorbed from the atmosphere.
NFRD	Non-Financial Reporting Directive: EU law requiring certain large companies to disclose information on the way they operate and manage social and environmental challenges.
Paris Agreement	A legally binding international treaty, which entered into force on 4 November 2016, that sets long-term goals to guide all nations to substantially reduction GHG emissions to limit the global temperature increase this century to 2°C while pursuing efforts to limit the increase to 1°C.
Physical risks	Risks resulting from climate change that can be event-driven (acute) or from longer-term shifts (chronic) in climate patterns. These risks may carry financial implications for entities, such as direct damage to assets, and indirect effects of supply-chain disruption. Entities' financial performance may also be affected by changes in water availability, sourcing and quality; and extreme temperature changes affecting entities' premises, operations, supply chain, transportation needs and employee safety.
Science-based target	Science-based targets are aligned with the latest climate science in terms of what is required to meet the Paris Agreement's goal of limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C.

Scope 1 emissions	Direct greenhouse gas emissions that occur from sources that are owned or controlled by an organisation, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles or emissions from chemical production in owned or controlled process equipment.
Scope 2 emissions	Indirect greenhouse gas emissions that occur from the generation of purchased electricity, heat or steam consumed by an organisation. Purchased electricity is defined as electricity that is purchased or otherwise brought into an organisation's boundary. Scope 2 emissions physically occur at the facility where electricity is generated.
Scope 3 emissions	Indirect emissions outside of Scope 2 emissions that occur in the value chain of the reporting organisation, including both upstream and downstream emissions, as a consequence of the activities of the organisation. Scope 3 emissions include purchased goods and services; capital goods; fuel- and energy-related activities not included in Scope 1 emissions or Scope 2 emissions; upstream transportation and distribution; waste generated in operations; business travel; employee commuting; upstream leased assets; downstream transportation and distribution; processing of sold products; use of sold products; end-of-life treatment of sold products; downstream leased assets; franchises; and investments.
TCFD	Task Force on Climate-related Financial Disclosures: established by the Financial Stability Board in 2015 to develop recommendations for more effective climate-related disclosures to support informed capital allocation.
Transition plan	An aspect of an organisation's overall strategy that lays out the organisation's targets and actions for its transition towards a lower carbon economy, including actions such as reducing its greenhouse gas emissions.
Transition risks	Moving to a lower-carbon economy may entail extensive policy, legal, technology and market changes to address mitigation and adaptation requirements relating to climate change. Depending on the nature, speed and focus of these changes, transition risks may pose varying levels of financial and reputational risk to entities.
Value chain	The full range of activities, resources and relationships related to a reporting organisation's business model and the external environment in which it operates. A value chain encompasses the activities, resources and relationships an organisation uses and relies on to create its products or services from conception to delivery, consumption and end- of-life. Relevant activities, resources and relationships include those in the organisation's operations, such as human resource; those along its supply, marketing and distribution channels, such as materials and service sourcing and product and service sale and delivery; and the financing, geographical, geopolitical and regulatory environments in which the organisation operates.

Source: adapted from IFRS, Exposure Draft ED/2022/S2 Climate-related Disclosures, 2022.

Annex 4:

Acknowledgements

Project team

Sustainability Officer at the JSE, with financial support provided by the IFC, a member of the World Bank Group, in partnership with the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection (BMUV).

The Disclosure Guidance documents were drafted by a multi-disciplinary team led by Incite, a Cape Town based consultancy that works across emerging markets (www.incite.co.za). The lead authors were Jonathon Hanks (Incite), Mike Davies (Kigoda), Nicola Robins (Incite) and Phil Barttram (Philbar Consulting). Technical review was provided by the IFC team: Ralitza Germanova, Louise Gardiner, and Malango Mughogho.

