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Effective climate governance – climate scenario analysis

Understanding the role of the director in the development, analysis and review of climate scenarios

Thanks to Chapter Zero New Zealand Foundation Partners KPMG and Ākina, along with the External Reporting Board and Ministry for the Environment, for their involvement in this work.



Produced October 2023

Disclaimer: This guide is not a substitute for legal advice and should only be used as a reference point. The Institute of Directors has made every effort to ensure the information contained in this publication is reliable, but makes no guarantee of its completeness. Our aim is to point the reader in the right direction and highlight the need for directors to be engaged with climate scenarios.

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What is climate scenario analysis?

Climate change is impacting, and will continue to impact, the ability of organisations to create and maintain value. Directors have a critical role in identifying and managing climate change risks and opportunities. Because of the high degree of uncertainty regarding the warming that our planet will experience in the future, and the speed and scale of the shift to a low-emissions, climate-resilient economy, climate change is a complex risk to manage.

Traditional risk assessment methods that rely on historical data are unlikely to capture the degree of future change because of the non-stationary nature of climate change and non-linearity of impacts on human and natural systems.

The External Reporting Board (XRB) defines a climate scenario as:

“A plausible, challenging description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces and relationships covering both physical and transition risks in an integrated manner. Climate-related scenarios are not intended to be probabilistic or predictive, or to identify the ‘most likely’ outcome(s) of climate change. They are intended to provide an opportunity for entities to develop their internal capacity to better understand and prepare for the uncertain future impacts of climate change.”

The exploration of possible futures can help inform decision-making, or reveal a range of potential decisions that may be applicable as circumstances evolve. According to the Financial Markets Authority (FMA) this involves:

- **Constructing** plausible pathways leading to different future worlds; and
- **Analysing** how resilient an entity’s current business model and strategy would be within the scenarios.

While scenario analysis as a strategic tool is not new, climate scenario analysis is a new concept for most organisations. Climate scenarios challenge conventional thinking and business-as-usual assumptions. The analysis provides organisations with a structured process to explore business opportunities and risks through the lens of multiple, equally plausible scenarios, grounded by data and business insights. These scenarios provide an important overview of what can happen in the future, how an organisation might perform in future climate states, and outline the choices boards may need to consider when updating or developing more resilient business models and strategies in the present day.

What constitutes a good climate scenario?

The FMA notes that scenarios “are not comprehensive and all-encompassing depictions of the future... scenarios are generally focused on exploring how an entity could be affected by future climate-related impacts and how resilient their business model and strategy would be to these impacts.”

Scenario analysis requires strategic thinking from a wide range of people across your organisation, supplemented where necessary with external advice. It involves developing plausible future pathways and analysing how resilient your organisation would be in those future states.

Good scenarios are:

1. **Plausible:** The scenarios need to feel realistic and credible for participants within the organisation analysing them.
2. **Coherent and internally consistent:** The scenario narrative needs to be consequential and logical, including cause and effect pathways.
3. **Relevant:** Each scenario should use drivers and inputs that are specific and relevant to your organisation.
4. **Challenging:** Scenarios should feel challenging to your organisation’s business model and strategy and present both risks and opportunities.



A further breakdown of each element with examples is provided in the **Information sheet: Climate-related Disclosures – Scenario analysis** (FMA, 2023). Refer to page 7 below for further detail on drivers and scenario inputs.

Scenarios in climate-related disclosures

Under the Aotearoa New Zealand climate-related disclosures framework, climate reporting entities (CREs) are required to conduct scenario analysis.

The Aotearoa New Zealand Climate Standard 1 (NZ CS 1) specifies:

“An entity must describe the scenario analysis it has undertaken to help identify its climate-related risks and opportunities and better understand the resilience of its business model and strategy. This must include a description of how an entity has analysed, at a minimum, a 1.5°C climate scenario, a 3°C or greater climate scenario and a third climate scenario.”

In accordance with Aotearoa New Zealand Climate Standard 3, they are required to describe two areas:

- The **process followed** including how an entity has analysed the climate scenarios; and
- The **methods and assumptions** underlying the climate scenarios.

At this stage CREs are only required to undertake scenario analysis and disclose a description of their process, not how resilient their business model and strategy were to the scenarios constructed and analysed. However, the FMA will be assessing whether the analysis has been undertaken, looking at what underpins the scenario processes including methods and assumptions used and partners and stakeholders involved, and ensuring sufficient detail and appropriate records are kept.

Documenting the process followed from the beginning of scenario analysis, whether your entity is a CRE or not, is an important element of board oversight and will be beneficial when refreshing scenarios and as part of record-keeping requirements.

The XRB and FMA jointly published a **director preparation guide** to provide directors with a quick reference for key things they need to know about Aotearoa New Zealand’s climate-related disclosures.

Why climate scenarios are useful to boards

Climate scenarios inform strategic thinking and contribute to strategy resilience. The Aotearoa New Zealand Climate Standard 1 (NZ CS 1) states:

“... the implications of scenario analysis for the entity’s business model and strategy should be, due to the nature of climate change itself, profound and of critical strategic relevance to the entity ... the results are not so much about written outputs, rather an increased understanding by the entity of the need for transformation, and the fundamental lack of resilience that most business models and strategies have to a diverse range of climate outcomes.”

