FMA
FINANCIAL MARKETS AUTHORITY
TE MANA TĀTAI HOKOHOKO

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Information sheet: Climate-related Disclosures – Scenario analysis

This information sheet details compliance expectations of the Financial Markets Authority – Te Mana Tātai Hokohoko (FMA) for scenario analysis disclosures made under the climate-related disclosures (CRD) regime. It will be useful for climate reporting entities (CREs), their directors, and other interested parties.

Introduction

Entities that qualify as CREs under Part 7A of the Financial Markets Conduct Act 2013 (the FMC Act) are required to prepare and lodge climate statements that comply with the CRD framework.

The CRD framework comprises the Aotearoa New Zealand Climate Standards issued by the External Reporting Board (XRB):

- Aotearoa New Zealand Climate Standard 1 – Climate-related Disclosures (NZ CS 1)
- Aotearoa New Zealand Climate Standard 2 – Adoption of Aotearoa New Zealand Climate Standards (NZ CS 2)
- Aotearoa New Zealand Climate Standard 3 – General Requirements for Climate-related Disclosures (NZ CS 3)

The CRD framework includes a requirement to conduct scenario analysis and disclose the process undertaken.

This information sheet sets out:

- how the FMA will apply the CRD framework relating to scenario analysis,
- what the FMA will look for when determining compliance with those standards; and
- other considerations that may help CREs ensure they meet the disclosure requirements.

Scenario analysis

What is scenario analysis?

Climate change is complex and dynamic with future outcomes that are very difficult to predict. There is significant uncertainty about the scale, speed and magnitude of the physical and transition climate-related impacts that may play out in the future. Traditional methods of planning for the future, such as forecasting, are therefore not suited to analysing and preparing for the uncertain future conditions that climate change presents us with.

Scenario analysis is a **strategic tool** for understanding and exploring how the future may develop under conditions of uncertainty. It involves:

- **constructing** plausible pathways leading to different future worlds (i.e. scenarios); and
- **analysing** how resilient an entity's current business model and strategy would be if it was placed within these scenarios.

Scenario analysis is a useful tool for strategic decision-making under conditions of uncertainty because it provides an exploratory, creative approach to thinking about the possible ways the future could evolve, and allows for a better understanding of the dynamics of change, i.e. how and why different futures may develop. By exploring the implications of uncertainty, CREs can better prepare for an uncertain future and improve their long-term resilience.

What is a scenario?

A scenario is a plausible, but hypothetical, description of a series of events leading to a particular future outcome. Scenarios are not forecasts or predictions of what is deemed most likely to happen. Nor are they sensitivities, or the result of probabilistic analyses. Instead they represent plausible pathways to different futures.

Scenarios are not comprehensive and all-encompassing depictions of the future. Instead, they are designed and shaped to address a particular issue that an entity is focused on. In the context of climate change, scenarios are generally focused on exploring how an entity could be affected by future climate-related impacts and how resilient its business model and strategy would be to these impacts.

The scenario analysis disclosure requirements

The CRD framework includes a requirement to undertake scenario analysis and disclose how the process was conducted.

Paragraph 11(b) of NZ CS 1 requires CREs to disclose a description of the scenario analysis they have undertaken. To support this disclosure, paragraph 13 of NZ CS 1 states:

> 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 degrees Celsius climate-related scenario, a 3 degrees Celsius or greater climate related scenario and a third climate related scenario.

This information sheet is primarily focused on the requirements of this disclosure.

However, where we consider it necessary, we have also discussed our expectations for the disclosures required by paragraph 51 of NZ CS 3 which states:

An entity must disclose the methods and assumptions underlying the climate-related scenarios used, and the scenario analysis process employed. The following information must be included when describing the methods and assumptions underlying the climate-related scenarios used, and the scenario analysis process employed:

a) the climate-related scenarios it has used, including:
   (i) a brief description of each scenario narrative;
   (ii) the time horizons considered, including endpoints and whether the endpoints are determined by a year or a temperature target;
   (iii) a description of the various emissions reduction pathways in each scenario and the assumptions underlying pathway development over time, including the scope of operations covered, policy and socioeconomic assumptions, macroeconomic trends, energy pathways, carbon sequestration from afforestation and nature-based solutions and technology assumptions including negative emissions technology;
   (iv) an explanation of why the entity believes the chosen scenarios are relevant and appropriate to assessing the resilience of the entity's business model and strategy to climate-related risks and opportunities; and
   (v) the sources of data used to construct each scenario;

b) how the scenario analysis process has been conducted, including:
   (i) whether scenario analysis is a standalone analysis or integrated within the entity's strategy processes;
   (ii) the governance process used to oversee and manage the scenario analysis process, including the role of the governance body and management;
   (iii) if modelling has been undertaken, a clear description of what modelling was undertaken and why the model was chosen as the appropriate model; and
   (iv) which external partners and stakeholders are involved.

We released our *Guidance for keeping proper climate-related disclosure records* in October 2023 following consultation on the draft in June 2023. This includes guidance and examples of CRD records that could be produced and retained to substantiate the scenario analysis disclosures. CREs should refer to that document to understand the record keeping requirements and our expectations.

We also recommend CREs consider the compliance expectations in this information sheet in the context of our monitoring approach to the CRD regime.

