Unveiling Climate-related Disclosures in Singapore:

Getting ready for the ISSB Standards

July 2024

ACRA
Accounting And Corporate Regulatory Authority

NUS National University of Singapore | Sustainable and Green Finance Institute

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1. Executive Summary

Executive Summary

Reaching a Critical Crossroad for Climate Investments

Southeast Asia stands at a critical juncture. It contributes 55%[1] of global emissions from land use change and forestry. While 9[2] of 10 ASEAN member states have set ambitious net zero targets by 2050, only $46 billion[1] of the required $1.5 trillion[1] by 2030 has been invested. This highlights a significant gap between the set goals and the current progress.

….. if investment were to continue at the current pace, ***net zero would come with a nearly 20-year delay,*** *in 2069." (Reuters, 2022)[3]*

Climate Reporting Can Be a Game-Changer

By providing transparent and comprehensive climate-related information, jurisdictions can attract the crucial investments needed to bridge the gap and secure a sustainable future.

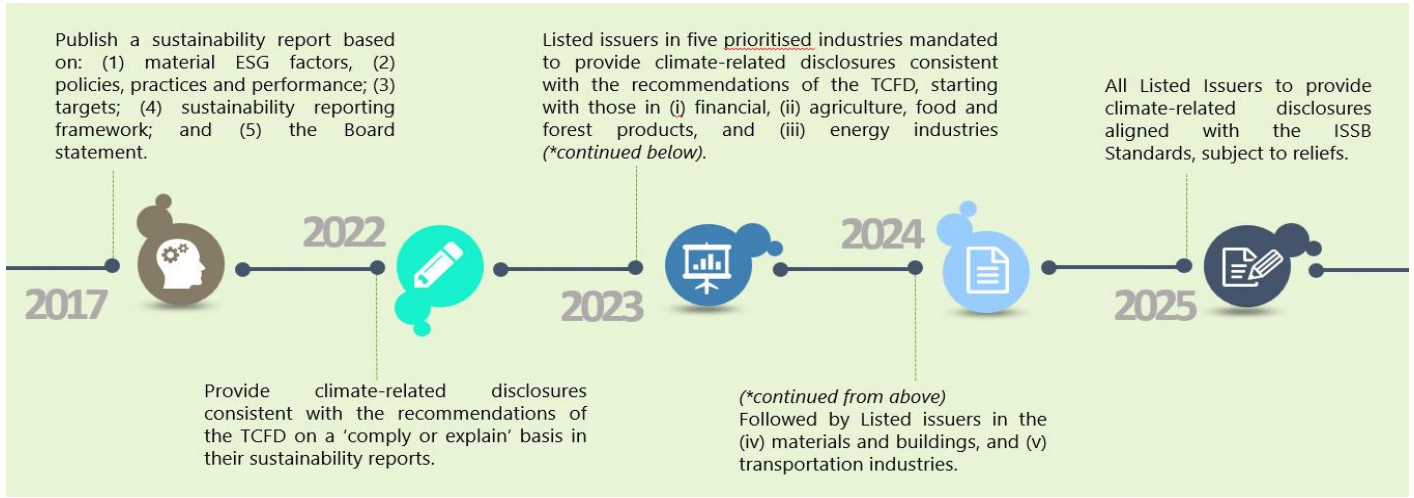
Investors, lenders, insurance underwriters, and other stakeholders in the financial markets rely on globally comparable and relevant information to make informed decisions. Climate reporting enables them to allocate capital towards the most impactful sustainable projects in our region.

Empowering Singapore Companies to Ride the Green Transition

As the saying goes, 'What gets measured gets managed." By preparing sustainability reports, companies can identify areas for improvement and make informed decisions about sustainability practices.

Since 2017, SGX RegCo has been progressively expanding the scope of its climate reporting requirements on listed issuers. Starting from FY2023, listed issuers in three sectors are required to disclose climate reporting using the Task Force on Climate-related Financial Disclosures (TCFD) framework. Subsequently, from FY2024, this requirement was broadened to listed issuers in two additional sectors. These five sectors were identified by the TCFD as being most affected by climate change and the transition to a lower-carbon economy.

Figure 1. Climate Reporting Developments for Listed Issuers in Singapore



[1] Bain & Company, GenZero, Standard Chartered and Temasek: Southeast Asia's Green Economy 2024 – Moving the needle, April 2024.

[2] World Economic Forum: ASEAN Leaders for Just Energy Transition, January 2024.

[3] Reuters: Investments of $270 trillion needed to meet net-zero targets by 2050, study shows, October 2022.

Empowering Companies to Ride the Green Transition (continued)

As the green momentum for bolder climate action intensifies, companies face increasing scrutiny to decarbonise and transition towards more sustainable practices. Those who can demonstrate through their reporting based on internationally recognised standards, that they are ahead in their de-carbonisation journeys, stand to benefit from access to new markets, customers and financing.

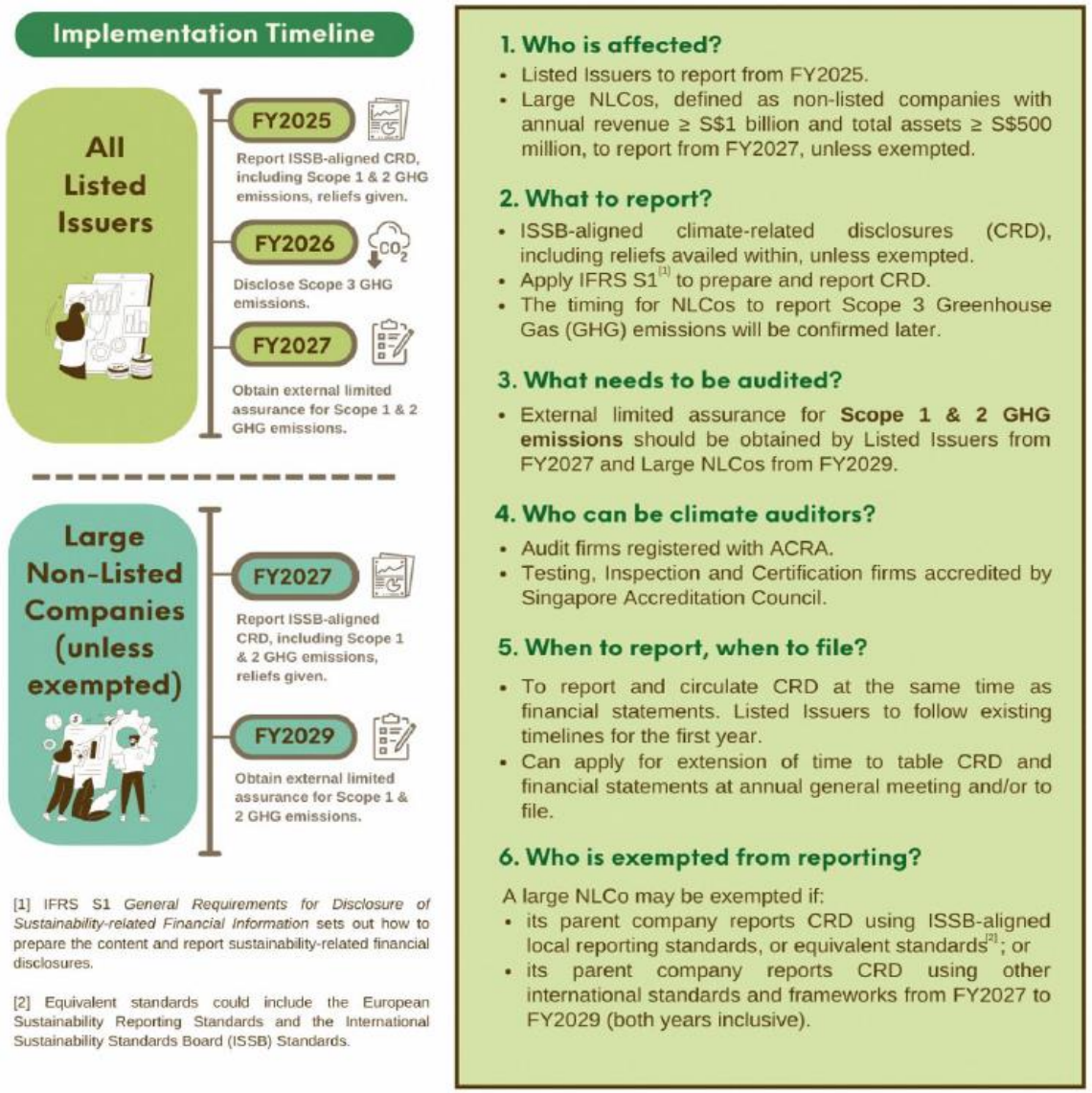
Singapore's Climate Reporting Using the ISSB Standards

Singapore will introduce mandatory climate reporting for non-listed companies, in addition to listed issuers, in phases. This will uphold Singapore's attractiveness as a global business hub while contributing to our national agenda under the Singapore Green Plan 2030.

The roadmap involves:

- Listed issuers preparing climate reporting using the disclosure requirements aligned with the ISSB Standards from FY2025.
- This will be followed by large non-listed companies (defined as those with annual revenue of at least $1 billion and total assets of at least $500 million) from FY2027, subject to certain exemptions.
- These impacted companies will obtain external limited assurance on their Scope 1 and 2 GHG emissions, two years after their respective reporting requirements kick in.
- Large non-listed companies are also given extended transitional relief to prepare certain complex disclosures such as Scope 3 GHG emissions.

Figure 2. Climate Reporting and Assurance Roadmap in Singapore



Laying the Foundation for Globally Comparable Disclosures

The birth of the ISSB marks a bold move towards fulfilling investor needs for ***globally comparable and credible baseline sustainability-related financial data***

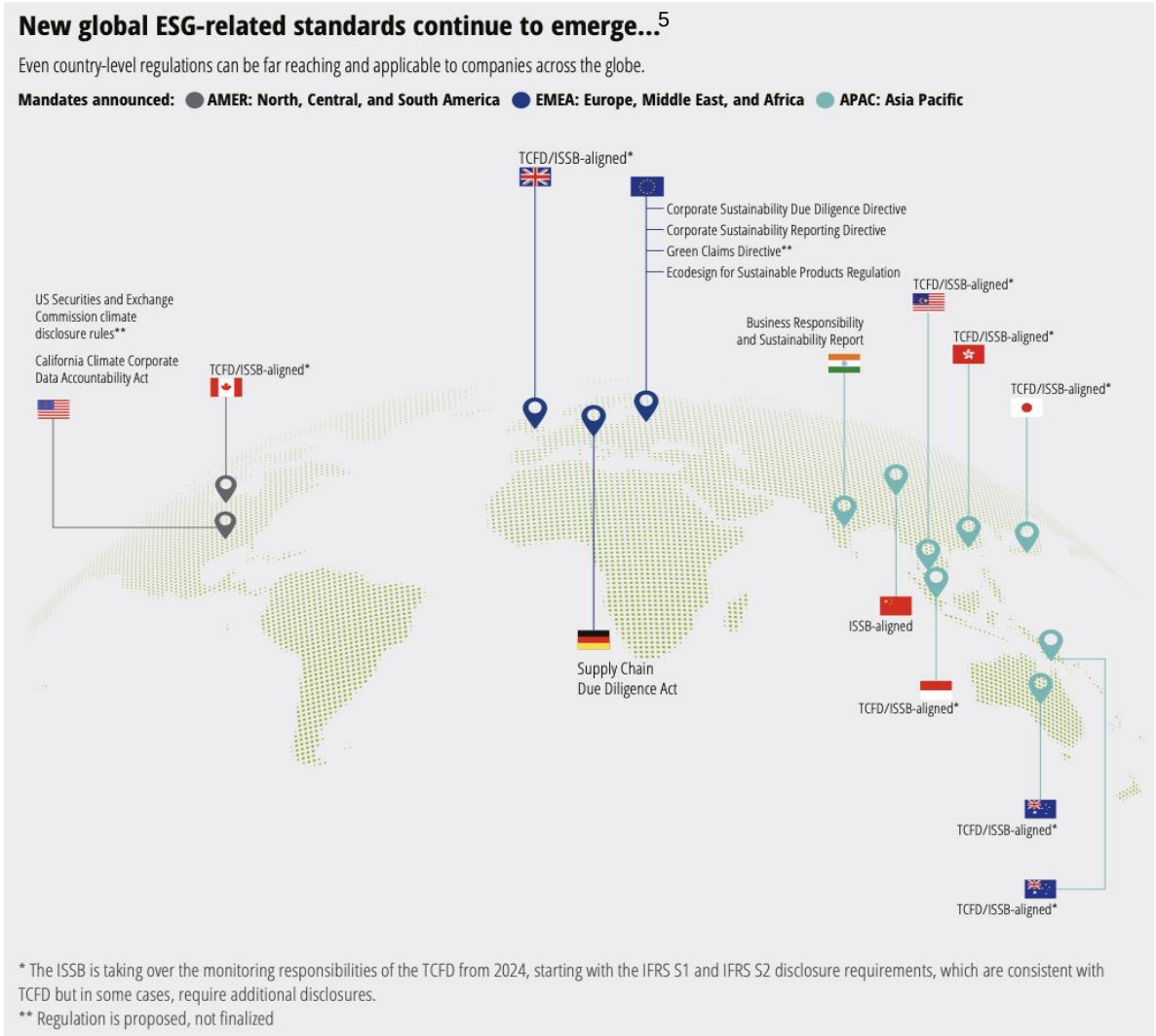
The ISSB was established in November 2021 to change the current fragmented ESG disclosure landscape into a global, common, consistent language of sustainability-related financial disclosures.

The ISSB develops—in the public interest—standards that will result in a high-quality, comprehensive global baseline of sustainability disclosures focused on the needs of investors and the financial markets.

The ISSB builds on the work of market-led investor-focused reporting initiatives, including the Climate Disclosure Standards Board, the TCFD Recommendations, the Integrated Reporting Framework and industry-based Sustainability Accounting Standards Board Standards, as well as the World Economic Forum's Stakeholder Capitalism Metrics.

Since the launch of the ISSB standards in June 2023, more than 20 jurisdictions[4] have decided to use or are taking steps to introduce ISSB Standards in their legal or regulatory frameworks. This underscores the growing acceptance of the ISSB Standards as the global baseline for consistent and comparable climate disclosures.

Figure 3. Climate and Sustainability Reporting Standards Mandated in Various Jurisdictions Globally



[4] IFRS Foundation: Jurisdictions representing over half the global economy by GDP take steps towards ISSB Standards, May 2024.

[5] Deloitte: Sustainability regulations: A gateway to new digital opportunities, May 2024.

Impetus for our Study

Among 535 listed issuers with sustainability reports as of 31 July 2023, **73% (or 393 issuers)[6] have prepared climate reporting using the TCFD framework**.

Singapore was among the top jurisdictions[7] in the Asia Pacific, with the Top 50 listed issuers making the following disclosures as of January 2023:

- Net zero targets verified by SBTi;
- Targets used to manage climate-related risks and opportunities, along with performance against these targets;
- Integration of climate-related risks into the overall risk management; and
- Climate scenario analysis being carried out.

Singapore companies have also demonstrated leadership in sustainability reporting, as evidenced by their presence on CDP's A List. CDP (formerly known as Carbon Disclosure Project) recognised these companies for their leadership in environmental transparency and performance on climate change.

City Developments Limited and Singtel were among 362 companies that made CDP's 2023 Climate Change A List. *This is out of over 21,000 companies scored by CDP globally.*

While many listed issuers have made the recommended disclosures in the TCFD framework, **the depth of their disclosures could be improved**. Some opportunities to strengthen companies' disclosures about managing and reporting climate risks and opportunities are enclosed below.

Five Areas of Improvement in EY-CPA Australia Study[8]

1. *Engage with stakeholders proactively in preparation for new climate reporting requirements.*
2. *Strengthen understanding and assessment of the financial impact of climate-related risks and explore climate-related opportunities for long-term resilience.*
3. *Leverage scenario analysis for better assessment of climate-related risks and opportunities.*
4. *Embed climate change considerations into budgeting and strategic planning.*
5. *Set meaningful quantitative targets and track performance.*

[6] SGX Group and NUS Centre for Governance and Sustainability, Sustainability Reporting Review 2023, November 2023.

[7] PwC and NUS Centre for Governance and Sustainability, Sustainability Counts II, June 2023. Covered 700 listed companies in Asia Pacific including 50 largest by market capitalisation in Singapore.

[8] EY and CPA Australia, State of Climate Reporting in Singapore, July 2023. Covered 370 SGX-listed issuers with December year-end that had reported climate-related disclosures as of May 2023.

Study Objectives

This study aims to:

- review the **comprehensibility and analytical usefulness** of actual disclosures against the Guidance to TCFD framework. By doing so, the study seeks to understand how disclosures could be improved to meet investors and other stakeholders' information needs; and

- find the **connectivity between climate reporting and financial reporting.** By examining these linkages, the study seeks to identify the extent to which companies are incorporating the financial impact of climate change into their financial decisions.

We have assessed TCFD disclosures made by 51 companies listed on the SGX Mainboard, each with a market capitalisation exceeding $1 billion as of 4 July 2023. The sampled companies were primarily (78%) from the five industries identified by the TCFD as being most affected by climate change and the transition to a lower-carbon economy.

For areas with fewer full disclosures, we have shared examples of full disclosures. We hope that these examples can offer guidance to companies that wish to improve their disclosures or are new to climate reporting.

Although our assessment is intended to be comprehensive, we recognise the inherent subjectivity and the possibility of some inconsistency. It is also important to acknowledge that our selections may not universally represent the best cases across all industries. We encourage companies to apply a nuanced and contextual approach when interpreting and applying the insights obtained from our assessment.

Key Findings

Governance: The vast majority (94%) of the companies have delineated clear roles and formed committees dedicated to tackling climate matters, acknowledging the importance of climate-related risks and opportunities. This commitment extends to the board level, where 75% have established protocols for reporting climate risks, which is a positive step. However, greater transparency is needed regarding how these boards participated in shaping the related performance objectives.

Strategy: Most companies (88%) have disclosed their material physical and transitional risks, but only 61% have disclosed climate opportunities. There is also a need for detailed explanations on how the risks and opportunities might impact financial decisions. While 75% conducted scenario analysis, the critical context of the scenarios — assumptions, reasons for selecting the scenarios, and description of resilience — was often not clearly explained.

Risk Management: There is a tendency to report climate risks without providing a deep dive into their relative significance (only 24% made full disclosure) and/or the potential magnitude of these risks (10%). The lack of such information may hinder stakeholders from gaining actionable insights.