Futureproofing organisations requires boards to question and understand to the degree possible, how climate change may manifest. It will be important to be agile as a board and to accept that tomorrow’s answers will be different from today’s. Thinking about the future requires ongoing questioning of your assumptions and a continuous learning mindset.

The Global Association of Risk Professionals’ 2022 survey of climate risk management reported that 80 percent of respondents were undertaking climate scenario analysis (an increase of over 30% since 2019). While regulatory expectations were driving much of this behaviour, scenario planning is increasingly regarded as a powerful tool for strategic planning that supports the identification of both risks and opportunities.

Climate scenarios are useful to boards for:

- **Risk management** - climate change is one of the biggest risks facing organisations in areas such as the physical impacts of weather events, banking and investment implications, the allocation of capital, the location of infrastructure and in the devaluation of assets.
- **Identifying opportunities** – there are opportunities for innovation. If you have solid climate credentials you may gain access to emerging markets. Green technologies that can enhance business sustainability are here for many or on the horizon for those in hard-to-abate sectors. There is a growing market of consumers who are keen to support businesses that have sustainability at their core.
- **Stakeholder expectations** – in the 2022 IoD Director Sentiment Survey, changing stakeholder expectations were front of mind for directors. Consumers are changing their purchasing, work and investment choices. Organisations that lead in sustainable practices may gain a competitive advantage over their rivals with consumers, investors, bankers and other stakeholders.
- **Long-term strategic planning** – in terms of directors’ duties, climate planning is business planning. Scenario analysis can broaden strategic planning by exploring and testing alternative futures and strategies.
- **Regulatory compliance** – regulations are a stick that may motivate some organisations. Others are increasingly recognising the need to be pre-emptive.

How should directors engage with climate scenario analysis?

1. A clear board mandate
Boards need to provide effective climate governance

2. Understand the purpose
Adopt a clear focal question to guide the scenario analysis

3. Resourcing scenarios
Organisations need to allocate sufficient resources

4. Identify key assumptions, inputs and data needs
Directors need to understand what underpins the scenarios

5. Key driving forces
What external factors will impact future scenarios?

6. Develop the scenarios
Is your scenario plausible, coherent and internally consistent, relevant and challenging?

7. Strategic integration
What are the strategic implications of the scenarios?

8. Disclosures
Climate reporting entities need to comply with CRD reporting requirements

9. Monitor and review
Keep analysis and scenarios up to date

“An important element in ensuring that climate risks and opportunities are appropriately addressed is the important duty that boards of directors have for long-term stewardship of the companies they oversee.”

– World Economic Forum, 2019

1. A clear mandate from the highest-level governing body

Good governance includes effective climate governance – providing the leadership necessary to navigate organisations into a low-emissions climate-resilient future. Preparing for and managing the risks and capitalising on the opportunities climate change presents are critical director duties.

Climate governance is an essential element of board leadership and needs to be embedded throughout the organisation with directors leading from the top. Directors need to be fully engaged, setting the culture and taking people on the journey.

The board also needs to regularly engage with peers, representative bodies, investors and other stakeholders to stay up to date about latest climate-related risks, assumptions and opportunities, to share learnings and climate governance practices, and to cooperate and collaborate to support sector-level research and scenarios.

2. Understand the purpose of the analysis and appetite for change

Before getting started with scenario analysis, it is important to understand the purpose: to test your strategy. Adopting a focal question guides the scenario analysis process. This sets the scope of the scenario analysis and helps ensure the climate-related scenarios are relevant to your organisation. FMA guidance recommends the following focal question: “How could climate change plausibly affect our business model and strategy, what should we do, and when?”

You should also consider your organisation’s appetite for change and its risk profile. Even if it is not mandatory for your organisation, scenario analysis is a worthwhile activity that can result in strategic, reputational, operational, and financial benefits. Scenario analysis can not only help organisations mitigate the potential impacts of climate change, but also enable organisations to anticipate and respond to a range of future shocks and disruptions in the external environment.

In many ways, the oversight of climate scenario analysis can be viewed as an extension of prudent risk management and board oversight in a new field of expertise.

3. Resources and capability

Organisations need to ensure the right people and sufficient resources are allocated to scenario development to ensure the scenarios are thorough and realistic.

The board needs to consider the level of its climate literacy and the understanding of climate change throughout the organisation. Do you have sufficient internal resources or do you need to augment these with external expertise such as advisors or advisory board members? What structures or committees will provide the best oversight and accountability for the process?

“Getting your board structure and skillset right is the first step, but effective climate governance will also require constant learning and sharing of knowledge as the crisis develops and new solutions come into play.”