Our *Climate-related Disclosures Monitoring Plan* was published in June 2023 and sets out our monitoring approach to the CRD regime as a whole. It acknowledges that disclosure will evolve and improve over time, but also that we expect CREs to make reasonable efforts to comply with the obligations in the CRD framework in the early years.

Relationship with XRB guidance

The XRB has issued a suite of non-binding staff guidance primarily focused on describing a **process** that entities could follow to construct and analyse climate-related scenarios.[1]

This information sheet is part of our overall approach to monitoring and enforcing the CRD regime, by ***communicating the FMA's specific compliance expectations*** we will have when monitoring and enforcing the scenario analysis disclosures.

We recommend interested parties read this information sheet in conjunction with the XRB's staff guidance on scenario analysis.

Disclaimer

This document explains the FMA's compliance expectations for the scenario analysis disclosures in the Aotearoa New Zealand Climate Standards. It does not constitute legal advice and should not be relied upon as such. Examples are provided purely for illustration. They are not exhaustive and are not intended to impose or imply particular rules or requirements.

[1] This suite of XRB guidance includes: *Staff Guidance Entity Level Scenario Development: Exploring climate uncertainties for an entity* (September 2023), *Staff Guidance Sector scenario development: Getting started at the sector level* (July 2023) and *Climate-related Disclosures Staff Guidance: Guidance for All Sectors* (May 2023).

Compliance expectations for scenario analysis disclosures

The CRD framework prescribes scenario analysis disclosure requirements in respect of both the:

1. *scenario analysis process* employed; and
2. *climate-related scenarios* analysed.

Our compliance expectations for these requirements are detailed below.

Scenario analysis process

CREs are required to disclose a description of the scenario analysis they have undertaken to help identify their climate-related risks and opportunities and better understand the resilience of their business model and strategy.[2] This includes the **process** they have undertaken to both:

- **construct** climate-related scenarios; and
- **analyse** the scenarios to assess strategic resilience and help identify climate-related risks and opportunities.

> CREs are only required to **disclose** a description of the **process** they have undertaken to conduct scenario analysis, rather than disclose how resilient their business model and strategy was to the scenarios constructed and analysed.
>
> However, CREs must still actually **undertake** the analysis to assess their strategic resilience and help identify climate-related risks and opportunities.[3] We will assess whether CREs have actually done the analysis by reviewing their underlying CRD records.

Definition of scenario analysis

While the CRD framework does not prescribe a specific scenario analysis process that must be followed, the process undertaken must be in accordance with the defined term 'scenario analysis' in the CRD framework:

> A process for systematically exploring the effects of a range of plausible future events under conditions of uncertainty. Engaging in this process helps an entity to identify its climate-related risks and opportunities and develop a better understanding of the resilience of its business model and strategy.[4]

CREs must disclose a description of the scenario analysis process undertaken and ensure that:

[2] Paragraph 13, NZ CS 1
[3] Paragraph 13, NZ CS 1 states "[a]n entity must describe the scenario analysis *it has undertaken* [emphasis added]"
[4] 'Scenario analysis' is defined in Appendix A of NZ CS 1 and NZ CS 3.

- the process disclosed satisfies the definition of scenario analysis in the CRD framework, and
- CRD records are produced and retained to substantiate the process disclosed.

We set out below how we will apply the definition of 'scenario analysis' when assessing whether a CRE's disclosure about the scenario analysis process undertaken is in accordance with the definition in the CRD framework.

"Systematically"

The definition of 'scenario analysis' refers to a "*process for **systematically** exploring the effects of a range of plausible future events under conditions of uncertainty*".

We consider that a process is systematic in nature when it is robust, thorough and comprehensive, and follows a logical, methodical and consequential structure. At a minimum, CREs should undertake an active process, with a clear series of steps carried out in an organised manner, to explore the effects of a range of plausible future events under conditions of uncertainty.

CREs could consider involving a diverse range of internal and external participants, adopting a broad focal question, and following 'accepted practices and methods'[5] for scenario analysis to ensure the process meets this element of the scenario analysis definition.

> A CRE that chooses not to undertake scenario analysis, and then discloses that no analysis was undertaken, will not have satisfied the disclosure requirement. This is because the "systematically exploring" element of the definition of scenario analysis implies that a series of active measures are undertaken.

Under conditions of uncertainty – i.e. an exploratory approach

The definition of 'scenario analysis' also refers to a "*process for systematically **exploring** the effects of a range of plausible future events **under conditions of uncertainty***".

We consider that this means the process to construct climate-related scenarios should follow an exploratory rather than normative or predictive approach.

Exploratory vs normative approach

An exploratory approach to scenario analysis involves constructing multiple[6] scenarios that explore how events could plausibly play out from the present to a certain time horizon. Exploratory scenarios are used to identify possible risks and opportunities, and to test the resilience of an entity's business model and strategy to a wide range of plausible future worlds (being the purpose of scenario analysis as defined in the CRD framework).

By contrast, a normative approach to scenario analysis starts with a preferred or desired outcome at the scenario time horizon and then back-casts a pathway from that preferred outcome to the present.

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[5] CREs could refer to the XRB's guidance - *Staff Guidance Entity Level Scenario Development: Exploring climate uncertainties for an entity* (September 2023) and *Staff Guidance Sector scenario development: Getting started at the sector level* (July 2023) for more information about an 'accepted practice and method' for scenario analysis.
[6] Paragraph 13 NZ CS 1 mandates three scenarios, at a minimum, to ensure the 'multiple' scenario exploratory approach is taken.