Metrics and Targets: Companies have done well in this area, with commendable disclosures (Scope 1 and 2 GHG emissions at 96% and 100%, respectively). Good progress was also made for Scope 3 emissions disclosure (59%). While 80% quantified long-term goals, interim milestones were less frequently disclosed.

Advancing to the New Norm

We recommend four strategies for companies to consider when improving their climate reporting and communicating the financial effects.

1. Stay Simple and Be Concise: Meet Investors' Needs

Sustainability reports in this study typically ranged from 51 to 100 pages, with some extending beyond 150 pages. While extensive reporting may be necessary to address a broad spectrum of sustainability topics and comply with multiple voluntary reporting standards, some readers may encounter challenges in navigating through voluminous reports.

Optimising the presentation of crucial and relevant details could be beneficial. 47% of the companies have featured a dedicated chapter for TCFD disclosures while 37% have added reference indices.

*"Investors want to better **understand how companies are managing crises and staying resilient,** while **creating and protecting long-term value** in today's fracturing world." (PwC's Global Investor Survey, 2023)*[9]

To understand the information needs of investors, companies can refer to the TCFD Guidance for All Sectors utilised in this study. The Guidance provides valuable insights into the information sought by investors to make their decisions. By aligning with the TCFD Guidance, companies can effectively address investor expectations and enhance transparency in disclosing climate-related financial information.

2. Take the First Step: Prioritise Progress over Perfection

Recognising the diverse capabilities and readiness of entities worldwide for climate reporting, the ISSB has embedded the concept of proportionality[10] into its standards to help companies overcome initial challenges.

Specifically, the ISSB has introduced the concepts of:

- **'reasonable and supportable information',** which aims to assist preparers in making disclosures with high levels of uncertainty. This prompts them to think about what information is reasonably available without spending too much time searching for it;
- **"undue cost or effort",** which tailors disclosure requirements to fit the specific circumstances of companies, preventing them from becoming burdensome. This benefits all entities, especially those encountering difficulties in complying with the ISSB standards; and
- **'the skills, capabilities and resources available to the entity'**, which empowers preparers to begin their reporting journey with qualitative disclosures, while building up the process to collate data and make quantitative disclosures.

A gradual progression towards comprehensive and impactful climate reporting may be more practical than striving for immediate perfection. Companies are encouraged to commence with small steps and enhance their disclosures over time.

[9] PwC: Global Investor Survey 2023, November 2023.

[10] IFRS Foundation: IFRS S2 Basis for Conclusions on Climate-related Disclosures, June 2023.

Advancing to the New Norm (continued)

3. Connect the Dots: Link to Financial Reporting

Traditional financial reports have long been the bedrock of corporate communication with investors and other stakeholders. The burgeoning significance of environmental responsibility demands that these reports evolve to encompass climate-related information.

The financial impact of climate-related issues on an organisation is intricately linked to its operational context and strategic decisions regarding climate-related opportunities and risks. It is, therefore, essential for our companies to incorporate climate-related impact into financial statements to enhance the relevance and usefulness of financial reporting.

In our study, we have observed a lack of detailed disclosures on how climate-related risks and opportunities could impact the company's financial performance and position in the short-, medium- and long-term. It is crucial for companies to demonstrate how climate factors influence financial performance and position, thereby providing readers with a comprehensive understanding of how these issues might affect asset valuations, provisions for future liabilities, and future financial performance.

We also encourage companies to incorporate climate considerations into their upstream strategy and budgeting processes, to prevent or mitigate unfavourable impact on the company's financial health.

4. Go Beyond Compliance: Future-proof Strategy and Business Model

To do well in today's dynamic business environment, it is imperative for companies to transcend beyond compliance with reporting requirements. By proactively integrating climate considerations into their strategies and operations, companies can mitigate risks, seize opportunities, and enhance their long-term resilience.

"Structural challenges might hinder the ability to integrate strategy into broader business goals. Insufficient resources or capacity to collaborate effectively, as well as internal silos and limited communication between departments, were the top two impediments" (KPMG Survey 2024)[11]

By embracing sustainable practices and reshaping business models to tackle climate-related challenges, companies are setting themselves up for success in a rapidly evolving global economy. Aside from shielding them against further regulatory and market changes, it will showcase their dedication to sustainable and ethical business practices, ultimately bolstering their brand reputation and earning trust from stakeholders.

[11] KPMG: KPMG Survey: Addressing the Strategy Execution Gap in Sustainability Reporting, February 2024.

Conclusion – Getting Ready for the ISSB Standards

The IFRS Foundation published a comparison document[12] showing a high degree of alignment between IFRS S2 and the TCFD framework. Companies applying IFRS S2 will comply with the TCFD framework.

Figure 4. Similarities between TCFD Recommendations and IFRS S2

4 Pillars	TCFD Core Recommendations	IFRS S2 *Climate-related Disclosure*
Governance	Disclose the organisation's governance around climate-related risks and opportunities.	Disclose the **governance processes, controls and procedures** used to **monitor, manage and oversee** climate-related risks and opportunities.
Strategy	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 a company's **strategy for managing climate-related risks and opportunities**.
Risk Management	Disclose how the organisation identifies, assesses and manages climate-related risks.	Disclose the processes to **identify, assess, prioritise and monitor** climate-related risks and **opportunities**, including, whether and how those processes are integrated into and inform the company's overall risk management process.
Metrics and Targets	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	Disclose a company's **performance in relation to its climate-related risks and opportunities**, including **progress** towards any climate-related targets it has set and any **targets it is required to meet by law or regulation.**

The shift from TCFD to IFRS S2 marks a significant stride towards Singapore's vision of a Green Economy. This transition not only underscores our nation's commitment to environmental stewardship but also presents an opportunity for companies to play a pivotal role in shaping a more sustainable and resilient Singapore.

While this transition requires additional efforts, companies that proactively address potential gaps in their TCFD disclosures will be well-prepared to adopt the ISSB Standards.

This study presents an opportunity for companies to get ready for the ISSB-aligned reporting. In areas where comprehensive disclosures are lacking such as climate opportunities and strategy resiliency, we have included sample comprehensive disclosures for companies to consider.

We urge companies to prioritise the continuous improvement of their climate-related disclosures to align with evolving standards and meet stakeholder expectations. By doing so, companies can position themselves as leaders in sustainable business practices, fostering innovation, economic competitiveness, and environmental responsibility.

This proactive approach will not only benefit the companies themselves but also contribute to our collective effort towards a greener and more sustainable future for Singapore and beyond.

[12] IFRS Foundation: IFRS Foundation publishes comparison of IFRS S2 with the TCFD Recommendations, July 2023.

2. Methodology

Study Objectives

This study aims to:

- review the **comprehensibility and analytical usefulness** of TCFD disclosures against the Guidance to TCFD framework. By doing so, the study seeks to understand how disclosures could be improved to meet investors and other stakeholders' information needs; and

- find the **connectivity between climate reporting and financial reporting.** By examining these linkages, the study seeks to identify the extent to which companies are incorporating the financial impact of climate change into their financial decisions.

Figure 5. Structure of TCFD Framework

To measure comprehensibility and analytical usefulness, we delve into the selected issuers' actual disclosures and analyse them against the TCFD Guidance[13].

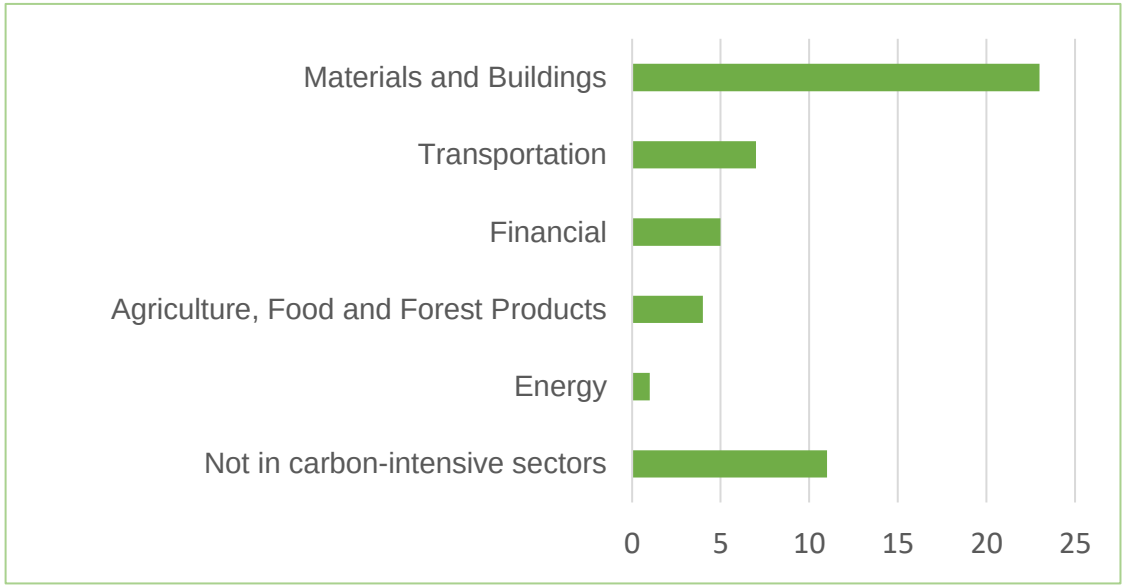
Our findings are categorised under the following four core pillars of the TCFD framework:
(1) Governance,
(2) Strategy,
(3) Risk Management and
(4) Metrics and Targets.

Study Coverage

We have assessed the TCFD disclosures of 51 issuers listed on the SGX Mainboard.

As of July 4, 2023, every issuer had a market capitalisation exceeding $1 billion. In addition, each issuer explicitly stated that their climate-related disclosures complied with the TCFD framework.

Most (78%) companies came from the five sectors most affected by climate change and the transition to a lower carbon economy. Collectively, the 51 companies represent a wide spectrum of the economic landscape, offering a comprehensive overview of current practices.



[13] Task Force on Climate-related Financial Disclosures: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, October 2021.

Navigating this Report

We have categorised their disclosures into three distinct levels to differentiate the comprehensibility and analytical usefulness of their TCFD disclosures. These categories are defined as follows:

1. **"Full" disclosure** indicates that a company provides a comprehensive and clear account of its climate-related initiatives, aligning closely with TCFD Guidance. This level of disclosure means that all essential information is present, easily accessible, and thoroughly covers the company's strategic, financial, and operational impact from climate-related risks and opportunities.

2. **"Partial" disclosure** refers to disclosures that include some but not all essential information. These disclosures typically include relevant data but may lack detail or clarity in explaining the impact of climate-related factors on the company or its strategic response. Partial disclosures may also indicate that while significant information is reported, it could be difficult for users to fully visualise or comprehend the scope and scale of the company's climate-related activities.

3. **"No" disclosure** is used when a company provides no information or very minimal details that do not meet the basic criteria for partial disclosure. This classification is applied to reports where essential climate-related data is missing, making it impossible for stakeholders to gauge the company's awareness of or engagement with climate-related issues.

In the financial year 2022, the TCFD framework was applied on a comply-or-explain basis. The absence of full disclosure does not amount to a violation of the SGX Listing Rules.

Illustrative Disclosures

For areas with few full disclosures, we have shared examples of full disclosures made by either local or overseas companies. We hope that these examples can offer guidance to companies that wish to improve their disclosures or are new to climate reporting.

Subjectivity and Consistency

Although our assessment is intended to be comprehensive, we recognise the inherent subjectivity and the possibility of some inconsistency. Nonetheless, the assessment has provided valuable insights into the reporting practices of companies aligning with the TCFD Guidance.

It is also important to acknowledge that our selections may not universally represent the best cases across all industries. The relevance and applicability of our findings may differ depending on the specific circumstances and nuances within various industries and individual companies.

We encourage companies to apply a nuanced and contextual approach when interpreting and applying the insights obtained from our assessment.

Overview of TCFD Framework

The TCFD developed a framework that encourages companies to disclose climate-related risks and opportunities. The framework is intended to provide investors and other stakeholders with better information to understand the actual and potential financial impact of climate change.

The eleven recommended disclosures in TCFD framework are structured around four core pillars[14]:

- **Governance**: This focuses on how the board of directors and management oversee and manage climate-related issues.
- **Strategy**: This explains how companies consider climate change in their business strategies, including potential risks and opportunities.
- **Risk Management**: This outlines how companies identify, assess, and manage climate-related risks.
- **Metrics and Targets**: This specifies the metrics used by companies to measure their climate-related impact, set targets, and report progress.

Figure 6. TCFD Recommendations and Supporting Recommended Disclosures

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

[14] Task Force on Climate-related Financial Disclosures: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, October 2021.

3. Governance

TCFD - Governance

Governance

Disclose the organization's governance around climate-related risks and opportunities.

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.

Values

- Provides insights into the organisation's leadership structure and decision-making processes regarding climate-related matters.
- By understanding the board's oversight and management's role, readers of climate reports will gain a deeper understanding of the organisation's commitments to sustainability and its ability to navigate climate-related risks.
- The transparency empowers readers of climate reports to assess the company's governance practices, risk management capabilities and strategic alignment with climate goals, thereby making informed investment decisions and risk assessments.

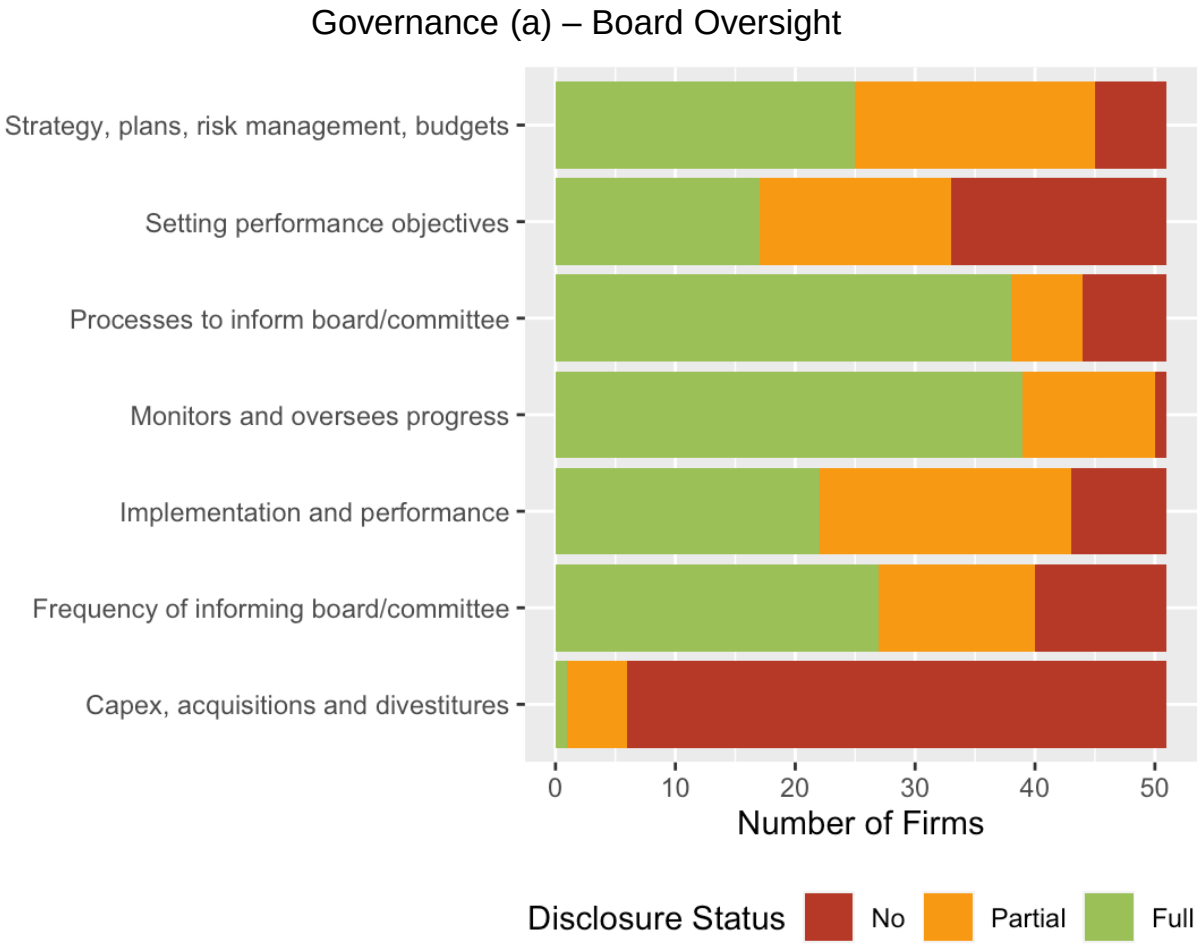
Key Findings

1. **Organisational Structure for Climate Issues**: The vast majority (94% made full disclosures) of the companies studied have assigned roles and/or formed committees dedicated to tackling climate matters. Most (90%) companies have fully described their organisational structure to address climate-related issues.

2. **Transparency in Board-Level Reporting**: Most (75%) companies have fully described their internal protocols for reporting climate risks to the board, which is a positive step. This included details on the frequency of reporting (53%) and how their boards had tracked progress on climate goals and targets (76%). However, the specifics of how the board contributed to setting performance objectives were less frequently disclosed (only 33% made full disclosures).

3. **Process to Inform Management:** While companies were generally transparent about management's role in assessing and managing climate-related issues, the specifics of how the management was informed were less frequently disclosed. Only 12% of the companies provided full details.

a) Board's oversight of climate-related risks and opportunities



Findings

- Around half of the companies fully disclosed the integration of climate-related risks and opportunities into strategy, plans, risk management and budgets (49%) and **the frequency of informing Board/committee** (53%).
- Most companies fully described their **processes to inform the Board/committee** (75%) and **how the Board monitored and oversaw progress** (76%).

Just 33% of companies fully disclosed whether the board/ committees considered climate-related issues when setting performance objectives, and 43% disclosed how they monitored the implementation and performance of sustainability initiatives. Companies should add transparency in both disclosures.

Just 12% had any disclosure about the board's oversight of major capital expenditures, acquisitions, and divestitures. These transactions, while less frequent than routine expenditures, can significantly impact a company's strategic direction and exposure to climate-related risks and opportunities.