– Chapter Zero NZ, 2023

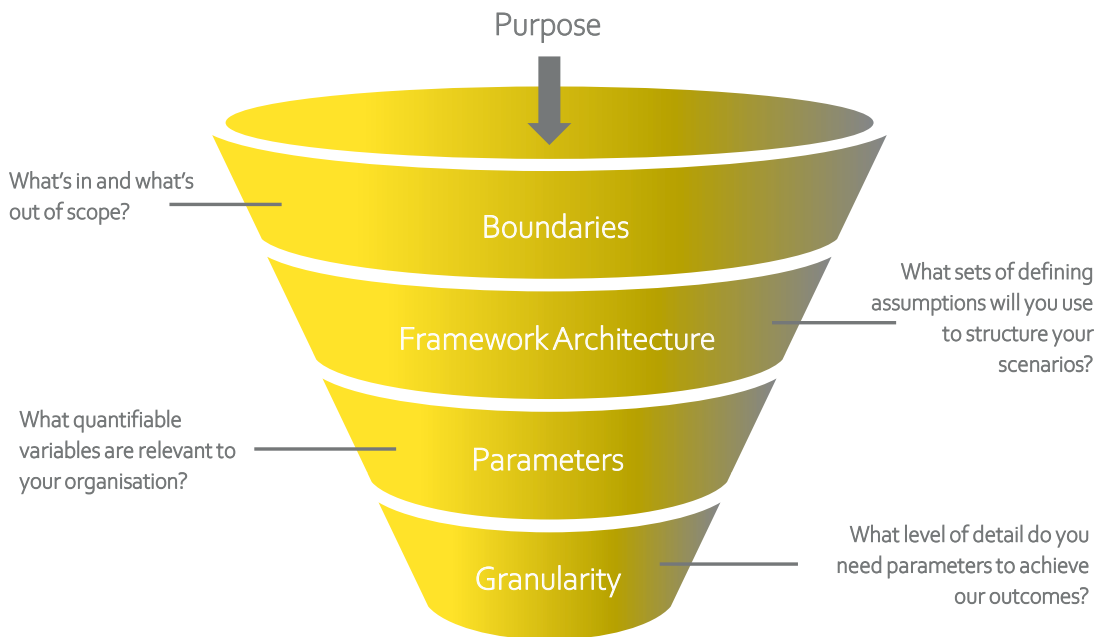
Boards need to assess their governance structures and director skill-sets to best support climate governance and adapting their organisations to a low-emissions, climate-resilient economy. Chapter Zero NZ has created a **collection of resources** to support directors and boards in determining the board structure and director capabilities for their organisation.

The scenario team needs to include representatives of the board, management and a range of staff from across the organisation, with external advisors if needed, to enable your organisation to collectively assess how climate-related risks and opportunities might plausibly impact your business model, assets, operations, structure and strategy.

There should be clearly defined roles and accountabilities, with clarity on which function will drive and own the process and which areas of the business will be involved in the design, execution and summary of the analysis.

4. Identify key scenario assumptions, inputs and data needs

Directors need to review the core assumptions that have been used to build the scenarios, such as policy developments, technology pathways, infrastructure and energy sources, as well as timeframes. For example, what assumptions have been made about the role of negative emissions technology such as carbon capture or storage to reduce emissions in a scenario? Do these assumptions challenge business-as-usual thinking?



Source: KPMG, (2023). Key inputs for scenario building

It is important to note that if entities develop entity-level scenarios based on sector-level scenarios, there will be consistency in the assumptions, pathways and projections. Using sector-level scenarios can provide an effective mechanism to develop entity-level scenarios that are more cost and resource effective. However, organisations should still consider how the sector-level scenario is relevant to their business model and strategy and make any necessary adjustments (for more on sector-level scenarios refer to page 12).

There are four key inputs to building scenarios:

1. **Boundaries:** Determining what will be included and what won't, such as geographic locations of your value chain, sector/s you operate within, and time horizons that align with your organisation's planning and investment.
2. **Framework architecture:** Refers to the key assumptions that will be used to underpin and structure the scenarios.
3. **Parameters:** The key variables, physical or transitional, that you choose to explore in each of the scenarios, that are relevant and material to your organisation.
4. **Granularity:** The level of detail required to achieve accurate outcomes.

To pick parameters that are most material or relevant to your organisation, it is useful to think about what information the organisation uses to guide strategic decision-making, risk management processes and financial planning. Directors are well positioned to provide insight on this. There may, however, be gaps in what data is available.

There will be existing knowledge and activities within the organisation that generate information that is

useful in scenario development and climate work that hasn't necessarily been framed that way, such as work around insurance, resource consents, banking and financing.

Ultimately, directors need to understand why the scenario inputs were chosen, how they are relevant to their organisation, and what limitations there might be in the data or process.

Scenario themes

Aotearoa New Zealand Climate Standard 1 requires entities to explore the climate-related risks and opportunities they may face under three scenarios – a 1.5°C climate scenario, a 3°C or greater climate scenario, and a third scenario.

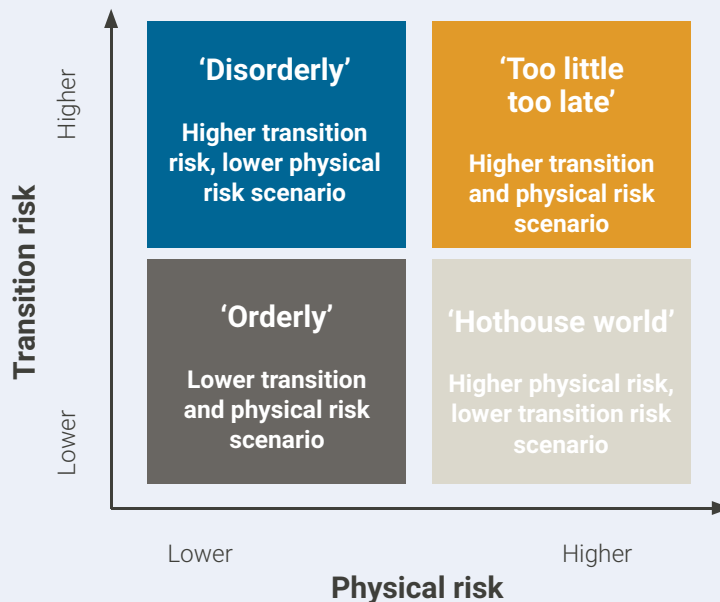
Because of the complex interplay between transition and physical risks, scenario axes are used to structure the development of a scenario matrix. Based on guidelines from the Taskforce on Climate-related Disclosures (TCFD), physical risk versus transition risk drivers are mapped to create scenario themes.