Normative scenarios, being probabilistic or predictive in nature, are used for forming implementation plans to achieve a desired or preferred future rather than identifying a range of possible risks and opportunities that could eventuate in an uncertain future.

Pages 15-17 of the Task Force on Climate-related Financial Disclosures' (TCFD) *Guidance on Scenario Analysis for Non-Financial Companies* (October 2020) could be referred to for further discussion of the distinction between exploratory and normative approaches.

Exploratory approach to constructing climate-related scenarios

CREs should balance the requirements of constructing their climate-related scenarios in an exploratory manner while also ensuring the scenarios are plausible.[7] To do this, CREs should consider:

- using credible information produced by reputable sources of scientific and socioeconomic analysis to form the scenarios' architectures and ensure plausibility
- constructing a pathway of how the future may develop that is consistent with the scenario's architecture in an exploratory manner.

A scenario's architecture provides the underlying assumptions upon which a scenario is constructed. The architecture is made from a combination of scenario archetypes.[8] The archetypes used should be consistent with credible information produced by reputable sources of scientific and socioeconomic analysis. For example, a scenario could use global scenarios produced by the Intergovernmental Panel on Climate Change (IPCC) and national scenarios produced by NIWA or Hou Pou a Rangi Climate Change Commission to build its architecture.

Taking an exploratory approach within a scenario architecture involves developing cause-and-effect pathways of how events could unfold over time within the bounds of the archetype's higher-level (i.e. less detailed) assumptions. CREs should then build upon the archetype's assumptions in an analytical and exploratory manner by adding more detail and 'filling in the blanks' to describe 'what', 'how', 'when', and 'why' certain events happen in a scenario. For example, higher-level archetypes often include broad assumptions about policy changes that would be required to transition to a lower-emission economy. CREs need to downscale and add detail to these assumptions to describe more specific policy changes that are relevant to their business model and strategy.

CREs can refer to XRB's staff guidance *Staff Guidance Entity Level Scenario Development: Exploring climate uncertainties for an entity (September 2023)* for details about 'a' process and method for constructing climate-related scenarios in accordance with the definition in the CRD framework.

[7] The concept of "plausible" in relation to climate-related scenarios is discussed in detail on pages 9-10 of this information sheet.

[8] XRB describes (Scenario) Archetype in their *Staff Guidance Entity Level Scenario Development: Exploring climate uncertainties for an entity* (September 2023) on page 11 as "*Scenarios, pathways and projections done by others at a global, national, regional or sectoral level. These are the 'building blocks' of a scenario architecture"*. Refer to Page 50 of that document for a diagram illustrating possible archetypes that make up an architecture.

Climate-related scenarios

As part of disclosing the process they have undertaken to conduct scenario analysis, CREs are required to describe how they have analysed, at a minimum, a 1.5 degrees Celsius climate-related scenario, a 3 degrees Celsius or greater climate-related scenario, and a third climate-related scenario.[9] The scenarios constructed and analysed must satisfy the definition of 'climate-related scenario' in the CRD framework.

CREs are also required to disclose a brief description of each scenario narrative.[10] We expect that description to accurately reflect the more detailed underlying scenario.

CREs should therefore ensure:

- the brief descriptions of the scenario narratives provide enough information to demonstrate that the underlying detailed scenarios analysed satisfy the definition of 'climate-related scenario' in the CRD framework; and
- they produce and retain CRD records that substantiate that the detailed underlying climate-related scenarios meet the definition in the CRD framework.

CREs are not required to disclose how resilient their business model and strategy are to each climate-related scenario.

Definition of climate-related scenario

'Climate-related scenario' is defined in the CRD framework 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.[11]

We set out below how we will assess whether a CRE's brief descriptions of their scenario narratives indicate that the detailed underlying scenarios meet the definition of 'climate-related scenario'.

"How the future may develop"

The definition of 'climate-related scenario' refers to a "…*description of* ***how the future may develop***…".

We expect that a climate-related scenario will describe a series of plausible future events unfolding over time (i.e. "how the future may develop"). Scenario narratives should therefore not simply read as a series of assumptions about a future state at the scenario time horizon. Instead, they should also describe the causes and effects of events and outcomes that form a particular pathway that led to that future, not just

[9] Paragraph 13, NZ CS 1.
[10] Paragraph 51(a)(i), NZ CS 3.
[11] 'Climate-related scenario' is defined in Appendix A of NZ CS 1 and NZ CS 3.

the start and end points. This could be illustrated by narratives that tell a story, and 'join the dots' between events and demonstrate their cause-and-effect relationship.

There are multiple pathways towards a given future outcome. The scenario narrative should describe **one** plausible and challenging pathway to a certain future.

Scenario narratives should avoid the use of language like "*may*", "*could*" or "*likely*". This is because it is difficult to test resilience and identify risks and opportunities to events that may or may not happen. The narrative should describe **a** chosen pathway to **a** chosen plausible future rather than a range of possibilities. In order to assess the resilience of the business model and strategy, the events have to be assumed to happen. Using language such as "*does*" and "*this results in*" better describes a particular pathway and the cause-and-effect relationship between the events in each pathway.

CREs may want to consider breaking down the overall scenario narrative into short-, medium- and long-term time horizons. This can make it easier to describe the cause-and-effect relationship between events.