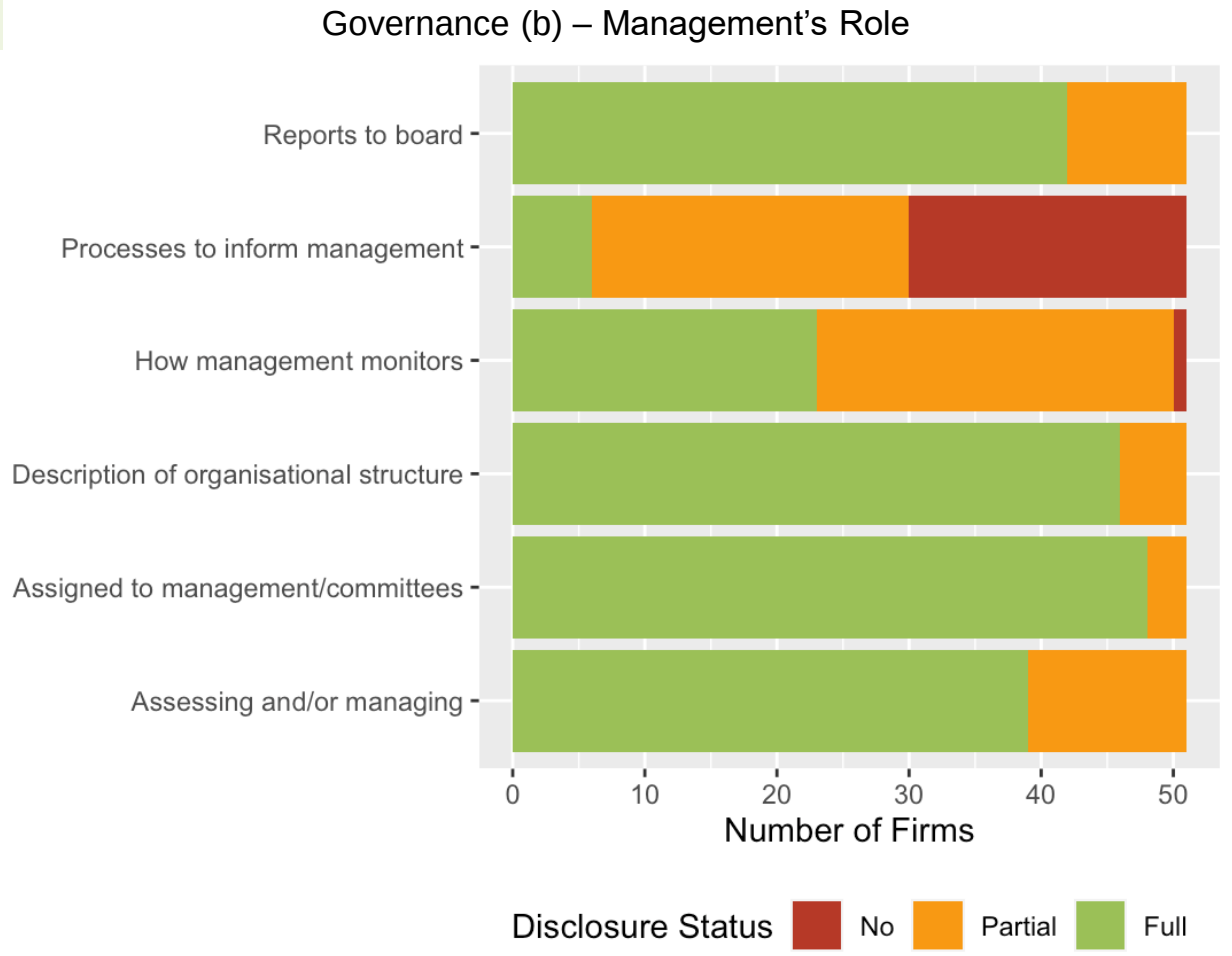
b) Management's role in assessing and managing climate-related risks and opportunities

Findings

- Most companies fully described how climate-related information was reported to their Boards (82%) and how climate-related matters were assessed and/or managed (76%).
- Most (90%) of the companies fully **described their organisational structure** to address climate-related matters.
- A vast majority (94%) of the companies have **assigned roles and/or formed committees dedicated** to tackling climate matters.

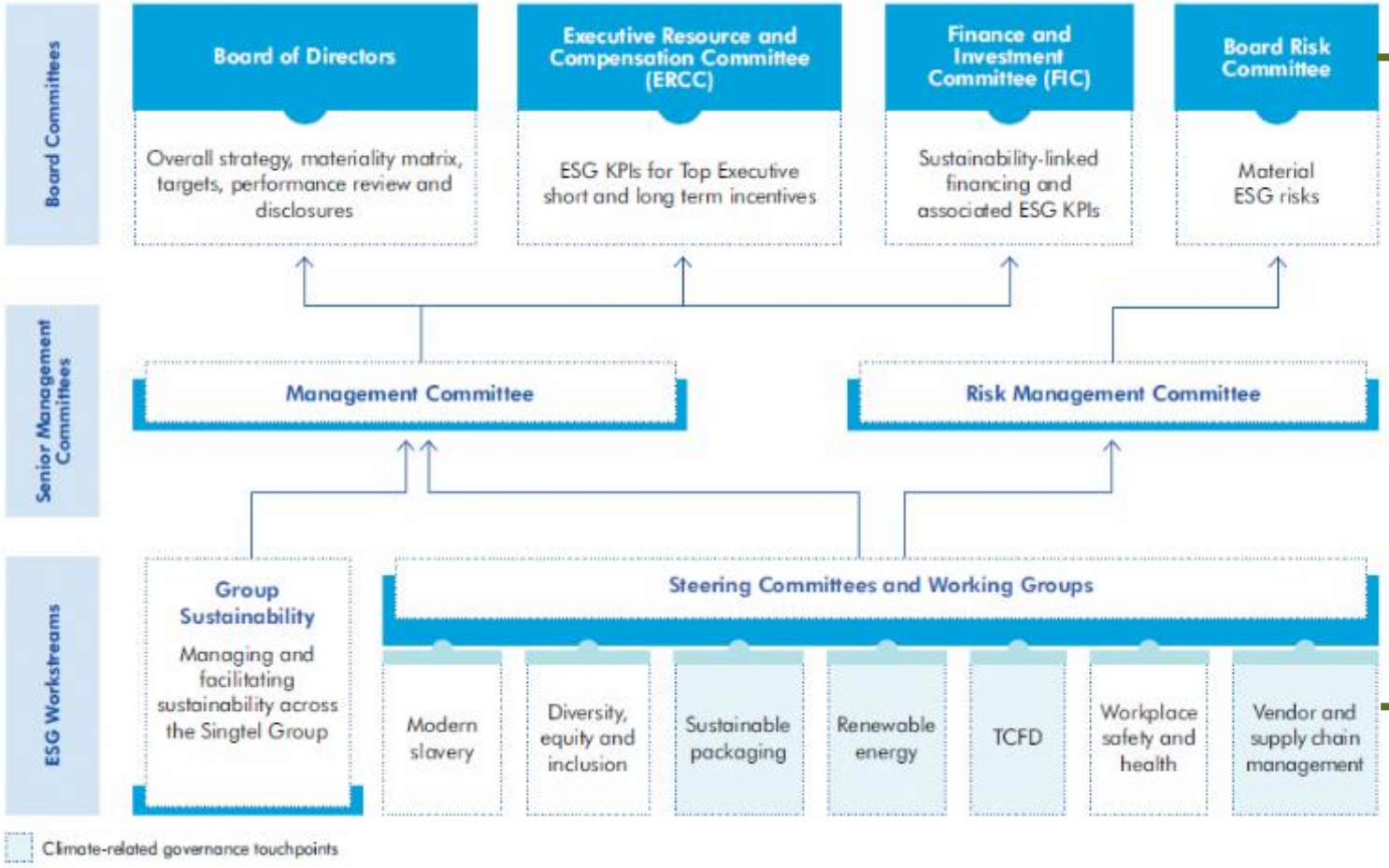
Just 12% made full disclosures about their processes to inform management about climate-related matters. 47% could add transparency over communication flow among working groups, management, and the Board of Directors. Such information would shed light on how active climate matters were discussed and managed. See illustrative disclosure on pages 20 and 21.

Around half (45%) provided specific details about how management monitored and be held accountable for climate-related issues. By understanding management's involvement in climate-related issues, readers could assess a company's commitment to addressing climate risks and opportunities.



b) Management's role in assessing and managing climate-related risks and opportunities (continued)

Figure 5: Singtel Group sustainability governance structure



Singapore Telecommunications Limited, TCFD Report 2022, page 10

Described how the Board and three Board Committees were involved in developing and monitoring climate-related strategies and KPIs.
This allows readers to appreciate how climate-related matters were discussed and handled in the company.

Described how the sustainability team and seven workstreams worked together and communicate with management and board.
This allows readers to understand how climate-related matters were tackled and coordinated while keeping Management Committees, Board Committees and the Board informed.

b) Management's role in assessing and managing climate-related risks and opportunities (continued)

Table 2: : Singtel Group sustainability governance climate-related roles and responsibilities

Governance body	Climate-related roles and responsibilities	Meeting and reporting cadence
Board of Directors	The Board oversees the overall sustainability and climate-related strategies, approves the materiality matrix which includes climate-related topics, reviews the progress and performance of the Group's climate commitments and strategy, and approves disclosures in the Annual Report and Sustainability Report including climate-related disclosures and metrics.	Twice a year for ESG matters
Executive Resource and Compensation Committee (ERCC)	ERCC reviews and approves executive and management's compensation structure, and long and short term incentives. ESG KPIs comprise 20% of these incentives, with climate-related KPIs representing one in five targets for both groups.	Once a year to review KPIs and performance
Board Finance and Investment Committee (FIC)	FIC approves sustainability-linked financing and associated ESG KPIs.	Up to twice a year for ESG-related topics, as required
Board Risk Committee (RC)	RC reviews key climate risks, including emerging risks, mitigation plans and progress against targets, and reviews recommendations from the RMC.	At least twice a year for ESG-related risks, and once a year for climate-related risks
Group Chief Executive Officer (GCEO)	GCEO, a Board member and Chairperson of the Management Committee, is responsible for making climate-specific recommendations to the Board, related to strategy, performance, risks and disclosures.	Participates in meetings with Board and Management Committee
Management Committee (MC)	MC, comprising all C-level senior executives, plans, reviews and approves Singtel Group's climate strategy and other ESG decisions and investments across our Singapore and Australia operations.	Monthly to quarterly for different ESG topics
Risk Management Committee (RMC)	RMC reviews key climate risks, including emerging risks, mitigation plans and progress against targets, and makes recommendations to RC. RMC also ensures the Group's progress is in alignment with TCFD framework and disclosures.	Up to twice a year for ESG-related risks, and at least once a year for climate-related risks

Singapore Telecommunications Limited, TCFD Report 2022, page 11

Described the specific roles and responsibilities of each governance body

This clear delineation of responsibility shows the company's proactive governance approach over climate-related risks and opportunities.

Highlighted the meeting and reporting cadence for each governance body

This disclosure highlights how the frequency of regular oversight and discussions to assess and manage climate risks and opportunities.

4. Strategy

TCFD - Strategy

Strategy

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.

Recommended Disclosures

a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.

b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Values

- Provides insights into how a company is preparing for and responding to climate challenges.
- It shows the company's efforts to take advantage of opportunities and reduce climate change risks, helping readers understand the company's strategic resilience and its potential for long-term success in a changing environment

Key Findings

1. **Risks and Opportunities**: While most (88%) companies fully disclosed both physical risks (e.g., extreme weather) and transitional risks (e.g., regulatory changes), just 61% of companies disclosed opportunities related to climate change.

2. **Integration into Financial Decision**: Only 16% provided full details on how climate-related matters were integrated into their financial planning. Disclosures were notably lacking in research and development (8% made full disclosures), capital expenditure and allocation (16%), access to capital (14%), and acquisitions and divestments (16%), which are relevant for understanding long-term strategic planning related with climate risks.

3. **Resilience of Strategy**: Although three-quarters of companies have carried out scenario analysis (75%), the critical content - assumptions (29%), reasoning underpinning their selected scenarios (24%), and description of resilience (18%) – was often not clarified. This makes it difficult for stakeholders to assess the implications of climate risks and opportunities.

a) Climate related risks and opportunities identified over the short, medium and long term

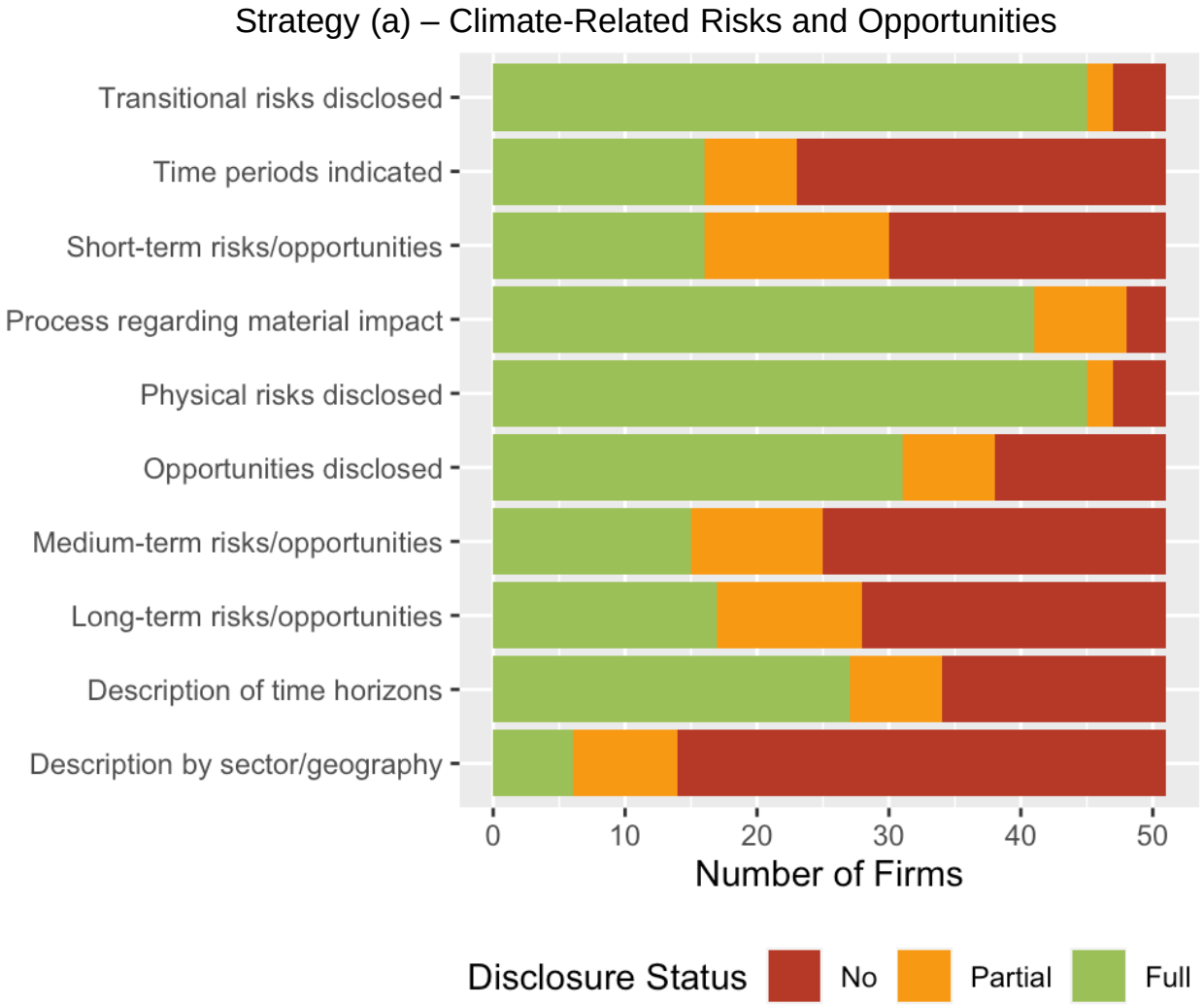
Findings

- **Most (88%) companies studied have fully disclosed both transitional and physical climate risks**.
- Most (80%) have outlined their processes for determining materiality of climate-related risks and opportunities in detail.

About one-third of the companies linked all climate-related risks and opportunities to specific time horizons, with 31% reporting on short-term risks, 29% on medium-term risks, and 33% on long-term risks. In many cases of partial disclosure, time horizons were specified for a limited number of risks.

Only 12% of companies fully disclosed risks and opportunities by sector or geography. Such a breakdown could help readers gain a deeper understanding of the company's geographical spread and exposure. See illustrative disclosure on page 25.