Using shared themes (or architectures) and building block assumptions also helps to broadly align scenarios across sectors. The XRB has set out in guidance high-level assumptions that can be

used to structure thinking on the development of scenario narratives which are broadly coherent using the four themes – 'orderly', 'disorderly', 'hothouse world' and 'too little too late'. See **Appendix A: Scenario architectures**.

The New Zealand Green Building Council used these scenario themes when developing sector-level scenarios for the construction and property sector. Sector-level scenarios provide a cohesive starting point for analysing climate risks. Refer to page 12 below.

The 'orderly', 'disorderly', 'hot house world' and 'too little too late' themes are described further in the XRB **staff guidance on sector scenario development** and **staff guidance on entity scenario development**.



A scenario matrix. This matrix maps physical and transition risk drivers against each other to create scenario themes. The scenario theme names are from the NGFS.

Source: XRB, (2023). Staff guidance sector scenario development.

5. Identify key driving forces

The next step in developing scenarios is identifying 'key driving forces' that impact future scenarios. Driving forces are external factors (natural or human-induced) that cause a change to a system. Despite your lack of control of them, these factors can directly create or erode value for your organisation.

These driving forces can impact on your ability to achieve your strategy, markedly change your business environment, influence climate-related risks and opportunities, and can change the outcomes within a scenario. The XRB has guidance on how to include broader considerations as part of the assumptions underlying key driving forces in scenario development. Key drivers can be categorised using the STEEP (social, technological, environmental, economic, political) or PESTEL (political, environmental, social, technological, economic, legal) frameworks.

The XRB provides more details on the **STEEP** categories with examples of driving forces in New Zealand. For example, the 'social' category involves: demographics, social norms, lifestyle trends, health, education and rural-urban divide.

After identifying 'key driving forces', organisations need to evaluate how these are connected with climate change, the influence they have on your organisation and how uncertain they are. The driving forces that are most material to the organisation are then used to create different narratives that organisations can use to identify physical and transition risks and opportunities. This is normally determined by the uncertainty and impact of each driving force.

Social considerations of climate scenario development

While human actions impact climate change, the impacts of climate change also impact on people, therefore effective strategies need to consider the interrelated nature of climate impacts. While looking at physical processes is critical, we also need to be looking at social and community contexts, especially when considering mitigation and transition for sustainable ecosystems.

Incorporating social and people considerations in scenario development, alongside socioeconomic drivers, offers a richer view on the relationships between environmental and social dynamics.

A broader, more inclusive approach contributes to strategic planning by giving a more comprehensive risk assessment, aligned with evolving ESG expectations and promoting sustainable long-term value creation.

Addressing climate-related risks often involves understanding how they may affect communities, employees, and other stakeholders. For example, climate-related events like extreme weather can lead to displacement of communities or disruption of supply chains, impacting both environmental and social dimensions.

6. Develop the scenarios

Climate scenarios are built by describing how each of the drivers are developed and interact with each other, and the material impacts of this, across the various time horizons. The scenarios should ultimately provide rich stories of how a sequence of plausible future events, play out to bring about different outcomes.

The value of the insights from scenario analysis is in large part determined by who interacts with the set of scenarios. A director's contribution to, and presence at, scenario analysis sessions is critical given their knowledge of the organisation and their strategic responsibilities.

Excellent scenarios could be developed that outline in great detail the relevant and plausible changes in the future. But until the scenarios are explored by someone that understands the entity, its business model, its strategy, and current strengths and weaknesses, it is likely that limited risks and opportunities for that entity would be found.

7. Strategic integration

Understanding the strategic implications of a range of scenarios is a critical area of engagement for directors – what does this mean for your decision-making beyond climate disclosures?

Using the scenarios to inform and improve your strategic planning may involve a first-principles review of your strategy and purpose. Re-evaluating the assumptions behind your strategy may help boards to take advantage of opportunities and mitigate threats.

- Integrate climate risks into your existing risk framework.
- Evaluate how growth projections and long-term sustainability may be impacted.
- Incorporate climate-related impacts into financial modelling and capital allocation decisions.
- Develop transition and adaptation strategies which manage and establish clear performance objectives and growth opportunities.
- Explore new market opportunities or areas for innovation.
- Set emissions reduction targets.
- Engage and involve employees and stakeholders in your climate-resilience journey.
- Collaborate with and learn from industry peers.
- Integrate climate change across the governance framework.

8. Disclosures

As with financial statements, directors face civil and criminal liability if they fail to comply with the CRD regime. CRD legislation identifies specific requirements of directors in relation to the climate-related disclosures framework. These include:

- Preparing climate statements complying with applicable climate standards.
- Dating and signing on behalf of the entity, the entity's climate statement(s).
- Meeting the reporting timeframes for lodging climate statements.
- Providing information and explanations to assurance practitioners relating to GHG emissions.
- Meeting the record-keeping requirements.
- Making climate statements (or a link to them) available within the organisation's annual report.