This approach is not a mandatory requirement of the scenario analysis disclosure, but it may help CREs meet the requirements of other strategy disclosures – specifically paragraphs 11(c) and 14 of NZ CS 1, which require disclosure of a CRE's climate-related risks and opportunities over the short, medium and long term.

"Plausible"

The definition of 'climate-related scenario' refers to a "***plausible***, *challenging description of how the future may develop…".*

To be plausible, the series of events described should be possible, believable, and reasonable within the boundaries of a scenario's architecture, temperature outcome and overall context.

For a series of events described to be considered plausible within a scenario's architecture and temperature outcome, CREs should ensure the underlying assumptions about physical and transition climate-related impacts are consistent with credible information produced by reputable sources of scientific and socioeconomic analysis.

Not everything in a scenario will rely on a piece of external information. CREs will have to provide 'colour' to bring their narratives to life, and ensure the imagined aspects of their climate-related scenarios are plausible (i.e. possible, believable and reasonable) within the scenario's overall context.

For a described series of events to be plausible within a scenario's overall context, CREs should include sufficient detail in the descriptions of the scenario narratives to:

- explain the mechanisms or drivers by which the events occur;
- describe the timescales over which the events occur; and
- explain material impacts of each event.

CREs should not understate the technological, social, economic, environmental and political drivers of change that form scenario pathways, or the scale and breadth of physical impacts within the context of each climate-related scenario.

Transition impacts are particularly acute for the mandatory 1.5 degrees Celsius climate-related scenario. To be considered plausible, these scenario pathways should accurately reflect the magnitude of the transition required to reduce global and domestic greenhouse gas (GHG) emissions to achieve this future. This should include exploring unprecedented and radical policy, technological, economic and societal changes required to restrict the increase in global average temperatures to 1.5 degrees Celsius by 2100 compared to pre-industrial levels.

"Challenging"

The definition of 'climate-related scenario' refers to a "*plausible*, ***challenging*** *description of how the future may develop…".*

To be challenging, assumptions should confront conventional wisdom and simplistic understandings of today's environment. When thinking about the major sources of uncertainty, scenarios should explore assumptions that will significantly alter the basis for business-as-usual thinking.

Scenarios should consider exploring the **upper bounds** of what is plausible within the architecture of each climate-related scenario by exploring more severe or confronting potential events that could play out in the future. Meeting the 'challenging' definition ensures that strategy and business models are adequately tested for resilience.

Constructing challenging climate-related scenarios will require CREs to 'think outside the box'. What is considered commonplace and acceptable today might be looked on very differently in the future.

"Coherent and internally consistent"

The definition of 'climate-related scenario' refers to a "*…description of how the future may develop based on a* ***coherent and internally consistent*** *set of assumptions…".*

To be coherent and internally consistent, the assumptions built into the scenarios, including those about physical and transition climate-related impacts, should:

- have a cause-and-effect relationship;
- relate to each other in a consequential and logical manner; and
- not be mutually exclusive.

CREs should understand the information they use, to ensure their scenarios remain ***plausible*** and ***coherent and internally consistent***. This includes, but is not limited to, understanding:

- the limitations, estimations, uncertainties, assumptions and exclusions underlying the information;
- the degree to which information from different sources can be integrated into one climate-related scenario; and
- the purpose for which the information has been produced.

"Key driving forces and relationships"

The definition of 'climate-related scenario' refers to being "*…based on […] assumptions about* ***key driving forces and relationships****…*".

Driving forces are external factors that persistently influence events, trends and patterns that determine the pathways, events and outcomes within a scenario.

When constructing climate-related scenarios, CREs should identify driving forces that will influence their future climate-related risks and opportunities, and explore how events could plausibly unfold over time in response to assumptions about the driving forces identified. These driving forces should have both a large degree of uncertainty and pose a significant impact.[12]

Driving forces are typically categorised into social, technological, environmental, economic and political (STEEP) drivers. CREs need to identify and consider specific driving forces within these broad categories.

CREs should also ensure their climate-related scenarios consider the interplay (i.e. relationships) of these key driving forces.

"Physical and transition risks in an integrated manner"

The definition of "climate-related scenario" refers to "*…covering both* ***physical and transition risks in an integrated manner***".

Scenarios should not be constructed to only consider either transition or physical climate-related risks in isolation. Instead, each scenario should explore plausible future events that impact identification of both types of climate-related risks, and include consideration of the interplay between each type of risk. Impacts resulting from physical climate-related risks can have a flow-on effect on impacts resulting from transition climate-related risks and vice versa. Scenarios should explore this relationship.

[12] Driving forces with these characteristics are commonly referred to as 'key driving forces' or 'critical uncertainties'.

The underlying information used as a source for assumptions or inputs about physical and transition impacts in a scenario does not need to be taken from the same source, model or calculation for a scenario to satisfy this definitional element.

We expect that different scenarios will put different weight on each type of climate-related risk (i.e. physical or transition) depending on the relevant temperature outcome and the scenario's architecture. However, the climate-related scenario definition is clear that scenarios must consider *both* types of risk in an integrated manner.

Example

This simple example is an excerpt of a 1.5 degrees Celsius-aligned climate-related scenario narrative.