Climate opportunities offer investors valuable insights into future growth and strategic positioning, yet a smaller number of companies (61%) disclosed them. See illustrative disclosure on page 26.



a) Climate related risks and opportunities identified over the short, medium and long term (continued)

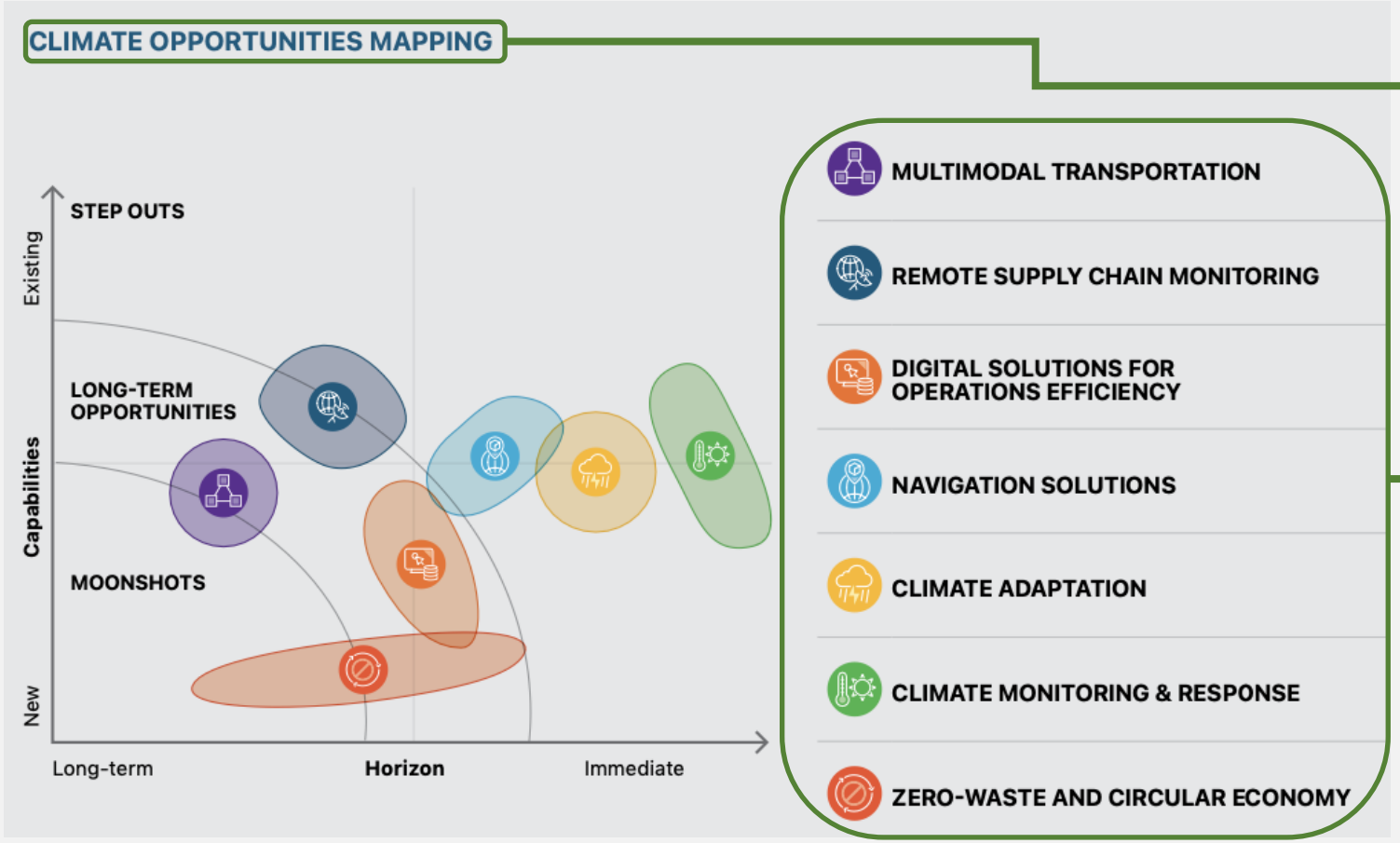
Table 1: Material physical risks assessed under the 3°C scenario

Risk type	Primary risk driver	Key impacted geography[14]	Potential impacts
Coastal flooding	Properties in coastal areas may be exposed to steady and continuous sea level rise	• NL	• Increase in assets exposed to coastal flooding • Increase in capital expenditures to construct coastal defense and flood control infrastructure
Fluvial flooding	Water level rise of the river could occur due to excessive rain or snowmelt, leading to losses from assets located in high flood risk zones	• AU • SG • UK • US	• Increase in assets exposed to growing severity of river floods • Increase in operating costs (e.g., repair costs, business interruption)
Tropical cyclones	Properties may face more frequent and severe tropical cyclone	• AU • NL • SG • UK • US	• Higher chance of damage to specific asset locations that are tropical cyclone-prone • Increase in operating costs (e.g., business interruption)
Extreme heat	Hot days and extreme heat could become more common and/or severe	• ALL	• Increase in cooling demand leading to higher electricity costs
Wildfires	Risk of wildfires could increase in extremely dry conditions, such as drought, and during high winds	• AU • US	• Increase in assets exposed to wildfires • Increase in operating costs (e.g., filtration demand, business interruption)
Extreme cold	Cold days and extreme cold could become more common and/or severe	• US	• Increase in warming demand leading to higher electricity costs

Capitaland Ascendas Reit, Integrated Sustainability Report 2022, page 20

Described key impacted geographical location by each risk type.
This allows readers to have a clear picture of the geographical spread and exposure of the company's climate-related risks.

a) Climate related risks and opportunities identified over the short, medium and long term (continued)



Singapore Technologies Engineering Ltd, Sustainability Report 2022, pages 19 and 20

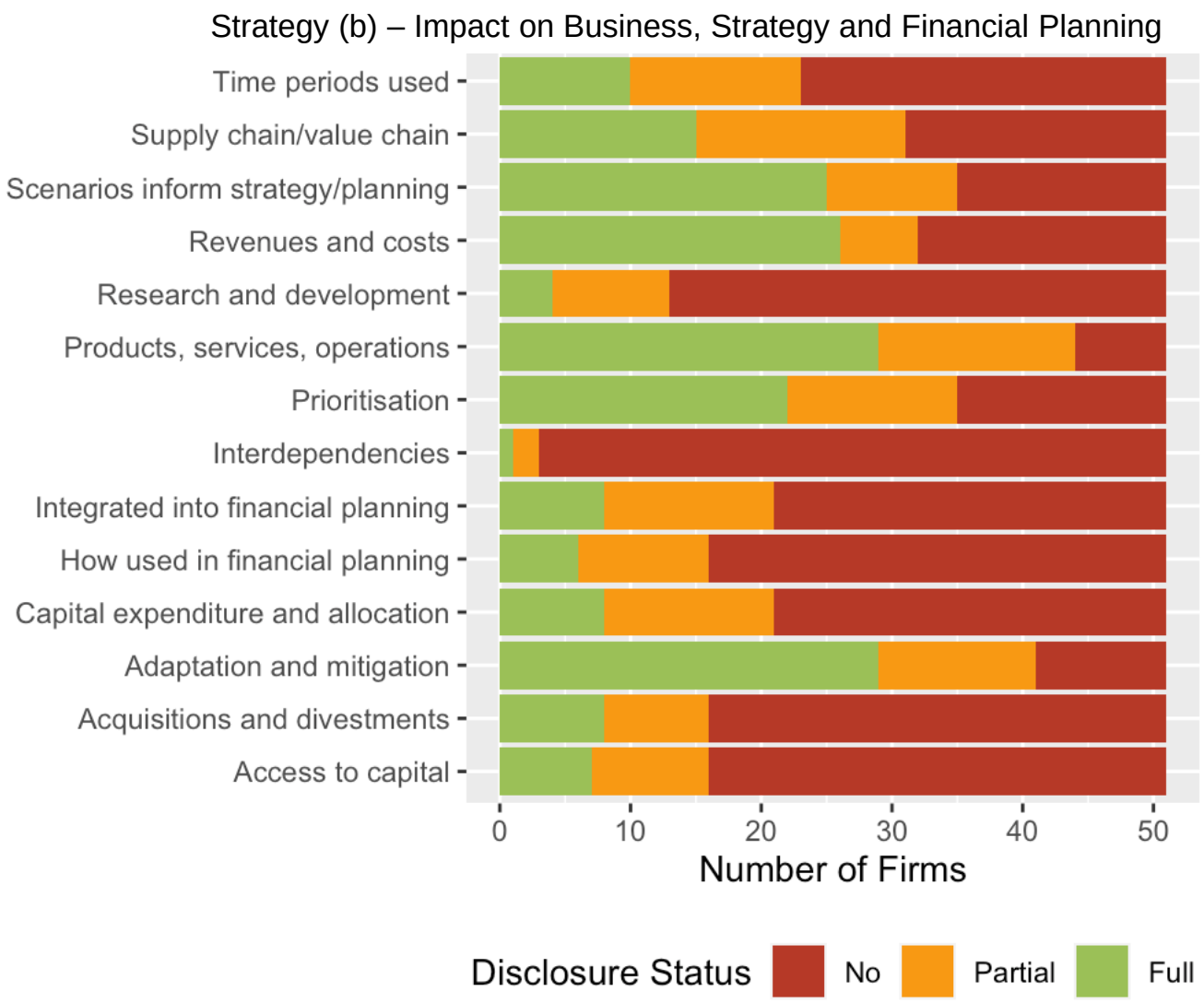
Disclosed climate opportunities by horizon and capabilities.
This allows readers to appreciate opportunities for future growth.

Maximising Opportunities
Amongst our diverse sustainability-linked offerings is a range of climate-focused products and solutions. The three focus areas of our sustainability-linked businesses include:

- **Reducing GHG emissions** – Our products and solutions reduce emissions by saving fuel, reducing waste, minimising road congestion and boosting energy efficiency
- **Solving urban and city challenges** – Our Smart City deployments and Internet-of-Things (IoT) -based connected solutions optimise operational efficiency and improve energy savings. We also develop and deploy sustainable hybrid and electric transportation solutions
- **The circular economy** – We design, build, operate and maintain sustainable waste management and waste-to-energy facilities that support eco-friendly waste disposal, management and wastewater recycling. Additionally, our aircraft and ship conversions provide a new lease of life through repurposing and reuse, thus saving significant resources

We reviewed our climate change opportunities in both our existing business areas as well as emerging ones in 2022. We identified opportunities in energy management and efficiency, recycling and reuse, and are also exploring technology-enabled carbon verification solutions.

b) Impact of climate-related risks and opportunities on business, strategy and financial planning



Findings

- Over half of the companies have fully disclosed the potential impact of climate-related risks and opportunities on their business, such as products, services and operations (57%). and adaptation and mitigation activities (57%).

(To be continued)

b) Impact of climate-related risks and opportunities on business, strategy and financial planning (continued)

- **Many companies listed risks and opportunities without** explaining their risk/value drivers and **potential financial impact.** See illustrative disclosure on page 29.

- Disclosures were notably lacking in areas such as **research and development** (just 8% made full disclosures), **capital expenditure and allocation** (16%), **access to capital** (14%), and **acquisitions and divestments** (16%). These disclosures could enhance readers' understanding of the company's long-term strategic planning. See illustrative disclosure on page 30.

- Companies have focused on the short-term financial implications, often overlooking the long-term strategic implications. See illustrative disclosure on pages 32 and 33.

- Only 16% of companies fully **explained how climate-related issues factored into their financial planning process.** As climate change could pose financial risks, integrating these considerations into financial planning would strengthen the assessment and management over a company's financial resilience.

- Only 6% of companies, at least partially, disclosed the interdependencies among the factors that affect their ability to create value over time. Understanding these interdependencies provides insights into how different elements of the business are interconnected in addressing climate change risks and opportunities.

b) Impact of climate-related risks and opportunities on business, strategy and financial planning (continued)

Risk Type	Risk Description	Potential Operational and Financial Impact
Long-term shifts and increased variability in weather patterns (chronic)	Heat stress	• Disruptions to ground operations (e.g workforce absenteeism from heat-related health stresses), and flight operations (e.g flight cancellations, delays, diversions). • Increased cooling demand for airport terminal buildings. • Revenue loss from operational disruptions, and increased maintenance or operational costs from airport infrastructure cooling needs.
	Precipitation stress	• Physical damage or impairment of runway and airport infrastructure due to periods of heavy or persistent rainfall. • Disruptions to ground operations (e.g. increased lightning activities during prolonged rainfall) and flight operations (e.g. flight cancellations and delays due to poor visibility during take-off and landing). • Revenue loss from operational disruptions, and increased costs of insurance or enhancements for critical assets.
	Sea level rise	• Physical damage to airport infrastructure due to storm surges, or periods of heavy or persistent rain, which overburdens drainage system. • Loss of access to offices, facilities, equipment. • Revenue loss from operational disruptions, and increased costs of insurance or enhancements for critical assets.
	Drought stress	• Disruptions to ground and flight operations due to water shortages such as simultaneous multiple grounded or delayed flights; reduced potable water uplift; restrictions to full water and toilet servicing of aircraft and in-flight food catering menu. • Revenue loss from operational disruptions.
	Fire weather stress	• Disruptions to ground and flight operations due to haze conditions from uncontrolled forest fires in neighboring countries. • Revenue loss from operational disruptions.

Singapore Airlines Limited, Sustainability Report FY2022/23, page 54

Described potential financial impact for each material risk.
This allows readers to understand how climate-related issues could impact the company's financial position and performance.

b) Impact of climate-related risks and opportunities on business, strategy and financial planning (continued)

In addition to our transformation plan, we actively manage our operational emissions from existing assets by implementing optimisation initiatives. Our global energy and water facilities undertook 25 energy optimisation projects that led to a reduction of close to 51,000MWh of electricity consumed. This is equivalent to over 16,000tCO_2e emissions avoided or taking over 3,000 vehicles off the road for a year.

Financial planning 2021-2025

Capital expenditure and allocation

Our total five-year investment in business-as-usual capital expenditure, Renewables and Integrated Urban Solutions projects is projected to be S$5.5 billion. Of this, 80% is expected to be invested in renewable energy to grow our gross installed capacity to 10GW. We expect 50% of the required investment to be funded by project-level debt and green and sustainability-linked financing.

Access to capital

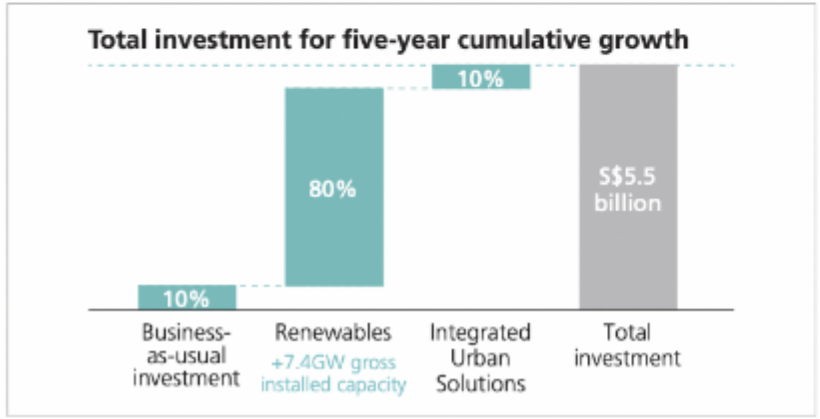
In 2021, we issued our inaugural S$400 million green bond and S$675 million sustainability-linked bond where proceeds were used to enable the Group's strategic transformation plan. As at December 31, 2022, we have raised S$3.3 billion worth of green and sustainability-linked funds in accordance with our Sustainable Financing Framework and Green Financing Framework.

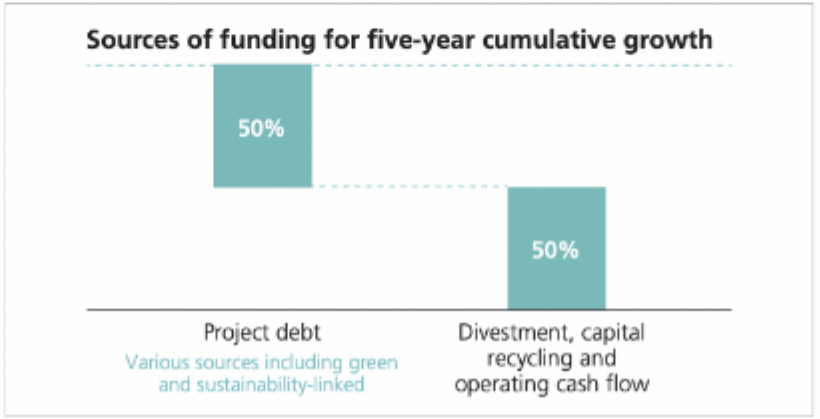
For more information on our Green and Sustainable Financing Frameworks and issuances, please refer to the Sustainable Finance section on the Investors webpage.

Acquisitions and divestments

In 2022, we announced the acquisitions of renewable energy assets in China, India and Vietnam totalling 2.4GW. As of February 2023, the Group has 9.8GW of gross renewable capacity installed and under development, including acquisitions pending completion. We also announced the sale of SEIL, which operates two coal-fired plants. The sale of SEIL was completed in January 2023.

Our Five-year Investment Programme (2021-2025)





Included details about capital expenditure, acquisition and divestments and access to capital with specific amounts spent and projected.
This helps readers understand the company's financial strategies and commitments towards sustainability.

Sembcorp Industries Ltd, Annual Report 2022, page 28

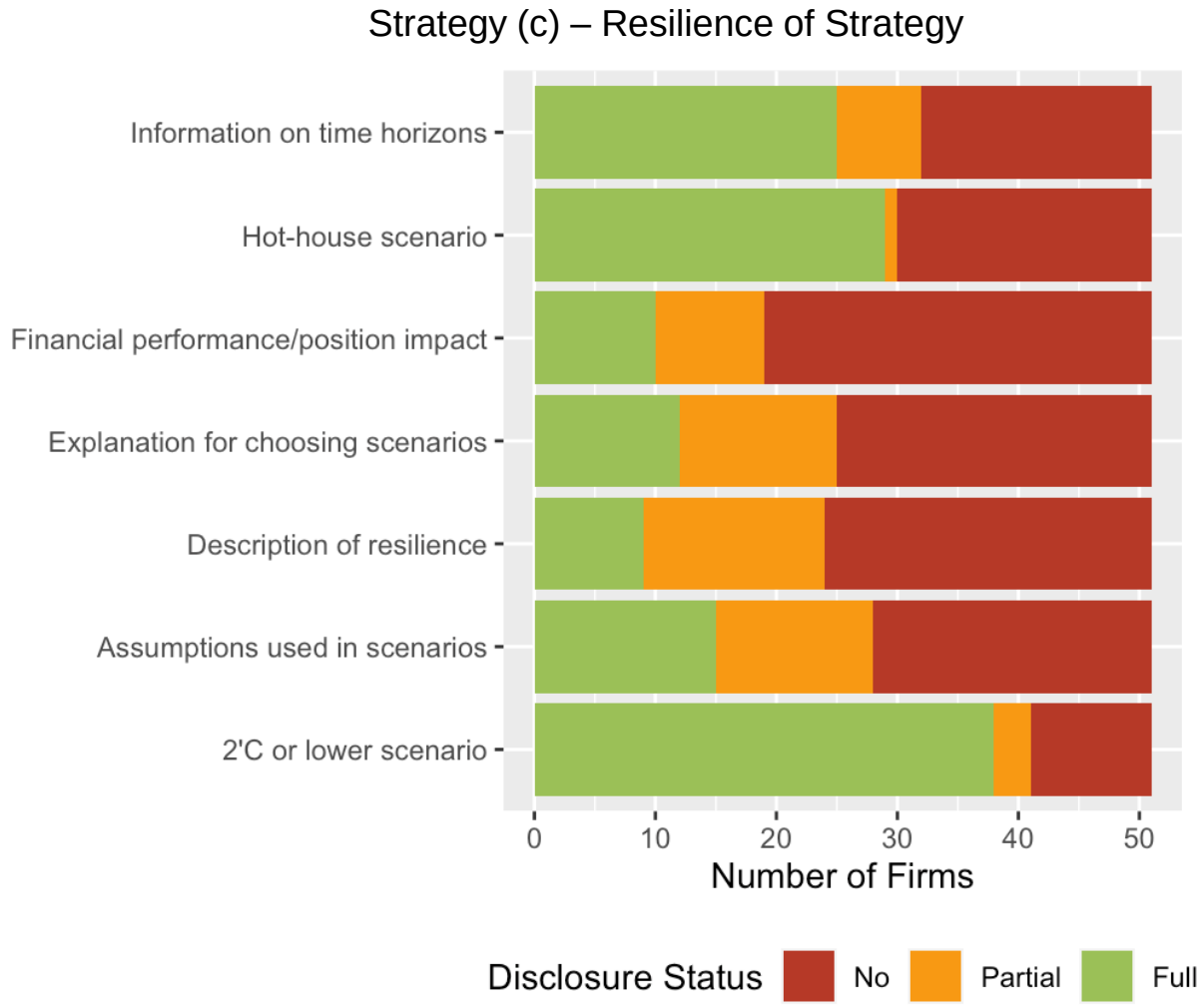
c) Resilience of organisation's strategy, considering different climate-related scenarios

Findings

- Most (75%) companies have considered scenarios where global warming is limited to 2°C or lower. This suggests a concerted effort to assess the potential impact of climate change on their operations and future.