With this heightened and formal focus on accountability, director's understanding of, and engagement with, scenarios will be a necessary requirement.

9. Monitor and review

The realities of climate change and our social and economic response are ever changing, meaning that scenarios will need to be kept up to date and analysis reviewed. Analysis should be an iterative and dynamic process. Ensuring scenarios are refreshed to adapt to this ever-changing landscape will be a core compliance monitoring mechanism to build into the director's broader oversight function.

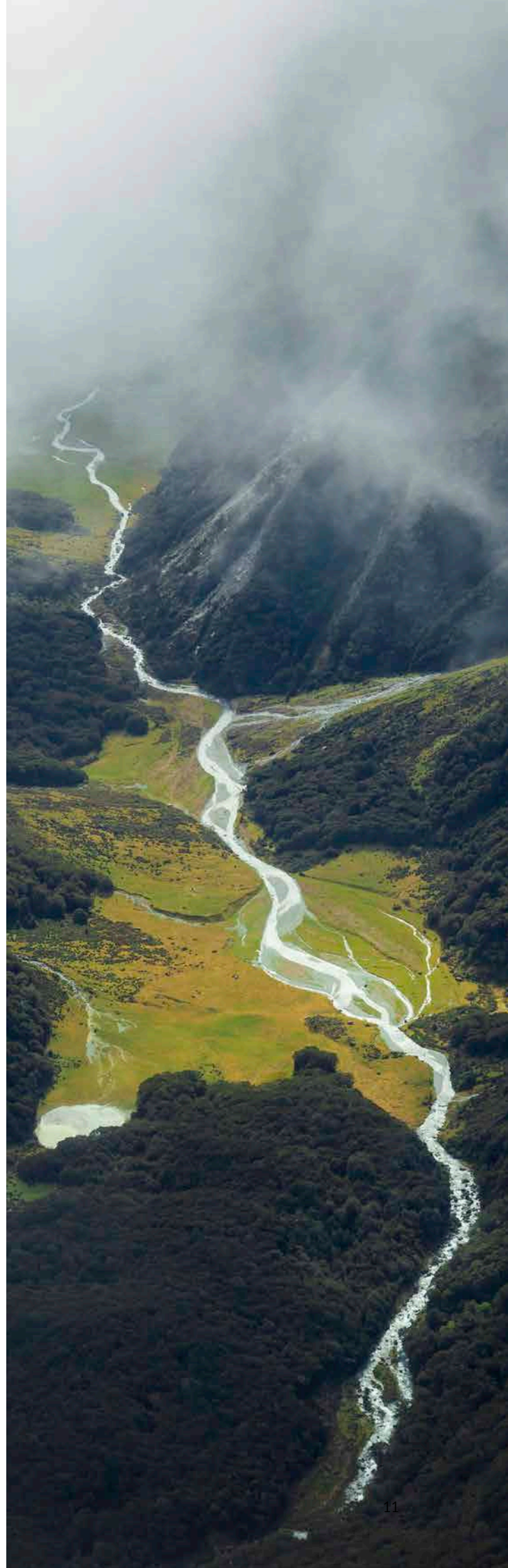
“This will be a journey, and some level of patience is needed... building a mature reporting and assurance ecosystem for sustainability will not happen overnight.”

– International Auditing and Assurance Standards Board, 2022

Organisations should annually assess whether their scenarios are fit for purpose based on a range of factors:

- Did we adopt a broad focal question?
- Were a range of participants involved from across our organisation?
- Did we seek external advice to complement and supplement our information?
- Did our scenario analysis process follow a logical structure?
- Did our process follow accepted practices and methods (for example, TCFD and XRB guidance)?
- Did we use sector-level scenarios as a base point?
- Were our scenarios informed with credible scientific and socioeconomic analysis?
- Do our scenarios continue to help our organisation identify our risks and opportunities?
- Are our scenarios relevant to assessing the resilience of our business model and strategy?
- Did we do anything as a result?

Time is too short to wait for models that are perfect, so organisations may wish to develop a roadmap for development and refinement over a number of years.



Sector-level and entity-level scenarios

Scenario analysis is an experiential, participatory process engaging directors and management to consider how to manage the risks and capitalise on the opportunities presented by climate change.

Sector-level scenarios

Using sector-level scenarios as a basis for entity-level scenarios supports an increased understanding of plausible climate-related risks and opportunities across the sector. Organisations can use sector-level scenarios as a stepping-stone to create entity-level scenarios, significantly reducing the resource requirements for individual organisations. Although not mandatory, entities that don't collaborate at a sectoral level on scenarios should outline how their scenarios compare to others within and across their sector and explain any deviations.

Sector-level scenarios provide:

- A bridge from global and national scale scenarios to sector and ultimately entity-level information.
- Consistent translation of data into tangible potential consequences for the sector.
- Reduced scenario development costs at an entry level.
- Access to diversity of expertise, experience and perspectives from a range of external sources.
- Assumptions and insights from sector leaders and participants.
- Analysis and selection of assumptions, pathways and projections.
- Identification of sector-level challenges best addressed collaboratively, for example regulation, research and innovation.