"In the late 2020s, a series of extreme weather events impacted New Zealand. Scientific research concluded that these weather events were made more severe because of climate change. The significant financial cost and loss of human life from these events resulted in a broad societal acceptance that New Zealand needed to aggressively participate in global efforts to mitigate further adverse impacts of climate change. As a result, a new government was elected in 2029 with a mandate to implement unprecedented new policies to reduce domestic GHG emissions. This included prohibiting the use of internal combustion engine (ICE) vehicles for private use by 2032."

This simple example of a narrative excerpt demonstrates that the detailed underlying scenario satisfies the definition of 'climate-related scenario' because:

- It describes **how the future may develop** by explaining a series of events unfolding over time. For example, extreme weather events followed by a new government introducing climate change mitigation policies.
- The events described are **plausible** within the scenario's 1.5 degrees Celsius temperature alignment and overall context. This is because eliminating the use of ICE vehicles for private use will result in a reduction in domestic GHG emissions, which will contribute to achieving this future. The scenario's context (i.e. significant financial damage and loss of human life from extreme weather events exacerbated by climate change) provides the necessary political precursor that means the prohibition of ICE vehicles for private use within a three-year period is plausible.
- The events described are **challenging** because the prohibition of ICE vehicles for private use within a three-year period is a confronting, unprecedented and severe prospect based on past and present efforts to reduce domestic GHG emissions.
- The events described are **coherent and internally consistent**. This is because there is a cause-and-effect relationship between the significant financial damage and loss of human life from extreme weather events exacerbated by climate change, and a government being elected with a

clear mandate to implement unprecedented policies to reduce domestic GHG emissions (i.e. prohibiting the private use of ICE vehicles).

- The events described are based on assumptions about **key driving forces**. The extreme weather events are an example of events occurring in response to an assumption about an environmental driving force (physical climate impacts). The public response and the government introducing climate change mitigation policies are examples of events occurring in response to an assumption about political driving forces (changing political attitudes and implementation of mitigation policies respectively).
- The scenario excerpt considers both **physical and transition risks in an integrated manner**. This is because the extreme weather exacerbated by climate change is a physical climate-related risk and the resulting climate change mitigation policy is a transition climate-related risk.

Relevant to the CRE

A CRE (or fund in the case of Managed Investment Scheme (MIS) Managers) is required to undertake scenario analysis to help identify "***its*** *climate-related risks and opportunities and better understand the resilience of* ***its*** *business model and strategy*".[13]

A CRE's reporting requirement for climate statements is set out in subpart 3 of Part 7A of the FMC Act.

For CREs required to prepare climate statements in respect of a **single entity**, the climate-related scenarios constructed should be relevant and specific to that single entity's business model and strategy.

CREs required to prepare **group climate statements** could construct and analyse climate-related scenarios that assess the resilience of the group's strategy and business model as a whole. CREs with distinct strategies across their group operations or activities may need to consider constructing higher-level scenarios that can assess the resilience of the group's high-level strategy and business model, or scenarios that are most relevant to their material operations/business.

Section 461ZC of the FMC Act states that MIS Managers that are climate reporting entities in respect of their scheme must ensure that 'climate statements that comply with the climate-related disclosure framework are completed in relation to **each separate fund of the scheme** and that balance date[14]'

It may be appropriate to assess multiple funds against the same scenarios specified in paragraph 13 of NZ CS 1. However, MIS Managers should assess (and we will review this as part of our monitoring) that each climate-related scenario is sufficiently detailed, relevant, and can adequately test the resilience and help to identify risks and opportunities of each separate fund. Then, the subsequent 'analysis' as part of the scenario analysis requirement should be done for each fund separately.

A CRE is required to disclose "*an explanation of why the entity believes the chosen scenarios are relevant and appropriate to assessing the resilience of the entity's business model and strategy to climate-related risks and opportunities"*.[15]

To comply with these requirements, the climate-related scenarios must be relevant to the CRE or fund operations, and business model and strategy.

Therefore, the following points should be considered:

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[13] Paragraph 13, NZ CS 1.
[14] Part 7A FMC Act, s461ZC (2) (a)
[15] Paragraph 51 (a)(iv), NZ CS 3

- that the brief descriptions of the scenario narratives indicate how and why the underlying detailed climate-related scenarios are specific and relevant to the CRE or fund operations, business model and strategy (or strategies), and
- CRD records are produced and retained to substantiate that the climate-related scenarios are specific and relevant to the CRE or fund operations, business model and strategy (or strategies).

How a climate-related scenario is relevant to a CRE or fund will ultimately depend on its unique facts and circumstances. Some examples of factors to consider while constructing scenarios for a reporting entity could include (but are not limited to):

- specific strategic and operational characteristics:
  - industries, sectors, locations of operations and/or investments
  - nature and number of business models and strategies
  - organisation structure
  - types of assets owned or invested in (e.g. equities, derivatives, fixed income, real assets)
  - capital planning and deployment horizons
  - overarching external characteristics of the operating environment such as political, economic, social, technological, environmental and legal factors
  - consideration of its current GHG emissions profile and its ability to abate GHG emissions in the future.
- current and potential future value chain:
  - supplier risks and opportunities
  - sources of competitive advantage
  - capital and asset base
  - infrastructure or distribution dependencies
  - market structure and dynamics.

Adopting a focal question, such as "*How could climate change plausibly affect our business model and strategy, what should we do, and when*?", to constrain scenario analysis can also be a useful tool to ensure the climate-related scenarios are relevant for the entity.