Around a quarter fully explained their rationale for their selected scenarios (24%) and underlying assumptions (29%). Disclosure of this information helps readers understand the basis and context of the scenarios, evaluate the robustness and relevance of the analysis and make more informed judgments about the potential impact.

While the resilience of companies' strategies is a crucial disclosure in climate reporting, only 18% of companies fully provided such information. Just 20% of companies disclosed the potential impact of climate-related issues on financial performance (e.g., revenues, costs) and financial position (e.g., assets, liabilities). See illustrative disclosure on pages 32 to 33.



c) Resilience of organisation's strategy, considering different climate-related scenarios (continued)

Scope and Parameters of the Three Studies

Parameters	1st Study: 2018	2nd Study: 2019-2020	3rd Study: 2021-2022
Climate Scenarios	2°C and 4°C warmer scenario	1.5°C and 2°C warmer scenario	Orderly scenarios – Net Zero by 2050 (1.5°C)[4] Disorderly scenarios – Delayed Transition (2°C)[4]
Types of Risks	Physical and Transition Risks		
Timeframe	2030	Short term: Present – 2030 Medium term: 2030 – 2050 Long term: 2050 – 2100	Short term: Present - 2030
Countries	1. Singapore 2. China 3. UK	1. Singapore 2. China 3. UK 4. USA	1. Singapore 2. China 3. UK 4. USA 5. New Zealand
Baseline year	2016	2018	2019 (with 2020 caveats included where relevant)
Business units	Development Properties (DP), Investment Properties (IP) and Hotel Operations		

City Development Limited, Integrated Sustainability Report 2023 (for FY2022), page 35

Utilised a range of climate scenarios, including both 2°C and more severe warming scenarios.
This demonstrates thoroughness in strategic planning for different potential futures, providing readers with insights into the company's readiness for possible climate scenarios.

Included short-, medium- and long-term timeframes in its scenario analysis, covering multiple periods.
This allows readers to understand how climate-related challenges may impact the company over different time horizons.

c) Resilience of organisation's strategy, considering different climate-related scenarios (continued)

Key Risks and Impact

- **Top three physical risks**[6]:
  - i) green construction cost
  - ii) maintenance cost (carbon price)
  - iii) potential revenue loss of green rental premium*
- **Top three transitional risks**[6]:
  - i) energy cooling costs
  - ii) drop in labour productivity (construction cost increase)[7]
  - iii) insurance premium increase[7]
- Transitional risks remain the dominant risk to CDL.
- Expected physical financial impact has almost tripled for 1.5°C scenario compared to 2°C scenario.
- For both 1.5°C and 2°C scenario, Singapore is the country with the highest estimated annual incremental financial risk.[8]
- Floods (river and flash floods) continue to be the extreme weather event that pose the largest acute physical risk to CDL.
- Estimated financial impact of year-round physical risks is more than extreme weather events. This includes climate-related insurance increase, increased labour costs due to heat stress, and energy cooling costs.

- DP are the most exposed to transition risks, whereas Hotels are most exposed to physical risks.
- Singapore is the most exposed country since it has by far the largest share of DP and IP, which are each affected by two out of the top three risks (by estimated annual incremental financial impacts).
- The likely estimated financial impact would be approximately **S$120 million** based on cost of inaction in addressing physical and transitional risks aligned with 1.5°C scenario in year 2030, against a 2019 baseline year.

City Development Limited,
Integrated Sustainability Report 2023 (for FY2022), page 36

Quantified the financial impact under the chosen scenario.
This provides clear insights into the potential economic consequences of climate-related risks.

Charting the Way Forward for a Net Zero Future

High Risk | Moderate Risk | High Opportunity | Moderate Opportunity

* High Risk: financial impact amounting S$20 million and above
* Moderate Risk: financial impact below S$20 million

CDL GET Strategy Alignment	Adaptation and Mitigation Category	Climate Change Risks or Opportunities Covered	Level of Risk* or Opportunity in 2030	Description of Potential Financial Impact	Priority Markets
G Growth (Design and Build)	Sustainable Construction	Green features construction cost premium	High Risk	Designing and constructing new net zero buildings more cost-effectively	Singapore, China, US and UK
		Construction material cost increase (carbon price)	Moderate Risk		
		Labour cost increase due to heat stress (New)	Moderate Risk	Improving construction productivity and footprint; reducing outdoor work risk	Singapore, China
		Maintenance (Scope 1-3 GHGs), Waste and Water costs for DP	Moderate Risk		Singapore, China
E Enhancement (Manage)	Green Retrofits	Maintenance (Scope 1-3 GHGs), Waste and Water Costs for IP and Hotels	High Risk	Encouraging waste recycling and reduction	Singapore, US, UK
		Energy cooling costs	Moderate Risk / High Opportunity	Improving energy and water efficiency in accordance to latest green building standards	Singapore, China, US and UK
		Potential loss of green rental premium revenue (New)	High Risk	Meeting increased customer preferences/ demand	Singapore, UK
T Transformation (Strategic review of portfolio and investments)	Extreme Events Adaptation and Mitigation	Business damage and loss to due to extreme events	High Risk	Avoiding or reducing exposure to extreme events risks for new developments	Singapore, UK
		Climate-related insurance premium increase (New)	Moderate Risk	Improving existing developments' resiliency to extreme events	Singapore, UK, US
		Changing demand patterns	Moderate Risk	Avoiding stranded assets	Singapore, China, US, UK, and New Zealand

Indicated the level of risk and potential financial impact for each identified risk.
This provides a clearer understanding of the severity and economic implications of each climate-related risk.

City Development Limited, Integrated Sustainability Report 2023 (for FY2022), page 37

5. Risk Management

TCFD - Risk Management

Risk Management

Disclose how the organization identifies, assesses, and manages climate-related risks.

Recommended Disclosures

a) Describe the organization's processes for identifying and assessing climate-related risks.

b) Describe the organization's processes for managing climate-related risks.

c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.

Values

- Provides insight into the overall risk management practices of the company, offering valuable input for company valuation analysis and assessing the company's readiness to face upcoming climate challenges, including regulatory changes.
- The integration of climate-related risks into a company's risk management strategy signifies a forward-thinking approach to business resilience and sustainability.
- It not only addresses the immediate concerns related to climate change but also prepares the organisation for future regulatory, market and environmental shifts.
- Effective risk management is essential for companies to navigate the complexities of climate change.

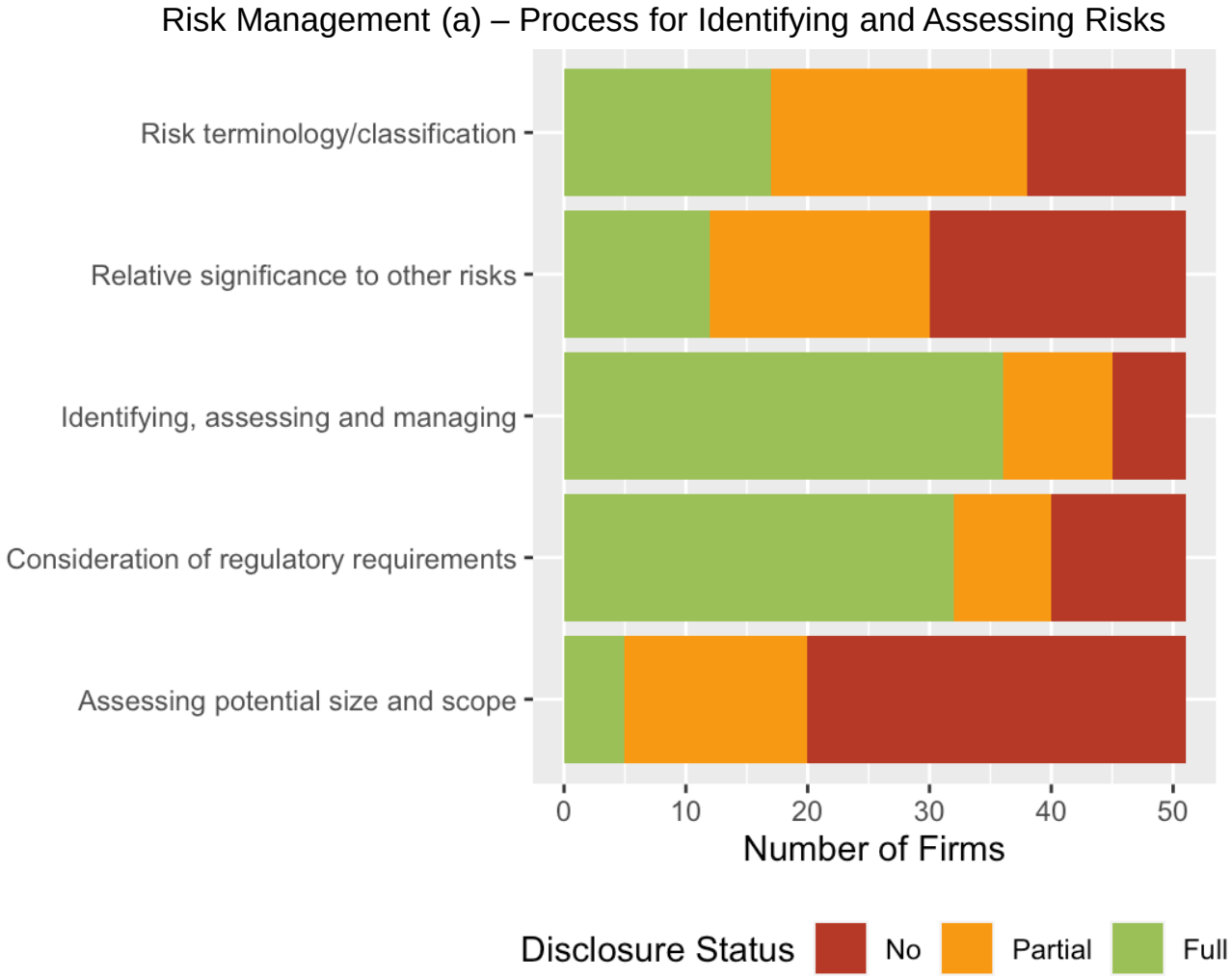
Key Findings

1. **Customised Disclosures:** While Singapore companies have outlined their processes for identifying and assessing climate-related risks, the depth of these disclosures could be improved. Substantive information leading to actionable insights like their relative significance (24% made full disclosures) and/or potential magnitude (10%) of the risks were often omitted.

2. **Risk Prioritisation:** While 75% of companies have disclosed their determination of materiality for climate-related risks well, only 33% of companies fully described their process to prioritise the risks. This lack of transparency around prioritisation is a prevalent shortcoming in climate risk reporting.

3. **Integration into overall risk management:** 73% of companies fully disclosed their processes for integrating these risks into the overall risk management.

a) Processes for identifying and assessing climate-related risks



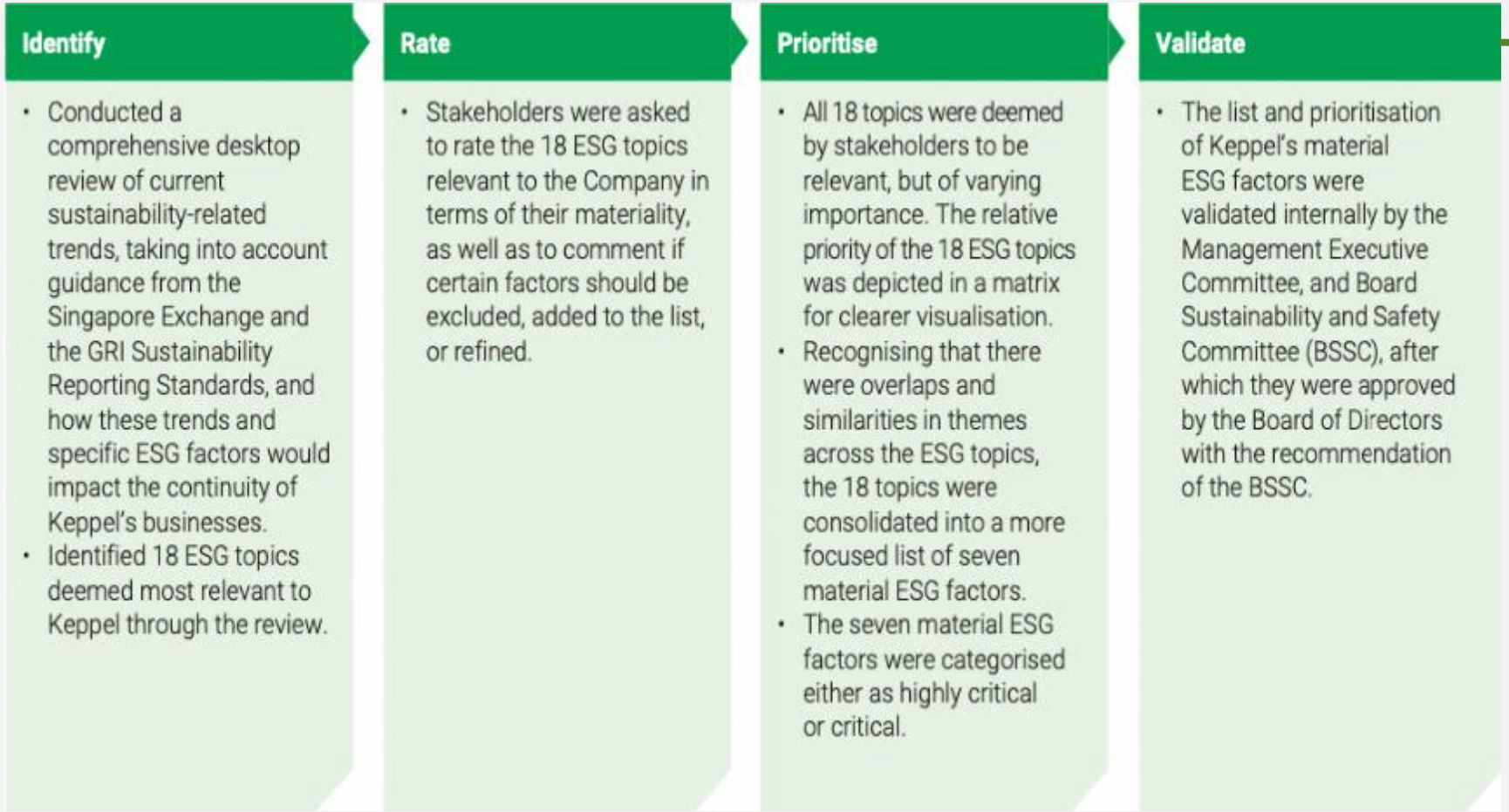
Findings

- 71% of the companies fully disclosed **how they identified, assessed and managed climate-related risks**, including descriptions of their risk assessment frameworks and the integration of climate-related risks into their overall risk management processes.

Only 24% of the companies fully disclosed **the relative significance of these risks** and 33% provided definitions of risk terminology used or references to existing risk classification frameworks used. The lack of information hinders stakeholders' ability to gauge the full impact of climate-related risks and make informed decisions.

Only 10% of the companies fully disclosed the process undertaken to identify and assess **the potential size and scope of climate-related risks.** This information enables readers to understand the comprehensiveness of its engagement with key stakeholders. See illustrative disclosure on page 37.

a) *Processes for identifying and assessing climate-related risks (continued)*



Identify

- Conducted a comprehensive desktop review of current sustainability-related trends, taking into account guidance from the Singapore Exchange and the GRI Sustainability Reporting Standards, and how these trends and specific ESG factors would impact the continuity of Keppel's businesses.
- Identified 18 ESG topics deemed most relevant to Keppel through the review.

Rate

- Stakeholders were asked to rate the 18 ESG topics relevant to the Company in terms of their materiality, as well as to comment if certain factors should be excluded, added to the list, or refined.

Prioritise

- All 18 topics were deemed by stakeholders to be relevant, but of varying importance. The relative priority of the 18 ESG topics was depicted in a matrix for clearer visualisation.
- Recognising that there were overlaps and similarities in themes across the ESG topics, the 18 topics were consolidated into a more focused list of seven material ESG factors.
- The seven material ESG factors were categorised either as highly critical or critical.

Validate

- The list and prioritisation of Keppel's material ESG factors were validated internally by the Management Executive Committee, and Board Sustainability and Safety Committee (BSSC), after which they were approved by the Board of Directors with the recommendation of the BSSC.