A sector-level approach provides more cohesiveness, comparability and supports higher quality scenarios.

Where to access sector-level climate scenarios for New Zealand

The XRB has created an [online hub](#) with information on the status of the development of sector-level scenarios and contact details for sector leads. The page will be regularly updated as more scenarios become available.

Examples:

- [Climate scenarios for the construction and property sector – NZGBC](#)
- [Climate scenario narratives for the banking sector – New Zealand Banking Association](#)
- [Climate scenario narratives for the financial services sector – Financial Services Council NZ](#)
- [Tourism adaption roadmap – The Aotearoa Circle](#)

Entity-level scenarios

The purpose of entity-level scenario analysis is to help organisations identify potential, material climate-related risks and opportunities and test the resilience of their business model and strategy. Entity-level scenarios can either be developed individually or based on sector-level scenarios.

While sector-level scenarios benefit from the diverse perspectives and expertise of a range of stakeholders across the entire sector, organisations will need to assess and make defensible judgement calls about how these apply to their own operations. Organisations should consider how the sector-level scenario is relevant to their business model and strategy and make any necessary adjustments.

Entity-level scenarios:

- Are a valuable risk-management tool.
- Support formulation of adaptive, forward-looking strategies.
- Provide a degree of certainty amid increasing uncertainty.
- Contribute to strategic resilience by testing plausible future pathways.
- Help to identify possible future threats, challenges and trigger points.
- Assess climate-related opportunities.
- Support the ongoing monitoring and strategy adjustment.

Entity-level scenario reports

With reporting commencing for CREs on or after 1 January 2023, entity-level scenarios that are publicly available are by organisations that have undertaken voluntary climate-related disclosures. However, a range of organisations began reporting voluntarily using the TCFD framework.

Examples:

- [ASB Bank FY23 Climate Report](#)
- [Auckland Airport climate change disclosure report 2022](#)
- [FY23 IAG New Zealand Climate-related disclosure](#)
- [Ministry for the Environment climate-related disclosure 2021/22](#)

Transition plans

The XRB has released guidance on how to create a plan for transitioning to a low-emissions future, based on scenario analysis. **Staff Guidance – Transition Planning** aims to help CREs to prepare to report under the Aotearoa New Zealand Climate Standards.

A transition plan sets out the actions demonstrating how an entity will pivot and transform its business model and strategy, responding to the risks and opportunities, to survive and thrive in a low-emissions, climate-resilient economy.

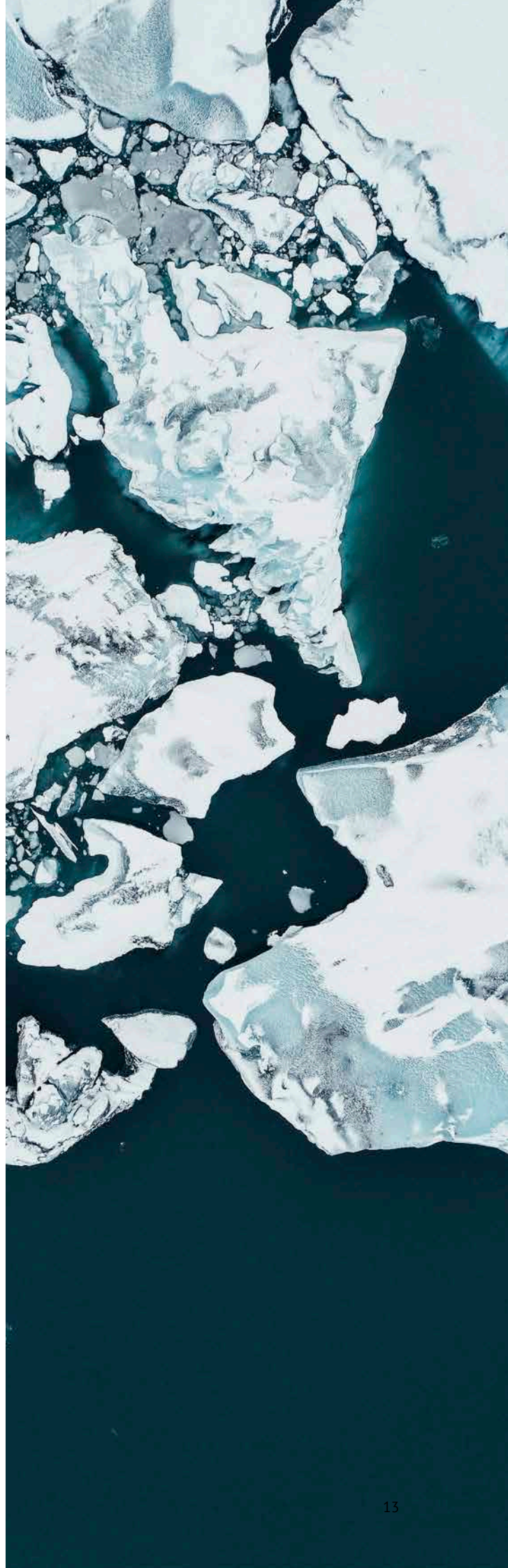
A transition plan should describe an entity's overall strategy and targets for transitioning. The XRB recommends that CREs:

- Begin with what scenario analysis has uncovered.
- Ask how uncertainty will be managed over the long-term.
- Determine the tangible actions required now.