Scenario analysis FAQs

General

Does the guidance above apply in the same way to MIS Managers responsible for managing diversified schemes and funds as it does to other types of CREs?

Yes. The scenario analysis process is intended to help organisations make strategic and risk management decisions under conditions of uncertainty. As with other types of CREs, the focus is on assessing the resilience of the entity's strategy and business model, not on the assets, activities and value chains of its constituent parts at a fixed point in time. In this context, scenario analysis should focus on the fund management processes and strategy rather than a current portfolio, which is temporary in the context of scenario analysis timeframes. However, we note that some MIS managers may wish to start by examining their current portfolios, or a "model" portfolio, in order to inform (as an input) the development of relevant, plausible and challenging scenarios.

MIS Managers are required to report at the fund level. They are not required to assess the resilience of all investee entities, or the exposure to climate-related risks and opportunities of every asset they invest in or may invest in.

MIS Managers may need to take a wider, macro-level view of the future environment, investment conditions and implications for portfolio management over the timeframes of their scenarios. This may consider, for example, sector-, country-, value chain- or industrial process-level factors. These may already be a factor in portfolio investment strategies. Climate-related scenarios used by MIS Managers for their funds under management should not be any less detailed than for a different type of CRE.

Can we take published scenario frameworks from the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), the International Panel on Climate Change (IPCC) Shared Socioeconomic Pathways (SSPs), or others, and use them for climate-related scenarios?

Frameworks such as the IPCC's SSPs, and the NGFS's scenarios have been scoped and produced for different purposes, and are generally presented at a macro or industry level. These frameworks have been defined by the XRB as 'archetypes' and are intended to make up an entity-level scenario's architecture[16]. They are unlikely to be relevant or specific enough to assess the resilience of a specific CRE's or fund's business model and strategy or to help identify the entity's climate-related risks and opportunities.

Therefore CREs should assess these inputs in terms of relevance to their business model and strategy, and determine what modifications/additions should be made.

Can the FMA provide examples of scenario analysis disclosures?

No. As the regulator we cannot give specific advice, or step-by-step instructions. We can, and do, publish our expectations and interpretations.

[16] Refer to page 7 for more details.

By definition, scenario analysis is forward-looking. How can a CRE manage any concerns from investors or regulators about the use of forward-looking information while complying with the regime?

As noted above, a scenario is a narrative that outlines a plausible but hypothetical series of events leading to a plausible future outcome. Scenarios are not forecasts. Nor are they a statement of management's performance expectations for an organisation. They represent a plausible pathway to a future with the purpose of assessing the resilience of the organisation's business model and strategy and identifying climate-related risks and opportunities.

The scenario analysis disclosures only require CREs to disclose the scenario analysis **process** undertaken to construct and analyse climate-related scenarios, rather than disclosing an assessment of strategic resilience (however this analysis must still be done and kept as an underlying record). Therefore, scenario analysis disclosures that are clearly identified and presented with relevant contextual information are unlikely to be subject to misinterpretation or present any associated risks.

Sectoral scenario analysis

What is sectoral scenario analysis?

Sectoral scenario analysis is the process of constructing climate-related scenarios at the sector level. Participating in the sectoral scenario analysis is not a mandatory requirement of the CRD framework, and the sectoral scenarios themselves are not subject to monitoring by the FMA. However, if a CRE uses a sectoral scenario as the basis for its entity or fund level analysis and subsequent disclosures, we will review these sectoral scenarios in the same light as reviewing any other input that has been used to construct entity or fund level climate-related scenarios.

For more information and guidance about sectoral scenario analysis please refer to the XRB's website.

What do CREs planning to use the sector-level scenarios need to consider?

CREs using sector-level scenarios as a basis for their entity-specific analysis need to:

- consider how relevant and specific the sector scenarios are to the CRE's operations, business model and strategy;
- in the case of a MIS manager, consider how relevant and specific the sector scenarios are to its fund(s)
- determine what additions, modifications or adaptations to sector scenarios are required to make them relevant and specific to the CRE's operations, business model and strategy, or those of the fund in the case of a MIS manager; and
- accurately disclose their involvement in the construction of sector-level scenarios (or that they were not involved in the construction but have used them at face value), and what additions, modifications, etc were made to the sector scenarios and why.

It is important that entities using sectoral scenarios customise them sufficiently to ensure that they are relevant to the entity, or the fund in the case of a MIS manager.

Are CREs that were involved in sectoral scenario analysis required to use the sector-level scenarios in their own analysis?

No. It is not mandatory for these CREs to use the sector-level scenarios in their entity level analysis.

Can CREs that have been involved in more than one sectoral scenario analysis combine different sector scenarios?

Yes. CREs operating across multiple sectors can combine assumptions from different sector-level climate-related scenarios on the condition that the scenarios meet the definition of a climate-related scenario. In particular that the scenarios remain coherent and internally consistent.

Quantification of scenarios

If quantification is used, what should CREs be aware of?

If quantification is used in the construction of climate-related scenarios or as part of the scenario analysis process, it is important for CREs to assess how their approach fulfils the requirements of the CRD framework, in particular:

- the definition of 'climate-related scenario' and 'scenario analysis', and fulfilling the purpose of testing the resilience of a business model and strategy and helping to identify climate-related risks and opportunities through the analysis process.
- the requirements of NZ CS 3 paragraphs 47-50, Methods and assumptions, data and estimation uncertainty.
- quantitative methodologies or models used in scenarios should not be a 'black box', and appropriate context must be provided to ensure that they are accurately and transparently described and explained.