Keppel Corporation Limited, Sustainability Report 2022, page 17

Outlined the steps involved in identifying and prioritising climate-related risks.
This offers readers clear insights into how the company systematically evaluates and manages climate-related risks.

b) Processes for managing climate-related risks

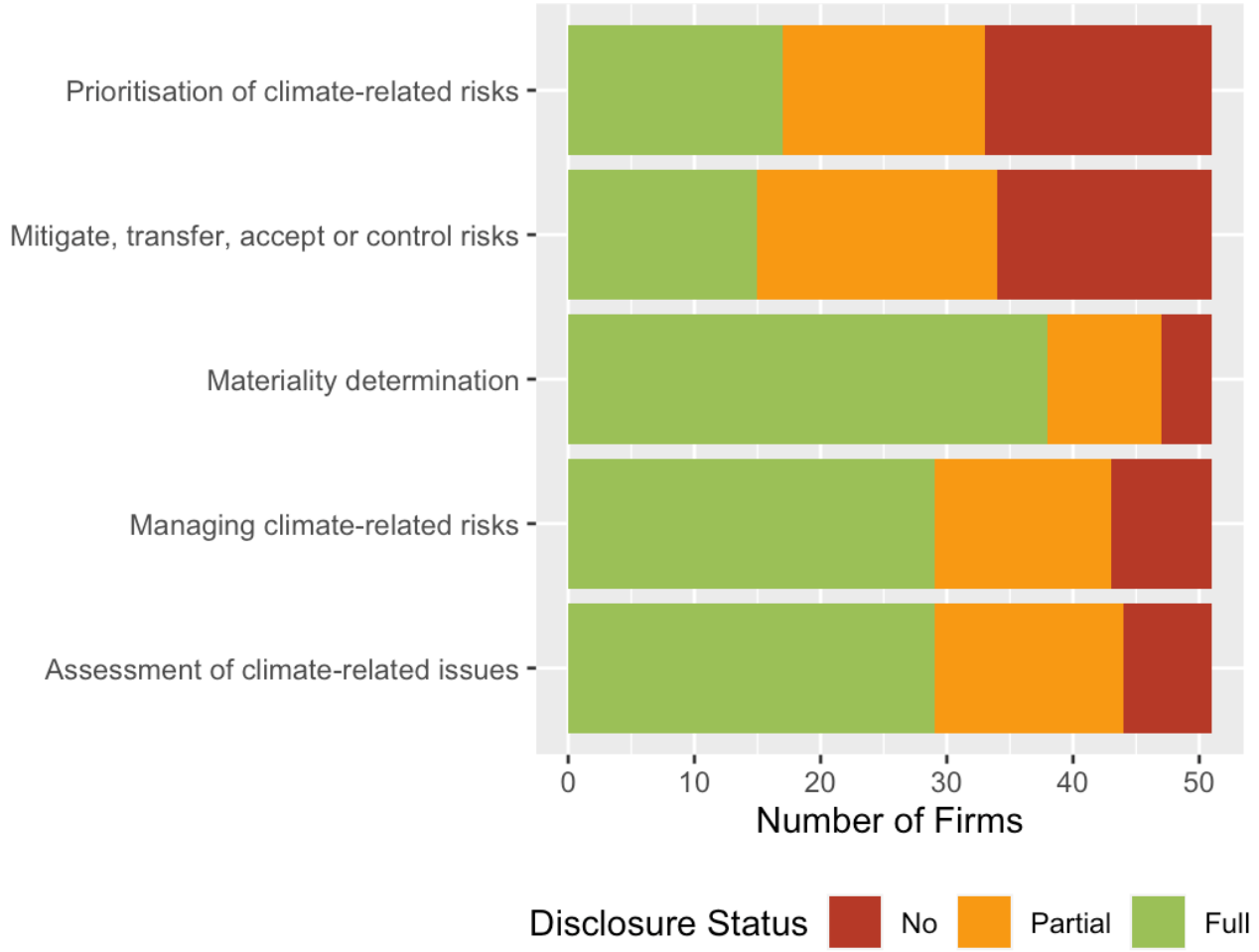
Findings

- Materiality determination was a standout area, with 75% of companies full described how they determined the material climate-related risks and opportunities.

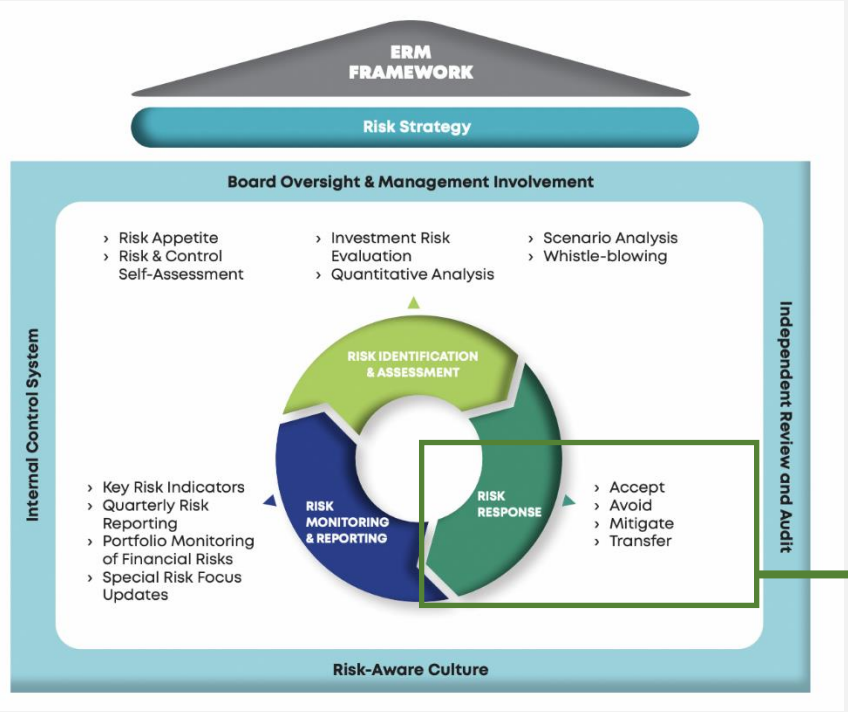
Only 29% of the companies revealed their strategies for managing, transferring, or accepting the identified risks. This information is important, especially for stakeholders seeking a deeper understanding of the company's risk management practices. See illustrative disclosure on page 39.

While 75% of the companies had disclosed their determination of materiality for climate-related risks well, many failed to provide the details stakeholders need. For example, **only 33% described their processes for prioritising these risks.** This lack of transparency around prioritisation is a prevalent shortcoming in climate risk reporting. See illustrative disclosure on page 40.

Risk Management (b) – Process for Managing Risks



b) Processes for managing climate-related risks (continued)



Climate-related physical risks occurring as extreme weather events, for example cases of floods, and changing climate patterns are regularly monitored across the portfolio. In addition, through CLI's ERM Framework and the implementation of the EHSIA for all new investments, certain physical risks are identified and prioritised; e.g., floods are highlighted in the due diligence reports, and plans to integrate climate change resilience and adaptation considerations into the design, development and management of properties are identified. To further strengthen climate resilience to flood risk, CLI will regularly engage its business units to ensure flood emergency response plans are implemented across its portfolio.

CapitaLand Investment Limited, Global Sustainability Report 2022, page 75

Disclosed its approach to determining the next course of action (mitigate, transfer, accept, or control risks). This transparency benefits readers by providing insight into the company's typical responses to identified risks, aiding in understanding its overall risk management strategy.

b) Processes for managing climate-related risks (continued)

Explained the prioritised climate-related risks, assessments and mitigation plans.
This allows readers to understand the company's comprehensive strategy for managing climate-related risks, highlighting both the prioritisation and specific mitigation measures in place.

RISK MANAGEMENT

Climate-related risks are identified and assessed as part of SingLand's ERM framework and are included together with other organisational risks within the RMC's risk registers. The ERM function maintains the Group's ERM framework and facilitates risk management matters with the RMC and relevant SingLand stakeholders. The RMC will review the expected business and financial impact of risks which are material to the organisation, the progress of any mitigation measures implemented, and evaluate any need for updated measures.

SingLand has classified climate change as a Tier One (most critical) risk, which signifies the organization's low to zero risk tolerance for the issue. The RMC monitors all Tier One risks for any changes in the material risk topics' risk ratings, as well as the status of control activities and assurance of those risks. All Tier One risks are monitored regularly and reported quarterly to the RMC, and half-yearly to the ARC.

This year, we have also undertaken an exercise to prioritise the most relevant climate change risks and opportunities for the Group by considering emerging climate change regulations and market trends affecting our business, physical risks affecting Singapore, and feedback from our employees and management.

PRIORITISED PHYSICAL RISKS

- Rising mean temperatures and risk of heatwaves, resulting in increased cooling costs
- Risk of flash floods damaging buildings and disrupting operations
- Property insurance premiums rising due to increased risks of extreme weather events

Based on current assessments, SingLand's dominant physical risk will be the expected rise in global temperatures. To mitigate this risk, we have undertaken Green Mark upgrading works for our portfolio and progressively upgraded our buildings' chiller plant systems over the past five years. This has enabled us to reduce the impact of cooling cost increases due to rising temperatures. All chillers for our 10 properties under the scope of this report have completed, or will be completing upgrades to higher efficiency models by 2030.

To address the risk of flash floods damaging our properties, we will regularly monitor our portfolio's locations against available flood-prone area information from PUB and evaluate the feasibility of incorporating flood adaptation measures as part of regular building retrofits.

PRIORITISED TRANSITION RISKS

- Increased business costs due to higher carbon taxes
- Building sustainability requirements growing in tandem with increased tenant expectations for green offices, leading to additional green construction and retrofit premium
- Enhanced sustainability reporting obligations

Singapore's upcoming carbon tax hikes are set to have a more substantial impact on the Group in a 1.5°C global warming trajectory. As such, our ongoing efforts to obtain Green Mark certifications for our properties will prove crucial in alleviating the financial repercussions of this impending tax increase. The upgrades will also place SingLand in a better position to meet future enhanced building sustainability requirements as Singapore strives to green 80% of its building stock (by gross floor area) by 2030 and reach net zero by 2050.

However, as half our portfolio under the scope of analysis has been certified under the Green Mark Non-Residential Building 2017 standard, there is a risk of not being able to meet the same certification level under the current more stringent Green Mark 2021 requirements. We are evaluating our existing buildings' re-certification risks against the new Green Mark 2021 In-Operation standard and will consider the impact of any additional near-term investments required.

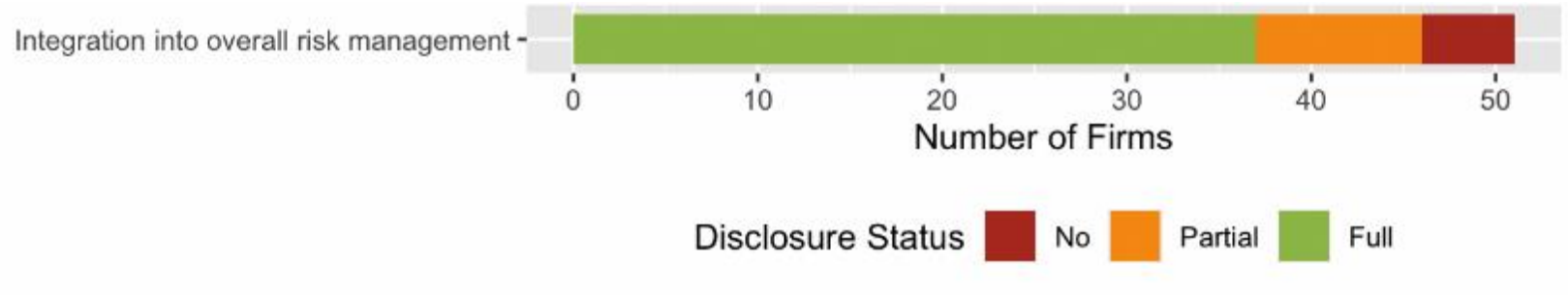
Singapore Land Group Limited, Sustainability Report 2022, pages 50-51

c) Processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management

Finding

- 73% of companies fully disclosed their processes for integrating these risks into the overall risk management.

Risk Management (c) – Integration into Overall Risk Management



6. Metrics and Targets

TCFD - Metrics & Targets

Metrics and Targets

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

Recommended Disclosures

a) Disclose the metrics used by the organization 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 organization to manage climate-related risks and opportunities and performance against targets.

Values

- Provides a foundation for evaluating the effectiveness of activities in other pillars, such as strategy and risk management.
- Stakeholders can use these disclosures to assess the company's climate-related performance over the years and within the industry.
- Utilising specific metrics and targets to monitor and address climate-related risks and opportunities is crucial for companies to demonstrate their commitment to sustainable growth and risk mitigation.
- This approach reflects a structured effort to understand and manage the impact of climate change on their operations and strategic goals.
- Transparent disclosure is essential for stakeholders to assess a company's resilience and adaptability in a rapidly evolving environmental and regulatory landscape..

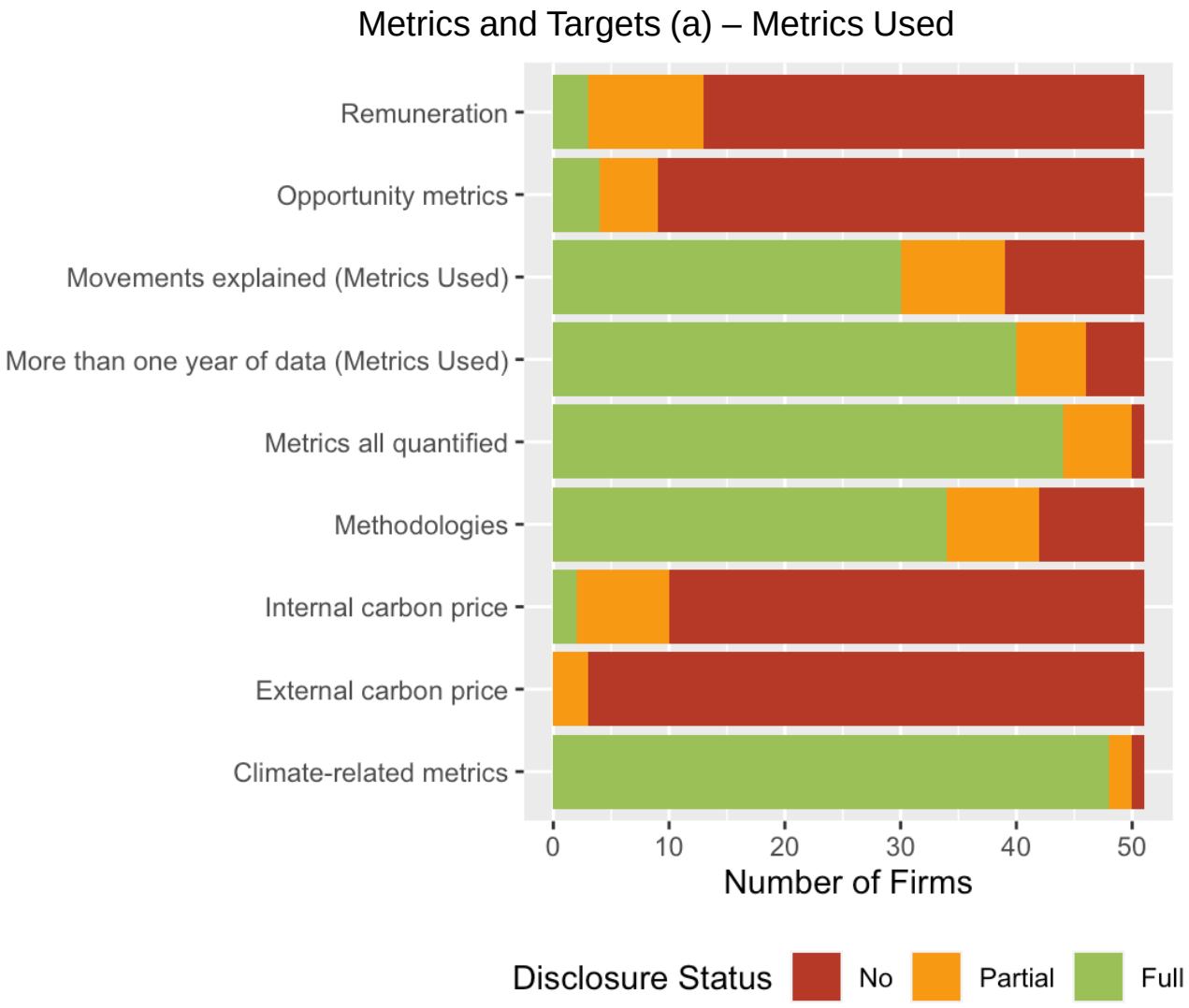
Key findings:

1. **Carbon Emissions Reporting:** The companies demonstrated commendable proficiency in disclosing climate-related metrics, particularly with Scope 1 (96%) and Scope 2 (100%) GHG emissions. Good progress was also noted for Scope 3 emissions, with 59% of companies providing this information.

2. **Opportunity, Remuneration and Carbon Pricing Disclosures:** There was a notable gap in disclosures regarding the linkage between executive remuneration and climate performance (6%) and opportunity metrics (8%). Disclosing opportunity metrics can shift reporting from a compliance task to a forward-looking, proactive strategy, showcasing growth potential and strategic resilience. Furthermore, not many companies made disclosures about internal carbon price (4%) and external carbon price (nil).

3. **Target Setting and Interim Milestones:** While 71% of the companies have set a net zero target by 2050 or earlier, many companies (53%) did not disclose interim milestones. This omission hinders stakeholders' ability to gauge progress toward the long-term goals, making it challenging to assess the effectiveness of the strategies over time.

a) Metrics used to assess climate-related risks and opportunities



Findings:

- 94% of companies have disclosed relevant and applicable non-GHG climate-related metrics (e.g., water, electricity, waste).
- 86% of companies have disclosed quantitative metrics and 78% have disclosed more than one year of data, which enables the assessment of progress made over time.

(To be continued)

a) Metrics used to assess climate-related risks and opportunities (continued)

While 78% of the companies had fully disclosed metrics for multiple years, showing the trend over time, only 59% explained the actions that led to the trend. Disclosing these actions provides valuable insights into the effectiveness of the strategies implemented, allowing readers to better understand the drivers behind the trends.

Only 6% of the companies had provided full disclosure **linking executive remuneration to climate-related performance targets**, incentives for achieving sustainability goals and descriptions of how remuneration policies support the company's climate strategy. This transparency can help stakeholders see how the company's leaders are held responsible for dealing with climate-related issues. See illustrative disclosure on page 46.

Only 4% of the companies made full disclosures about internal carbon pricing, likely due to the absence of such policies. Implementing and disclosing internal carbon pricing can help manage carbon emissions and associated financial risks. It incentivises emission reductions, integrates carbon costs into business decisions and shows a proactive approach to manage climate risks.

There was a significant lack of disclosure on **opportunity metrics.** These metrics are important as they reflect how companies leverage climate-related opportunities like renewable energy investments and sustainable innovations.

Some companies might not disclose due to concerns about revealing competitive advantages. However, such transparency can reveal the company's plan to turn potential threats into strategic advantages. Disclosing these metrics can shift reporting from a compliance task to a forward-looking, proactive strategy, showcasing growth potential and strategic resilience. See illustrative disclosure on page 47.

a) Metrics used to assess climate-related risks and opportunities (continued)

Accountability

- Chief Executive Officers (CEO) of respective business units (BU) within CLI are Sustainability Champions
- ISO 14001-certified Environmental Management System ensures accountability to all staff
- Key performance indicators (KPIs) are linked to remuneration for all staff; performance is tracked regularly

KPIs and Performance-linked Remuneration

- Set green rating for new acquisitions and major refurbishments
- Green existing property portfolio
- Set eco-efficiency targets and improve performance through tracking of energy and water usage, waste generation and carbon emissions

Disclosed performance-linked remuneration policy tied to climate-related metrics.
This helps readers understand how executive incentives are aligned with climate goals, providing insights into the company's commitment to achieving these objectives.

KEY PERFORMANCE INDICATORS (KPIS) TIED TO REMUNERATION

CLI's revised 2030 Sustainability Master Plan outlined the Group's 2030 targets and pathways to transit to a low-carbon business, improve resource use and enable a circular economy.