A transition plan should identify actions and include information on climate resilience as well as carbon-reduction strategies. It should be integrated into an organisation's overall strategy rather than exist as a standalone plan.

There should be a balance in the plan between long-term value creation and short-term risks. This will include anticipating changes in the business environment.

See **Appendix B: Getting from scenario analysis to transition planning**, produced by the XRB.



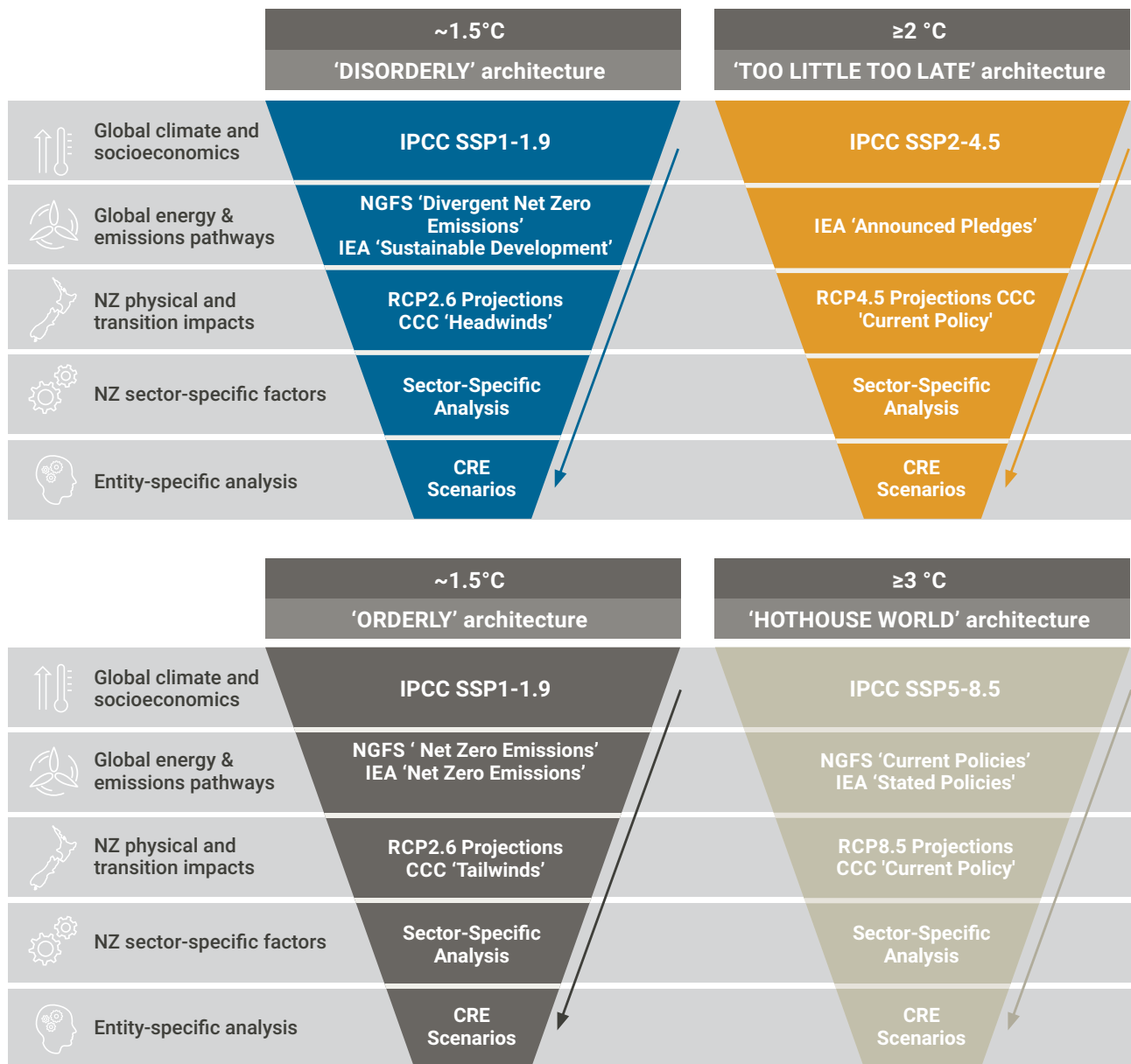
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Appendix A: Scenario inputs