Some indicative examples[17] where we consider that quantification could be used are:

- Within the architecture (and archetypes) used to frame a scenario
- Within the *construction* of a climate-related scenario to add more detail to a narrative, for example to quantify:
    - a price of a carbon tax or subsidies
    - a flow-on effect such as percentage of farming land no longer suitable for a certain horticulture crop
    - a macroeconomic effect such as percentage increase in inflation
    - an estimate of economic damage from an extreme weather event
    - a price of a low emission technology
- Within the *analysis* of how a scenario could impact the resilience of a strategy or business model and help to identify climate risks and opportunities, for example to quantify:
    - Physical damage and business interruption cost specific to a CRE, to assess resilience and identify risks in a scenario that describes an extreme weather event.
    - The cost of replacing a CRE's assets for low-emissions alternatives, to assess resilience and identify risks in a scenario where there is significant customer pressure favouring low-emission providers.

[17] Examples are provided purely for illustration. They are not exhaustive and are not intended to impose or imply particular rules or requirements.

- The potential revenue that could be generated by a new product line with existing organisational capacity and capability, to assess the scale of opportunity in a scenario where there are subsidies for products that meet certain low-emissions criteria.
- The monetary impact (i.e. returns) of a climate-related scenario on a current or model portfolio of investments, to then assess how resilient a portfolio management strategy and processes, investment strategy, and business model are. If this approach is used, we emphasise that the objective of scenario analysis is not to:
  - assess the resilience of current investments (which are unlikely to still be held at a scenario time horizon), or
  - produce an analysis of sensitivities, forecasts or stress tests relating to a portfolio held at a fixed point in time.

Undertaking the type of quantification described in the examples would likely result in an input(s), or component(s) of a scenario rather than being 'scenario analysis' itself as defined in the CRD framework.

In the context of the CRD framework, is scenario analysis the same as a sensitivity analysis?

No. Sensitivity analysis is a more normative, probabilistic, predictive process based on risk rather than uncertainty. It generally involves comparing the results of variations of a set of initial assumptions (or assumed 'base state') within a fixed and unchanging overall environment (e.g. cost, revenue, operational or macroeconomic factors).

Scenario analysis is a broader process of exploring a more complex, dynamic change to assess resilience of an entire entity to a different future state, and to identify risks and opportunities.

In the context of the CRD framework, is scenario analysis the same as stress testing?

No. Stress testing is a specific subset of scenario analysis typically used in the financial sector, and is narrower in focus. It involves using hypothetical unfavourable scenarios to determine whether an organisation has enough capital, earnings and/or cashflow to withstand the impact of adverse developments.

Stress testing is generally limited to an evaluation of an entity's resilience to plausible but extreme risks that are deemed to be unlikely but would have a significant impact.

While scenario analysis can be used to support or inform stress testing, and vice versa, scenario analysis in the context of the CRD framework is more exploratory in nature. It should also involve considering the plausible 'upside' of climate change, i.e. climate-related opportunities, whereas stress testing is purely focused on risks.

In the context of the CRD framework, is scenario analysis the same as modelling?

Scenario analysis as defined in the CRD framework is *not* a modelling exercise to identify and quantify 'most-likely' outcomes.

The drivers of climate-related risks and opportunities and their potential impacts are typically too complex and dynamic to be accurately reflected in a single quantitative model. Quantitative and semi-quantitative systems modelling approaches have been employed in support of climate-related risk analysis, but are not a required component of scenario analysis as prescribed by the CRD framework.

As discussed on page 17, quantification (including modelling) output could be an input or a component of a climate-related scenario or scenario analysis.

Are CREs required to undertake modelling?

No. It is not mandatory for CREs to undertake any modelling when constructing or analysing their climate-related scenarios.

If CREs undertake modelling, what do they need to disclose?

If a CRE has undertaken modelling, paragraph 51(b)(iii) of NZ CS 3 requires it to disclose a description of the modelling undertaken and why it considers that model was appropriate.

This disclosure does not include external data produced by a model that the CRE has used as an input when constructing its climate-related scenarios.

Example – Information produced by a model used as an input

A CRE uses data about potential sea level rise in New Zealand produced by a Crown Research Institute (CRI) when constructing its climate-related scenarios. The CRI used a regional climate model to generate this data.

The CRE would not need to disclose a description of the regional climate model used by the CRI. However, the CRE would mention the use of this data when disclosing the sources of information used in accordance with the disclosure in paragraph 51(a)(v) of NZ CS 3.

Scenario analysis process

Are CREs required to construct new climate-related scenarios every reporting period?

It depends. CREs have an obligation to produce disclosures that meet the requirements for their reporting entity in the CRD framework each reporting period. Therefore, we expect an annual assessment of whether climate-related scenarios:

- continue to meet the components of the definition in the CRD framework;
- are relevant to assessing the resilience of their business model and strategy; and
- are capable of helping to identify their climate-related risks and opportunities.

Therefore, CREs should develop a process to periodically refresh and update their climate-related scenarios as needed, and should produce and retain records to support their assessments of whether their climate-related scenarios continue to satisfy the requirements of the CRD framework.

Is there a mandatory time horizon for climate-related scenarios?

No. The CRD framework does not mandate a time horizon (i.e. end point) that must be used for climate-related scenarios.