To measure its performance, CLI has incorporated KPIs, most of which are linked to remuneration for its staff, including top management.

2030 Sustainability Master Plan (SMP) Targets and Performance

	2030 Target		2022 Performance[4]
Low-carbon Transition	Achieve science-based target of reducing carbon emissions by 46% from 2019 baseline	○	• 6.8% reduction against 2019
	Reduce carbon emissions intensity by 72% from 2019 baseline	○	• 15.3% reduction against 2019
	Reduce energy consumption intensity by 15% from 2019 baseline (35% from 2008 baseline)	○	• 14.7% reduction against 2019 • 42% reduction against 2008
	45% of electricity consumption from renewable sources	○	• 5%
	100% of existing buildings[5] to achieve a minimum green rating	○	• 58%

CapitaLand Investment Limited, Global Sustainability Report 2022, pages 13 and 18

a) Metrics used to assess climate-related risks and opportunities (continued)

Description and potential impact	How we manage it
Opportunity: Sustainable procurement and waste management systems that prevent unnecessary food and materials wastage (e.g. paper, plastics, food waste) and maximise sustainable efforts such as recycling and food composting	• Optimise production system at the new SATS Food Hub to minimise wastage and energy footprint • Develop a pro-recycling company culture where staff are encouraged to segregate discarded items so that waste can be effectively recycled (e.g. by providing more recycling bins for different waste categories across our premises) • Explore new opportunities to upcycle material waste into usable products • Explore feasible solutions for water recycling • Partner with waste processing companies to improve recycling efforts • Engage with suppliers proactively for responsible sourcing of raw materials • Continue to recycle materials such as plastics, carton boxes, metals and glass bottles and used cooking oil

Baseline	Progress as of FY23	Goals
Food Waste Intensity (FY21) **4.1%** Sustainable Food Packaging **FY23 baseline is currently under analysis and validation**	Food Waste Intensity **2.3%** Sustainable Food Packaging **Formation of packaging task force and development of packaging "Golden Rules"**	Food Waste Intensity **Halve food waste intensity in Singapore operations by 2028** Sustainable Food Packaging **100%** **sustainable food packaging by 2030**

SATS Ltd., Sustainability Report FY2022-23, pages 16 and 68

Provided opportunity-related metrics
This helps readers understand their commitment and progress towards the company's identified opportunities (e.g., food waste management).

b) Scope 1, Scope 2 and Scope 3 GHG emissions and the related risks

Findings

- Almost all companies disclosed **Scope 1 and 2 GHG emissions** (96% and 100%, respectively). **Good progress was also made for Scope 3** (59%).

Only 41% of companies reported their Scope 3 emissions by categories outlined in the GHG Protocol. For Scope 2 disclosures, only 24% of the sample companies disclosed both location- and market-based GHG emissions. Such classification provides a clearer understanding of emission sources, allowing for a more precise evaluation of a company's value chain emissions. See illustrative disclosures on page 49.

Only 27% fully disclosed their reporting boundaries. Specifying whether they used the operating control, financial control, or equity share approach helps ensure consistency and comparability across reports.

82% of the sample companies fully disclosed multi-year metrics, showing changes over time. However, only 61% have explained the actions behind these changes or movements (see illustrative disclosure on page 50).

Metrics and Targets (b) – Scope 1, Scope 2, and Scope 3 GHG Emissions

b) Scope 1, Scope 2 and Scope 3 GHG emissions and the related risks (continued)

Scope 1 (tCO_{2e})	FY2022	FY2021	FY2020
Stationary combustion[14]	50	47	38
Mobile combustion[15]	255	269	290
Fugitive emissions - refrigerant gases	882	1,040	1,775
Total Scope 1	1,187	1,356	2,103

Scope 2 (tCO_{2e})	FY2022	FY2021	FY2020
Purchased electricity (location-based)	55,661	58,249	55,949
Purchased electricity (market-based)[16]	50,079	54,619	53,335

	FY2022	FY2021	FY2020
Total Scope 1 + 2 (tCO_{2e})[17]	51,266	55,975	55,438

Scope 3 (tCO_{2e})	FY2022	FY2021	FY2020
Category 3: Fuel and energy-related emissions (not already covered by Scope 1 and 2)	8,307	8,475	8,130
Category 5: Waste generated in operations	11.3	3.5	No data
Category 6: Employee business travel	284	102[18]	8
Category 7: Employee commute	370[19]	200	372
Category 13: Downstream leased assets - SHDC@Loyang	8,575	4,212	NA[12]
Category 14: Electricity consumption by exclusive partners' shops	68	108	148
Total Scope 3	17,615	13,100[20]	8,658

Starhub Ltd, Sustainability Report 2022, page 129

Disclosed Scope 1, 2 and 3 emissions, together with material categories in Scope 3 GHG emissions.
This allows readers to understand the full extent of the company's greenhouse gas emissions, including specific categories within Scope 3 GHG emissions

Disclosed Scope 2 emissions using both location-based and market-based methods.
This allows readers to understand the effects of scope 2 emissions from market purchases of renewable energy.

b) Scope 1, Scope 2 and Scope 3 GHG emissions and the related risks (continued)

For FY2022/23, SingPost Group's total fuel consumption and associated Scope 1 emissions were 438 TJ and 32,361 tCO_2e respectively. This is an increase as compared to the previous year due to an expansion of reporting scope to cover newly acquired FMH Group, which includes linehaul operations across Australia in its portfolio.

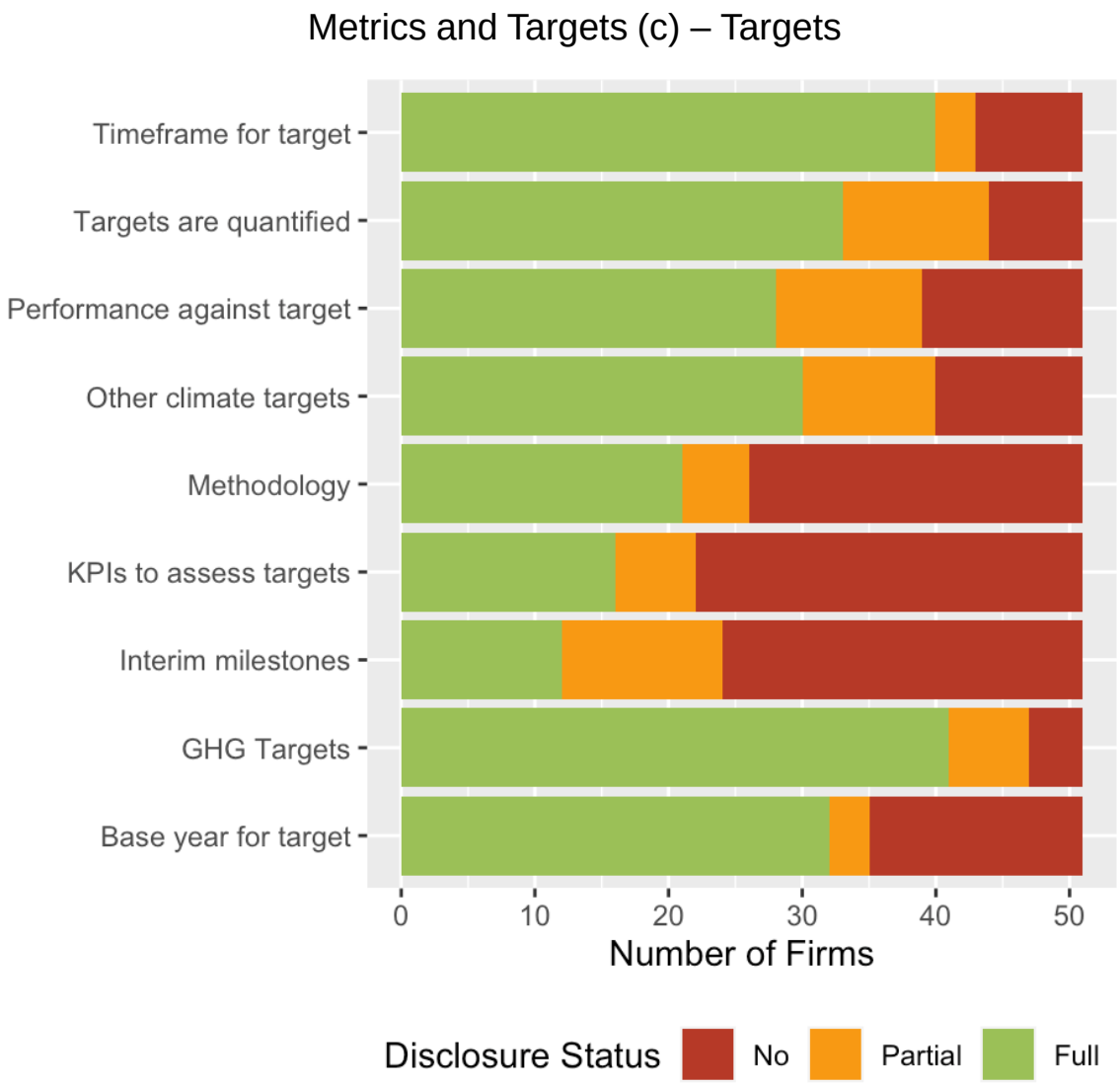
SingPost is exploring viable ways to reduce its Scope 1 emissions from linehaul operations with technologies and alternatives that are currently available in the market.

In Singapore, there was a decrease in Scope 1 emissions by approximately 4% compared to FY2021/22. This was mainly due to conversion from internal combustion engine vehicles to electric vehicles for Singapore operations.

Singapore Post Limited, Sustainability Report 2022/23, page 24

Explained Movements in Emissions Due to Acquisitions and Reduction Efforts.
This allows readers to better understand both the changes in emission figures and the underlying actions, enabling them to assess the company's strategic decisions and effectiveness in managing its carbon footprint.

c) Targets to manage climate-related risks and opportunities and performance against target



Findings

- 80% of the companies fully disclosed **their GHG targets and the timeframes for achieving these targets**, indicating a strong commitment to their long-term climate goals.

Of 92% companies that set GHG targets, 71% (or 36) of the companies set a net zero target by 2050 in line with the Paris Agreement. 10 companies were committed to the SBTi, of which 7 set targets to reduce GHG emissions in line with keeping global temperature increase below 1.5°C compared to pre-industrial levels. See illustrative disclosure on page 52.

Only 55% of the sample companies have fully disclosed their yearly performance against the targets and more than half (53%) **did not report on interim milestones**. Reporting on yearly progress and interim milestones would entail maintaining momentum and demonstrating ongoing commitment toward long-term goals. See illustrative disclosure on pages 53 and 54.

c) Targets to manage climate-related risks and opportunities and performance against target (continued)

Committing to Net Zero by 2050 and Elevating CapitaLand's Carbon Emissions Reduction Targets to 1.5°C Scenario

In 2022, CapitaLand Group elevated its scope 1 and 2 carbon emissions reduction targets which were validated by Science Based Targets initiative (SBTi) to be in line with a 1.5°C trajectory[3], currently the most ambitious designation available through the SBTi process. This will translate to Net Zero in 2050.

Aligned with the Group's elevated science-based target, CICT commits to reducing its absolute scope 1 and 2 emissions by 46% by 2030 from a 2019 base year and aims to achieve Net Zero by 2050, consistent with the effort required to limit global temperature increase to below 1.5°C.

To operationalise its SBTi approved carbon emissions reduction target for scope 1 and 2 emissions, CLI is reviewing its carbon intensity reduction targets and other environment targets, including changing reference to 2019 as the baseline year instead of 2008[4]. CLI also aims to conduct a comprehensive review of its scope 3 emissions to better track and disclose its material scope 3 emissions, and is committed to developing scope 3 emission goals aligned to science-based targets.

Over the next decade, as part of CLI's roadmap to Net Zero, CLI and CICT will prioritise the decarbonisation levers below, and in particular, continue to source globally for new ideas and technologies to achieve higher energy efficiency and intensify its renewable energy integration efforts.

CapitaLand Integrated Commercial Trust, Sustainability Report 2022, page 19

Used the SBTi scenario to set carbon emissions targets, specifying the timeframe and quantity of emissions to be reduced.
This allows readers to understand the company's specific commitments and assess the credibility and ambition of its climate action plans.

c) Targets to manage climate-related risks and opportunities and performance against target (continued)

SIA's Targets

Target	Due	Status
Carbon		
To achieve net zero carbon emissions by 2050	2050	On track
Energy		
To achieve the BCA Green Mark Platinum rating for both the SIA Training Centre and TechSQ	FY2022/23	Achieved
To harvest and use solar energy at all SIA-owned buildings in Singapore	FY2023/24[21]	Ongoing
To meet SIA Supplies Centre's energy demand with 100% renewable energy, of which at least 50% is self-generated from its rooftop solar panels	FY2025/26	On track
To obtain BCA Green Mark accreditation for SIA-owned buildings in Singapore	FY2026/27	On track
To reduce energy consumption in SIA-owned buildings by 10% from FY2019/20 levels	FY2029/30	On track
Water		
To reduce potable water consumption in SIA-owned buildings by 10% from FY2019/20 levels	FY2029/30	On track

Outlined various non-GHG-related climate targets, detailing base years, target years and performance status. This helps readers understand the company's comprehensive approach to climate action, offering insights into its targets, timelines and progress.

Singapore Airlines Limited, Sustainability Report FY2022/23, page 25

c) Targets to manage climate-related risks and opportunities and performance against target (continued)

Sector	Sub-sectors & types of financings included	Emission scopes included	Target metric	Reference scenario	Baseline (and reference start-point)[16]	2022[17]	2030 (reduction vs. baseline)	2050
					Financed emissions		Decarbonisation targets	
Power	• Power generation • Power equipment manufacturers	• Scope 1 (generation) • Scope 3 (equipment)	• Emissions intensity ($kgCO_2$/MWh)	IEA NZE	260 (438)	227	138 (-47%)	0 (-100%)
Oil & Gas	• Upstream • Downstream • Integrated	• Scope 1-3	• Absolute financed emissions ($MtCO_2e$)	IEA NZE[18]	38.6 (N/A)	35.6	27.7 (-28%)	3.0 (-92%)
Automotive	• Automotive OEMS • Captive automotive finance companies[19] Automotive distributors • Dedicated powertrain manufacturers	• Scope 3 (tailpipe emissions of passenger vehicles)	• Emissions intensity ($kgCO_2$/vehicle-km)	IEA NZE[20]	0.120 (0.144) (NEDC)	0.117 (WLTP) 0.108 (NEDC)	0.052 (-57%) (NEDC)	0 (-100%) (NEDC)
Steel	• Steel production	• Scope 1-2	• Emissions intensity ($kgCO_2e$/kg)	Mission Possible Partnership – Tech Moratorium Scenario	1.95 (1.90)	1.99	1.42 (-27%)	0.14 (-93%)

DBS Group Holdings Ltd, Sustainability Report 2022, page 23

Outlined long-term and interim targets for nine sectors and disclosed yearly progress.
This helps readers understand the company's sector-specific goals, the measurement approach and the progress towards achieving these targets.

7. Connectivity to Financial Reporting

Climate-related Information in the Financial Statements

Traditional financial reports have long stood as the bedrock of corporate communication to investors and other stakeholders. Yet, the burgeoning significance of environmental responsibility demands that these reports evolve to encompass climate-related information. While companies are increasingly assessing the impact of climate risks on their financial position and performance, companies with material potential impact should disclose these assessments in their financial statements.

Singapore's leading companies, such as Keppel DC REIT and Oversea-Chinese Banking Corporation Limited (OCBC), are commencing to incorporate material climate-related data within the risk factor or management sections of their financial reports. However, this practice is not widespread and disclosure remains generic.

Environmental factors are anticipated to have a significant financial impact. For example, assets exposed to climate deterioration may need to be decommissioned early, provisions and contingencies may be needed for rapidly evolving climate regulations and expectations and changing climate conditions can impact the fair value measurements of biological assets.

It is, therefore, essential for Singaporean companies to incorporate climate-related impact into financial statements to enhance the relevance and usefulness of financial reporting. They should strive to illustrate how climate factors permeate the financial performance and financial position, thereby giving readers a fuller picture of how such issues might affect asset valuations, provisions for future liabilities and overall financials.

While some Singapore companies disclosed climate risks in their financial and annual reports, there is room for improvement in strengthening the connection between climate risks and financial performance. There are useful global examples that can serve as models for achieving this.

To identify them, we selected 60 companies with an A-rating from CDP in 2023, a testament to their environmental disclosure excellence. From this group, we analysed a subset: 11 companies that achieved an A across the board—in climate risk, water security and forests—and additional subsets of 26 European and 23 Asian companies that each earned an A in the climate change category.

Through this process, we distilled companies with exemplary practices, including Lenzing AG and Shell plc. While this list is not exhaustive, it serves as a reference point for Singapore companies aiming to refine their climate-related financial disclosures and align with international best practices.

Climate-related Information in the Financial Statements (continued)

The Lenzing Group's disclosures (see page 60) illustrated how to embed ecological responsibility into financial narratives, and showcased measures for addressing climate risks and sustainable practices as part of their corporate strategy. The disclosures reflected the entity's assessment of the potential financial impact of changing climatic conditions, developments in climate-related regulations and emissions from individual industrial plants, and clearly communicated its climate-related projections and strategies.

Shell plc's climate-related disclosures (see pages 61 and 62) went a step further by quantifying the financial impact of climate change on its financials. Through modelling different carbon pricing scenarios and articulating their corresponding financial implications on specific assets, the disclosures provided insight into how changes in climate-related variables could affect the entity's financial metrics. This analysis was also extended to explain how these variables could impact Shell plc's ability to distribute dividends to shareholders.

These cases represent favourable approaches to climate-related financial disclosure, offering Singapore companies insight into how they can enhance the transparency and detail of their own reporting, bridging the gap between environmental responsibility and financial accountability.

These international cases present methodologies that Singapore companies can emulate. By adopting similar transparency in climate-related financial disclosures, companies in Singapore can not only demonstrate a comprehensive understanding of climate-related risks and liabilities but also affirm their commitment to ecological responsibility within their financial reporting. This proactive and transparent approach is likely to foster greater trust among investors and stakeholders, supporting informed decision-making and promoting a vision of long-term sustainable growth.

Still, while many companies globally are providing extensive disclosures on climate risks, it was hard to find specific examples of how these risks quantitatively impacted financials; it was rare to see a clear example showing a direct impact on fair value or impairment.

This raises questions about whether the absence of significant quantitative impact indicates that climate change effects are not yet significant or whether companies are not yet fully linking these impacts in their reporting. Despite extensive qualitative disclosures, the lack of concrete quantitative examples could imply that the financial impact of climate risks is either not significant at present or not being explicitly communicated.