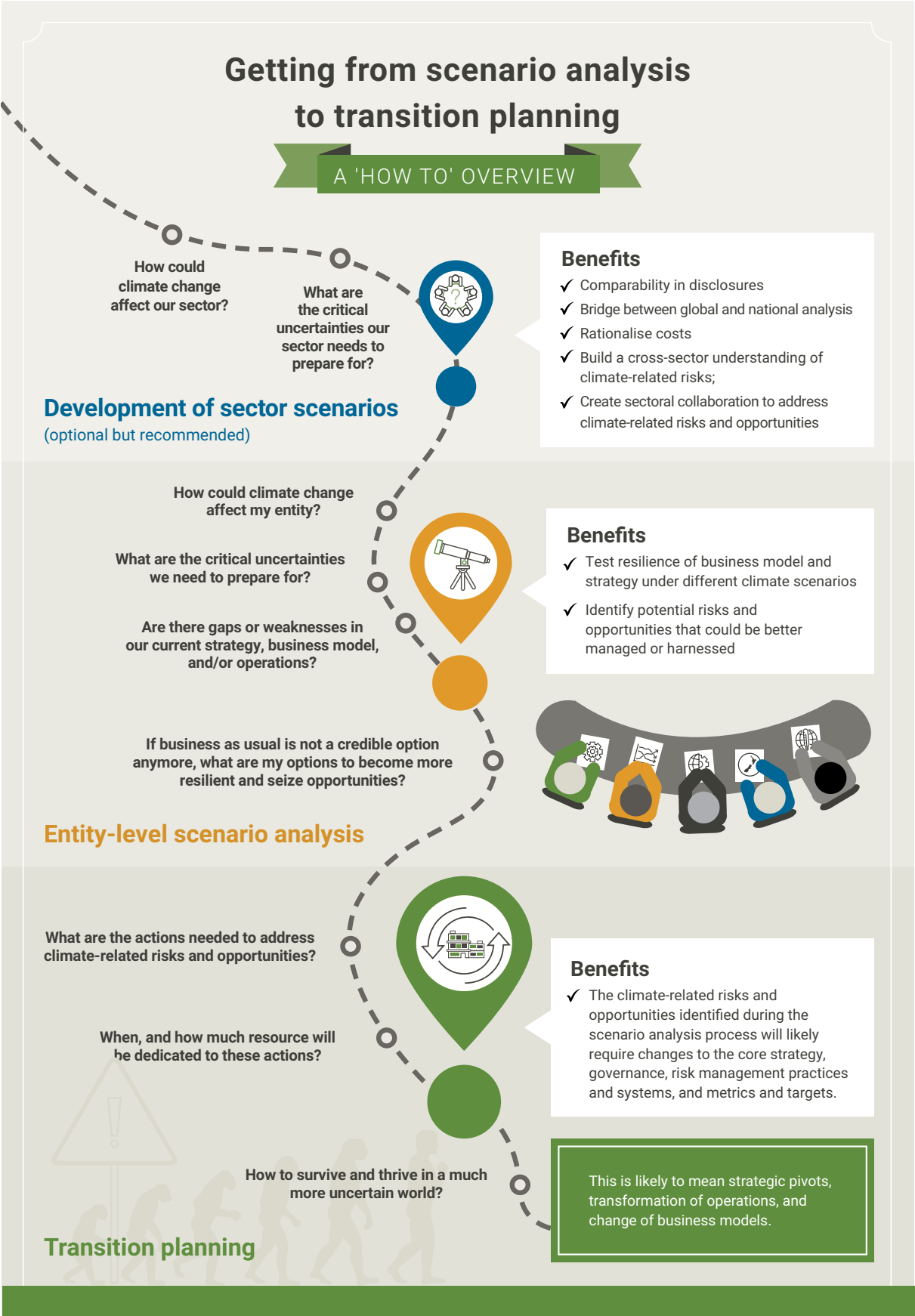
Broadly aligned sets of scenarios, pathways and projections can form a shared architecture for sectoral scenarios. These provide high-level assumptions and building blocks which are plausible and broadly coherent, and can be used to paint a picture of the world an entity might find itself in. It should be noted that the NGFS use three different IAMs to generate the data associated with the scenarios they have

developed. Modellers have used a prescribed set of assumptions and inputs in generating these data. Of necessity, the assumptions and inputs set out above differ from those of the NGFS. However, the NGFS provides technical documentation describing these inputs and assumptions if sectors wish to evaluate the utility of employing NGFS IAM data in quantifying their scenarios.



Source: XRB, (2023). Staff guidance sector scenario development.

Appendix B: Getting from scenario analysis to transition planning



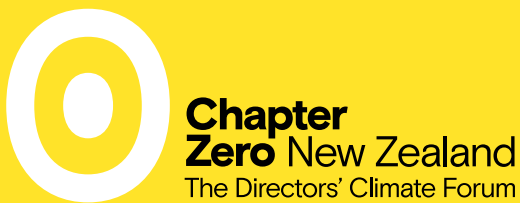
Source: XRB, (2023). Getting from scenario analysis to transition planning



About Chapter Zero New Zealand

The Institute of Directors New Zealand (IoD) is proud to be the host of Chapter Zero New Zealand, the national chapter of the Climate Governance Initiative (CGI). This global network seeks to mobilise, educate and equip directors with the skills and knowledge necessary to address climate change at the board level.

Chapter Zero New Zealand is grateful for the support of our key partners who provide guidance and expertise to help us serve the director community.



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Thanks to our Foundation Partners

The logo for ākina features the word "ākina" in a bold, lowercase, sans-serif font. The letter "ā" has a macron over it.

The logo for Anthem features the word "Anthem" in a blue, serif font. Above the letter "A" is a stylized blue graphic of a musical instrument, possibly a trumpet or horn.

The logo for DENTONS features the word "DENTONS" in white, uppercase, sans-serif font, centered within a purple arrow-shaped graphic pointing to the right.

The logo for KPMG features the word "KPMG" in a bold, blue, sans-serif font. Each letter is contained within a white square, and the squares are arranged in a row.

The logo for HOBSON LEAVY EXECUTIVE SEARCH features a stylized "H" icon to the left of the text "HOBSON LEAVY" in a bold, blue, sans-serif font, with "EXECUTIVE SEARCH" in a smaller, blue, sans-serif font below it.