External stakeholder input

Valuable input was provided to a first public draft of the guidance document from a range of stakeholder groups, including reporting companies, investors, civil society bodies, regulatory agencies, business sector organisations, consultants, international standards bodies, and academics. In addition to formal written submissions and a response to an online feedback form, feedback was received through various individual engagements with thought leaders, investors, and representative stakeholder bodies, as well as a series of online webinars with listed companies, investors, government, NGOs, and consultants.

JSE Sustainability Advisory Committee

In addition to the above engagement process, valuable guidance was received from the JSE Sustainability Advisory Committee established specifically for this project. The committee members included:

- **Dr. Achieng Ojwang** UN Global Compact SA Network Director
- **Andre Visser** JSE Issuer Regulation Director
- **Anne-Marie D'Alton** BATSETA Council of Retirement Funds for South Africa CEO
- **Ansie Ramalho** King Committee Chair
- **Itumeleng Monale** JSE Chief Operating Officer
- **Joanne Yawitch** National Business Initiative CEO
- **Jolly Mokorosi** Trustee and pension fund specialist
- **Karin Ireton** National Treasury's Climate Risk Forum Disclosure Working Group
- **Mark Randall** JSE Information Services Director
- **Nilesh Moodley** Government Employees Pension Fund (GEPF) Responsible Investment
- **Olano Makhubela** Financial Sector Conduct Authority, Divisional Executive: Retirement Funds Supervision
- **Ralitza Germanova** International Finance Corporation (IFC) Disclosure and Transparency Program Lead
- **Rubeena Solomon** Public Investment Corporation (PIC) Head of ESG
- **Sarah McPhail** National Treasury Director: Financial Sector Policy
- **Sunette Mulder** Association for Savings and Investment South Africa (ASISA) Senior Policy Advisor
- **Tracey Davies** Just Share Executive Director
- **Vukile Davidson** National Treasury, Chief Director for Financial Stability
- **Willem Fourie** University of Pretoria: Albert Luthuli Leadership Institute (SA SDG Hub)

Support team members included: Shreelin Naicker and Takalani Lukhaimane of the Financial Sector Conduct Authority (FSCA).

The JSE would like to acknowledge the early contribution of Rajith Sebastian, Director, Impact Investing, at the Wharton Social Impact Initiative based at Wharton School, University of Pennsylvania.

The JSE extends its appreciation to all the respondents and participants for their contribution to these Guidance Documents.



For additional information contact:

The JSE Group
+27 11 520 7000
Sustainability@jse.co.za
www.jse.co.za



DISCLAIMER: This document is intended to provide general information regarding the JSE Limited and its affiliates and subsidiaries ("JSE") and its products and services, and is not intended to, nor does it, constitute investment or other professional advice. It is prudent to consult professional advisers before making any investment decision or taking any action which might affect your personal finances or business. The JSE does not, whether expressly, tacitly or implicitly, represent, warrant or in any way guarantee the accuracy or reliability of any advice, opinion, statement, or other data and information contained in, displayed on, linked to or distributed through this document. All information as set out in this document is provided for information purposes only and no responsibility or liability of any kind or nature, howsoever arising (including in negligence), will be accepted by the JSE, its officers, employees and agents for any errors contained in, or for any loss arising from use of, or reliance on this document. Except as is otherwise indicated, the JSE is the owner of the copyright in all the information featured in this document and of all related intellectual property rights, including but not limited to all trademarks. No part of this document may be copied, reproduced, amended or transmitted in any way without the prior written consent of the JSE. ©2021 Ts and Cs apply.

This report is informed by the South African legislative landscape and relevant international standards and frameworks as available by the cut-off date of the publication (1 December 2021). As the sustainability reporting standards and legal framework develop over time, the contents of these Guidelines may be updated in the future. This publication has been produced by the JSE with the assistance of the International Finance Corporation (IFC). The contents of this document do not necessarily reflect the views of the IFC. While every effort is taken to avoid errors, the JSE and IFC cannot accept responsibility for the accuracy of any statement or information contained within the report, nor for any decision made on the basis of any statement or information included herein.