CREs should note that for the mandatory 1.5 degrees Celsius and 3 degrees Celsius or greater scenarios set out in paragraph 13 of NZ CS 1, the figures refer to the change in average global temperatures by 2100, compared to pre-industrial levels. The scenario time horizon may well be shorter than 2100, e.g. 2050, but the pathway to the chosen time horizon should still be consistent with restricting the relevant increase in global average temperatures at 2100 compared to pre-industrial levels.

Does difficulty accessing 'data' prevent CREs from constructing climate-related scenarios?

No. There is publicly available information prepared by reputable organisations that can be used to form the architecture of climate-related scenarios. This includes, but is not limited to, information published by the IPCC, He Pou a Rangi - Climate Change Commission, and the National Institute of Water and Atmospheric Research (NIWA).

Should a climate-related scenario simply describe a series of climate-related risks?

No. In simple terms, a risk is the possibility of something adverse or negative happening. Climate-related scenarios should describe a pathway of a series of events unfolding over time rather than a list of possibilities. The events that happen in each climate-related scenario are intended to help CREs identify possible climate-related risks and opportunities.

Scenario analysis outcomes

Do CREs have to disclose their strategic resilience based on their analysis of the climate-related scenarios constructed?

No. CREs are only required to disclose a description of the process they have undertaken to construct and analyse climate-related scenarios. There is no requirement for CREs to disclose what insights or learnings they have gained from analysing climate-related scenarios, or any changes to their business model or strategy they have made or are considering as a result of undertaking scenario analysis, as part of their scenario analysis disclosures.

CREs should keep in mind that they are required to actually conduct the analysis of their climate-related scenarios, to assess the resilience of their business model and strategy and help identify their climate-related risks and opportunities, rather than just exclusively constructing the scenarios. We will review CRD records to determine whether this analysis has been done.[18]

Comparison of scenario analysis disclosures

How could scenario analysis disclosures be compared by primary users?

When considering how primary users may compare scenario analysis disclosures between CREs, relevant factors might include:

- the robustness of the scenario analysis process undertaken, i.e. whether the CRE's disclosure indicates it has undertaken a thorough process to assess the resilience of its business model and strategy, and identify climate-related risks and opportunities;
- whether the brief descriptions of each climate-related scenario indicate that the underlying detailed climate-related scenarios are plausible and challenging, and capable of being used by the CRE to assess the resilience of its business model and strategy, and identify climate-related risks and opportunities;
- the degree to which the scenario analysis undertaken has informed or supported the CRE's other strategy disclosures in NZ CS 1.

[18] Refer to our *Guidance for keeping proper climate-related disclosure records* released in October 2023 for examples of the types of records CREs could retain to demonstrate that the analysis has occurred.

Relationship with other strategy disclosures

How does the scenario analysis disclosure relate to the overall disclosure objective of the strategy pillar?

The objective of the strategy disclosures in the CRD framework is to enable primary users to understand how climate change is currently impacting an entity and how it may do so in the future.[19]

The scenario analysis disclosures only require CREs to disclose the scenario analysis **process** undertaken to construct and analyse climate-related scenarios, rather than disclosing an assessment of strategic resilience. Therefore, in isolation, the scenario analysis disclosures enable the CRE itself, not primary users, to understand how climate change may impact the CRE (or fund/s) in the future.

However, the scenario analysis disclosures ultimately support the disclosure objective of the strategy pillar. This is because the learning or insights gained by undertaking scenario analysis could support or inform the other strategy disclosures,[20] in particular to identify climate-related risks and opportunities, and to enable better foresight and decision making around whether there is a lack of resilience and need to reassess strategies and business model(s) and consider developing/updating the transition plan aspects of its strategy.

How do the scenario analysis disclosures link to the other strategy disclosures?

Undertaking scenario analysis may help to support or inform the information disclosed in respect of a CRE's climate-related risks and opportunities[21] and the transition plan aspects of its strategy[22]. However, it should not be the only (or potentially even a significant) input to these disclosures. Scenario analysis is not an exercise in forecasting or assessing the most likely outcomes and future environment. It is intended to provide a challenging but plausible future to assess resilience against and identify (predominantly themed or high level) risks and opportunities. This in turn may provide the catalyst for whether a transition plan is needed due to the scenario analysis process resulting in an assessment that there is a lack of resilience.

The exploratory (compared to normative) nature of scenario analysis in the context of the CRD framework requirements means it is highly unlikely that these climate-related scenarios will eventuate (it is not possible, nor the intention of scenario analysis, to predict all aspects of the future). Therefore, scenario analysis should only be used as one input, and not necessarily the primary input for identifying climate-related risks and opportunities and the design of a transition plan. This also means there is not a direct link between the scenario analysis process and the anticipated impacts and financial impacts disclosures.

The diagram on the following page demonstrates the relationships between the Strategy disclosures. It has been developed at a high level and does not prescribe any additional mandatory requirements that CREs must undertake to comply with the CRD framework. It is intended purely to visually illustrate the interplay between the Strategy disclosures and how they may inform or support one another.

[19] Paragraph 10, NZ CS 1.
[20] Predominantly paragraphs 14 and 16 of NZ CS 1.
[21] Required under paragraphs 11(c) and 14 of NZ CS 1.
[22] Required under paragraphs 11(e) and 16 of NZ CS 1.

Relationship between Strategy disclosures in NZ CS 1