TCFD Framework

Location of Disclosure for Task Force Recommendations

Legend: Governance, Strategy, Risk Management, Metrics and Targets

	Financial Filing	Other Annual Report*
Information is deemed Material	■ ■ ■ ■	
Information is deemed not Material	■ ■	
Large non-financial companies in high-emitting industries[1]	■ ■	■ ■

** Other annual reports include regulatory or official company reports that are issued at least annually.*

Companies should determine materiality for climate-related issues consistent with how they determine the materiality of other information included in their annual financial filings. The Task Force **cautions companies against prematurely concluding that climate-related risks and opportunities are not material** based on perceptions of the longer-term nature of some climate-related risks.

Companies need to make financial disclosures in accordance with their national disclosure requirements. If certain elements of the recommendations are **incompatible with national disclosure requirements for financial filings,** companies are encouraged to **disclose those elements through other reports that are issued at least annually.**

The TCFD framework proposes that climate-related information deemed material should be included in the main financial filings to ensure clarity and transparency. Inclusion will provide investors and other stakeholders with a better understanding of the risks and opportunities faced by the company, aiding in more informed decision-making.

ISSB Standards

Climate-related risks and opportunities

10 An entity shall disclose information that enables users of general purpose financial reports to understand the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects. Specifically, the entity shall:

(a) describe climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects;

(b) explain, for each climate-related risk the entity has identified, whether the entity considers the risk to be a climate-related physical risk or climate-related transition risk;

Financial position, financial performance and cash flows

15 An entity shall disclose information that enables users of general purpose financial reports to understand:

(a) the effects of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period (current financial effects); and

(b) the anticipated effects of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how climate-related risks and opportunities are included in the entity's financial planning (anticipated financial effects).

The ISSB guideline outlines the requirement for financial reports to incorporate climate-related risks. The guideline suggests that the company should identify any physical or transition risks that may impact its prospects. This information can help the users of the financial report to anticipate the company's financial performance.

Climate risk

The effects of climate change are increasingly apparent globally and gaining attention from countries to corporates. Understanding and addressing climate-related impacts is crucial to ensuring the business remains sustainable and resilient. In this regard, the Group is focused on strengthening the portfolio (covering all significant colocation assets) and operational capabilities against climate change risks, as well as assessing potential opportunities the Group can capitalise on as the world endeavours to transit to a low-carbon economy.

The Taskforce on Climate-related Financial Disclosures (TCFD) has classified climate-related risks into two categories – physical risks and transition risks.

Firstly, physical risks that arise from changes in the climate can be event driven or a result of longer-term shifts. The Manager continues to maintain an appropriate level of insurance and schedule regular maintenance to ensure the resilience and durability of the building and equipment, in response to risks such as extreme precipitation and weather.

Secondly, transition risks are risks associated with societal and economic shifts in market preferences, norms and technology towards a low-carbon economy. Governments globally have been taking steps such as increasing price of carbon and imposing stricter building regulations. Examples of mitigating responses include optimising building energy consumption through the adoption of energy-efficient equipment, technologies and sustainable building designs, as well as being fully compliant with current regulations with most properties being green certified with high standards of environmental performance.

To bolster the resilience of the Group's portfolio and operations, the Manager continues to evolve its approach to ensure resilience over such climate-related risks. The Manager with the support and guidance of the Environmental, Social and Governance (ESG) Board Committee, reviews the ESG strategy, roadmaps and targets, which includes climate-related targets on emissions and energy, as well as climate change adaptation. The Manager will continue to consider and integrate ESG factors in the Group's strategy formulation and business operations and growth.

Keppel DC REIT, Annual Report 2023, pages 154

38. Risk Management (continued)

38.4 Insurance-Related Risk Management (continued)

Operational and Compliance Risk (continued)

The day-to-day management of operational and compliance risk is through the maintenance of comprehensive internal control frameworks, supported by an infrastructure of systems and procedures to monitor processes and transactions. GMC reviews operational and compliance issues on a GEH Group basis at its monthly meetings while local level issues are managed and monitored by the local SMTs. GEH Group Internal Audit team reviews the systems of internal controls to assess their ongoing relevance and effectiveness, and reports at least quarterly to GEH Group Audit Committee.

Technology, Information and Cyber Risks

Technology risk is defined as risk related to any potential adverse outcome, damage, loss, disruption, violation, system/hardware failure, capacity deficiency arising from the use of technologies such as electronic hardware/devices, software, online networks and telecommunications systems.

Information risk is defined as risk related to confidentiality, integrity and availability of information (in physical or digital form).

Cyber risk is defined as risk related to acts perpetrated by malicious threat actors including internal sabotage, espionage, malicious attacks, hacking incidents, fraudulent conduct using information and communication technologies.

GEH Group adopts a risk-based approach in managing technology risks relating to IT disruption, cyber threats, data loss and third parties. Key risk indicators related to technology, information and cyber risks are reported to GEH Group Board on a regular basis. Independent assessment is performed by GEH Group Internal Audit on the adequacy and effectiveness of the technology risk controls.

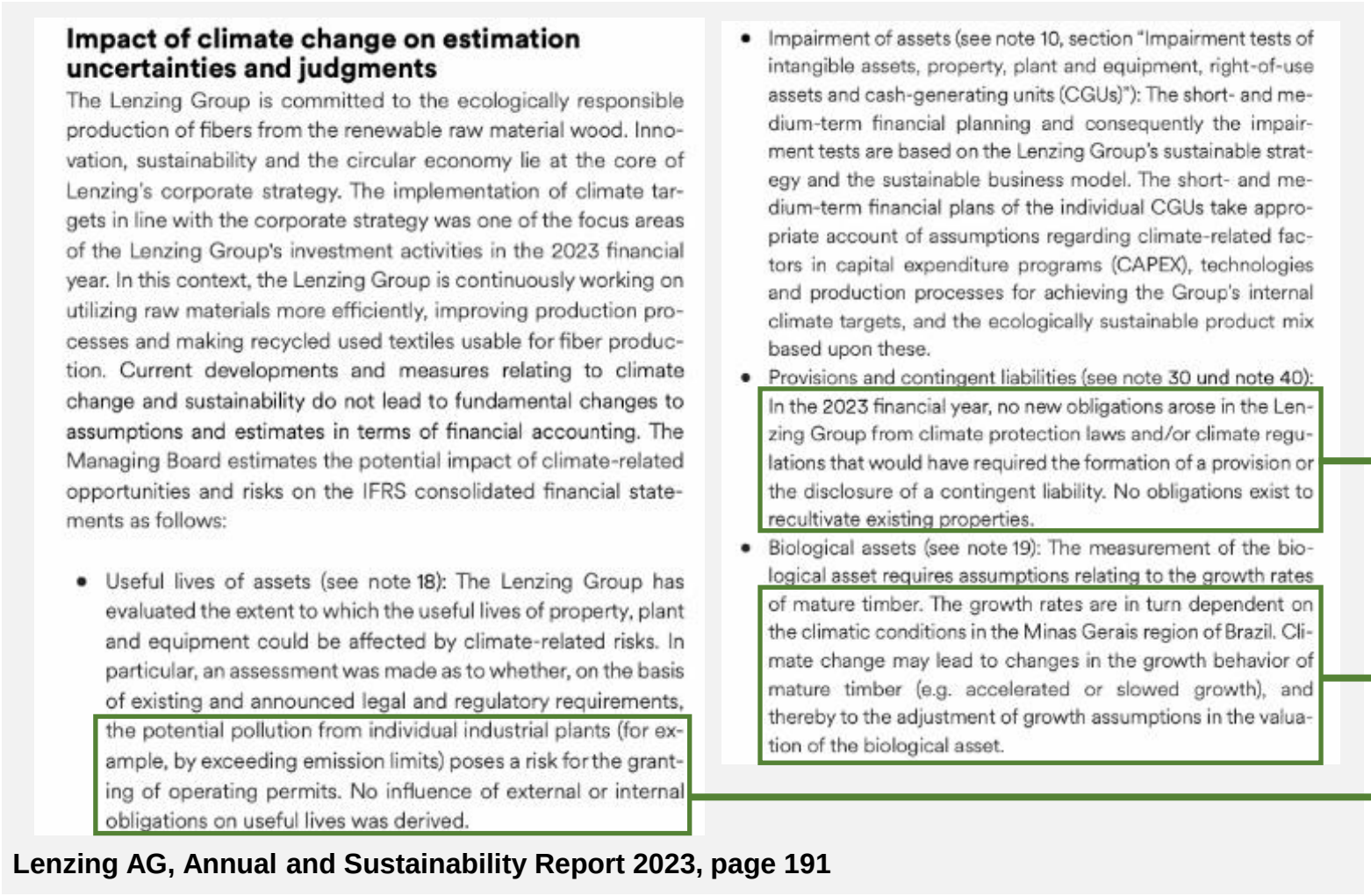
Sustainability Risk

Sustainability risk is defined as any environmental, social or governance (ESG) event or condition that, if it occurs, could cause an actual or a potential material negative impact on the value of the investment and enterprise value. GEH Group has integrated ESG considerations into the investment and underwriting activities.

Oversea-Chinese Banking Corporation Limited, Annual Report 2022, pages 221

These examples from Keppel DC REIT and OCBC have been taken directly from the financial statements, not the annual reports. Including climate risks in the notes section of the financial statements helps users to recognise the potential climate-related risks and opportunities while making any assumptions or valuations. As most financial analysts frequently use information extracted from financial statements, it adds significant value.

However, this information was included in the risk management section of the notes to the financial statements. As seen in global examples, there is room for improvement in fully integrating these risks into the financial statements.



Impact of climate change on estimation uncertainties and judgments

The Lenzing Group is committed to the ecologically responsible production of fibers from the renewable raw material wood. Innovation, sustainability and the circular economy lie at the core of Lenzing's corporate strategy. The implementation of climate targets in line with the corporate strategy was one of the focus areas of the Lenzing Group's investment activities in the 2023 financial year. In this context, the Lenzing Group is continuously working on utilizing raw materials more efficiently, improving production processes and making recycled used textiles usable for fiber production. Current developments and measures relating to climate change and sustainability do not lead to fundamental changes to assumptions and estimates in terms of financial accounting. The Managing Board estimates the potential impact of climate-related opportunities and risks on the IFRS consolidated financial statements as follows:

- Useful lives of assets (see note 18): The Lenzing Group has evaluated the extent to which the useful lives of property, plant and equipment could be affected by climate-related risks. In particular, an assessment was made as to whether, on the basis of existing and announced legal and regulatory requirements, the potential pollution from individual industrial plants (for example, by exceeding emission limits) poses a risk for the granting of operating permits. No influence of external or internal obligations on useful lives was derived.
- Impairment of assets (see note 10, section "Impairment tests of intangible assets, property, plant and equipment, right-of-use assets and cash-generating units (CGUs)"): The short- and medium-term financial planning and consequently the impairment tests are based on the Lenzing Group's sustainable strategy and the sustainable business model. The short- and medium-term financial plans of the individual CGUs take appropriate account of assumptions regarding climate-related factors in capital expenditure programs (CAPEX), technologies and production processes for achieving the Group's internal climate targets, and the ecologically sustainable product mix based upon these.
- Provisions and contingent liabilities (see note 30 und note 40): In the 2023 financial year, no new obligations arose in the Lenzing Group from climate protection laws and/or climate regulations that would have required the formation of a provision or the disclosure of a contingent liability. No obligations exist to recultivate existing properties.
- Biological assets (see note 19): The measurement of the biological asset requires assumptions relating to the growth rates of mature timber. The growth rates are in turn dependent on the climatic conditions in the Minas Gerais region of Brazil. Climate change may lead to changes in the growth behavior of mature timber (e.g. accelerated or slowed growth), and thereby to the adjustment of growth assumptions in the valuation of the biological asset.

Lenzing AG, Annual and Sustainability Report 2023, page 191

Assessed climate risks for each financial line items, such as valuations of biological assets, useful lives of property, plant and equipment, impairment tests and provisions and contingent liabilities.
This comprehensive and holistic disclosure ensures transparency and helps readers understand the financial implications of climate factors.

Costs for evolving carbon regulations are based on a forecast of Shell's equity share of emissions and are included in the Operating Plan at Shell's mid-price outlook on a country-by-country basis and represent management's best estimate. In the short and near term, up to around 2030, costs for carbon emissions estimates are largely policy driven, through emission trading schemes or taxation levied by governments which currently vary significantly on a country-by-country basis. Beyond 2030, where policy predictions are more challenging, the costs for carbon emissions are estimated based on the expected costs of abatement technologies required for 2050. The estimated costs are trending towards $125 or $170 per tonne (RT23), depending on the country [A], in 2050. This outlook used for the Operating Plan sits within the middle of abatement costs range of $100-200 which incorporates a broad range of technologies.

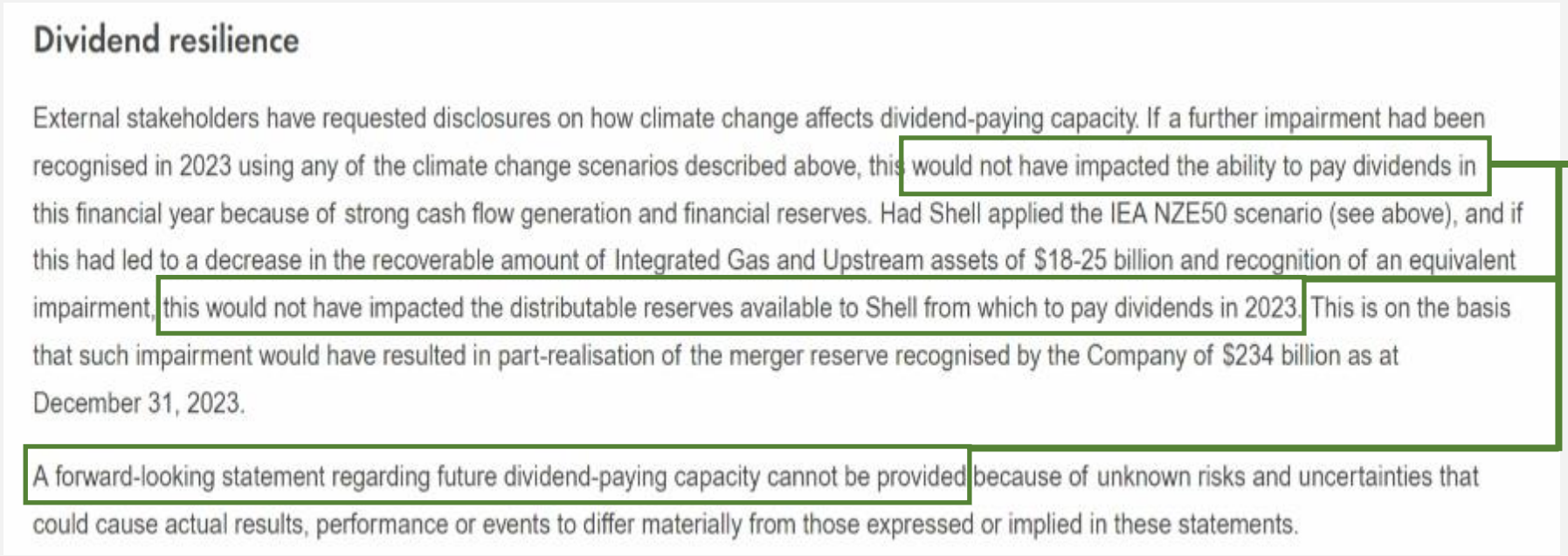
[A] Except for the Netherlands and Norway where the estimated mid-price assumption is around $220 per tonne in 2050.

Applying the IEA NZE 2050 carbon price scenario to Integrated Gas assets of $72 billion (2022: $75 billion) and Upstream assets of $84 billion (2022: $88 billion), up to the end of life of these assets, shows recoverable amounts that are $2-4 billion (2022: $2-5 billion) lower for Integrated Gas and up to $1 billion lower for Upstream than the carrying amounts as at December 31, 2023.

Applying the IEA NZE 2050 carbon price scenario to Chemicals and Products assets of $44 billion shows recoverable amounts that are $3-4 billion lower than the carrying amounts as at December 31, 2023. For Chemicals and Products, increased carbon cost could however potentially be recovered partially through increased product sale prices.

Shell plc, Annual Report 2023, pages 264-265

Provided a dedicated chapter on climate change and energy transition and offers an in-depth outlook on carbon pricing, including a sensitivity analysis of carbon prices. This allows readers to better understand the financial impact of climate-related factors on the company's overall strategy.



Dividend resilience

External stakeholders have requested disclosures on how climate change affects dividend-paying capacity. If a further impairment had been recognised in 2023 using any of the climate change scenarios described above, this would not have impacted the ability to pay dividends in this financial year because of strong cash flow generation and financial reserves. Had Shell applied the IEA NZE50 scenario (see above), and if this had led to a decrease in the recoverable amount of Integrated Gas and Upstream assets of $18-25 billion and recognition of an equivalent impairment, this would not have impacted the distributable reserves available to Shell from which to pay dividends in 2023. This is on the basis that such impairment would have resulted in part-realisation of the merger reserve recognised by the Company of $234 billion as at December 31, 2023.

A forward-looking statement regarding future dividend-paying capacity cannot be provided because of unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements.

Shell plc, Annual Report 2023, page 268

Discussed dividend resilience in the context of climate-related risks.
This allows readers to better understand the financial impact of climate-related factors on the company's overall strategy.

NUS Research Team

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Geon Hyeong is a NUS BAC student who was a translator in the Republic of Korea army. He was also a former intern at the ESG Centre of Deloitte Korea.

Glossary of Terms

Term	Definition
FY	Financial year
GHG	Greenhouse gas, which can be categorised under GHG Protocol as follows • Scope 1 emissions are direct emissions from owned or controlled sources. • Scope 2 emissions are indirect emissions from the generation of purchased energy. • Scope 3 emissions are all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.
IFRS	International Financial Reporting Standards
IFRS S1	IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information
IFRS S2	IFRS S2 Climate-related Disclosures
ISSB	International Sustainability Standards Board that have issued the following standards to-date: • IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information • IFRS S2 Climate-related Disclosures
Listed issuers	Issuers of equity securities listed on Singapore Exchange Securities Trading Limited, comprising Singapore-incorporated and foreign-incorporated companies, business trusts, investment funds (excluding exchange traded funds) and real estate investment trusts
SBTi	Science-Based Targets initiative
SGX RegCo	Singapore Exchange Regulation
TCFD	Taskforce on Climate-Related Financial Disclosures