AUSTRALIAN ENERGY COUNCIL

THE UNIVERSITY of ADELAIDE

SCENARIO ANALYSIS PRACTICE GUIDE

SCENARIO ANALYSIS UNDER AASB S2 FOR AUSTRALIAN ENERGY COUNCIL MEMBERS

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1. Purpose of this practice guide

This document provides guidance for Australian Energy Council (AEC) members related to the development of climate-related scenario analysis. Reporting entities under AASB S2 *Climate-related Disclosures* are required to disclose climate risks and opportunities against at least two scenarios. This guide provides a framework that AEC members can use to inform deliberations on how to approach climate-related scenario analysis to support consistency across the energy sector. This consistency is intended to assist energy market stakeholders in assessing and comparing climate resilience across the sector.

There is, however, a great deal of discretion in how AEC members may wish to use climate-related scenario analysis. This document is therefore only intended to provide guidance and will evolve alongside corporate climate disclosures.

This guide should be read in conjunction with AASB S2 (September 2024).

Thank you to Siraj Jardine, Chair of the Climate Disclosure Sub-Working Group, all Sub-Working Group Members, AEC Secretariat Rhys Thomas, and University of Adelaide Dr. Tracey Dodd for their significant contributions to the development of this guide and their leadership in delivering the supporting analysis.

2. Overview of scenario analysis under AASB S2

2.1. What is required? Climate resilience and a summary of disclosure requirements

Climate-related scenario analysis involves the use of hypothetical pathways to explore how future developments, such as climate policies, technologies, and physical impacts, could affect business outcomes. These scenarios are not predictions, nor do they represent what a company or others expect to happen. Rather, they are tools to test the resilience of business models and strategies under a range of plausible futures.

Entities must disclose information that helps users of general-purpose financial reports to understand how resilient their strategy and business model are to climate-related risks, changes, and uncertainties. This includes both risks and opportunities identified by the entity.

Entities are required to use climate-related scenario analysis, scaled appropriately to their size and context, to assess this resilience. Disclosures may be qualitative, with supporting quantitative information that may be presented as a single figure or a range.

Specifically, entities must disclose:

<u>(a) Assessment of business resilience against different climate scenarios</u>

- The impact of the scenario analysis on the entity's strategy and business model, and how it may need to respond to climate risks and opportunities;
- Any significant uncertainties considered;
- The entity's capacity to adapt, including:

- Access to financial resources to manage risks and seize opportunities;
- Ability to redeploy, upgrade or decommission assets;
- Current and planned investments in climate mitigation, adaptation, and resilience.

(b) Details of the scenarios applied

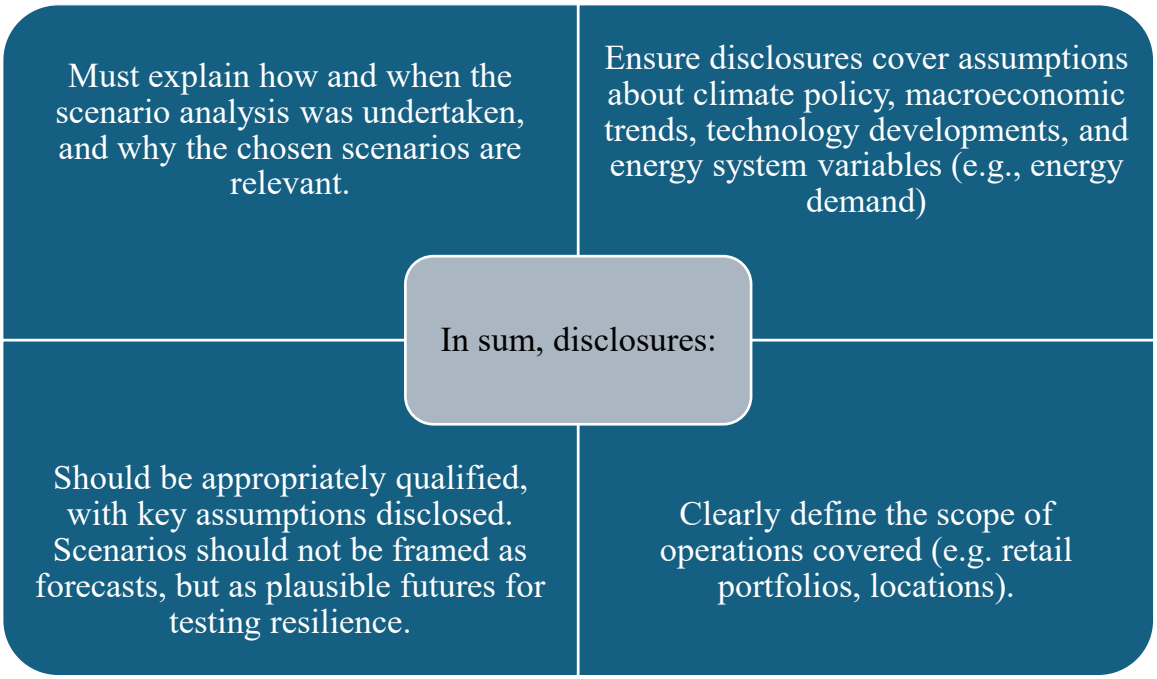
- How and when the analysis was conducted;
- Inputs used, including:
  - Which climate scenarios were used and their sources;
  - The range of scenarios considered;
  - How scenarios address transition and physical risks;
  - Why the scenarios are relevant;
  - Timeframes used (short, medium, long term); and
  - The scope of operations included (e.g., locations, business units).
- Key assumptions, such as:
  - Relevant climate policies in operational jurisdictions;
  - Other macroeconomic trends;
  - Local and regional factors (e.g., weather, infrastructure, demographics);
  - Energy demand; and
  - Technological developments.

In preparing disclosures to meet the above requirements, an entity must refer to and consider the applicability of cross-industry metric categories, as described in paragraph 29 of AASB S2.

It is important to recognise that scenario analysis, including climate-related scenarios, has inherent limitations. It is not intended to provide forecasts or to indicate probable outcomes. Rather, it relies on assumptions that may or may not prove to be accurate or occur in practice.

Scenarios may also be affected by factors beyond those disclosed or anticipated in the modelling. While scenarios should be plausible, they are not intended to provide assurance regarding future business performance or decisions. Users of information presented in scenario analyses should therefore exercise caution and avoid placing undue reliance on these statements, particularly given the high level of uncertainty surrounding the nature, timing, and magnitude of climate-related risks, and the evolving nature of the energy transition.

2.2. Summary of key requirements


Must explain how and when the scenario analysis was undertaken, and why the chosen scenarios are relevant.
Ensure disclosures cover assumptions about climate policy, macroeconomic trends, technology developments, and energy system variables (e.g., energy demand)
In sum, disclosures:
Should be appropriately qualified, with key assumptions disclosed. Scenarios should not be framed as forecasts, but as plausible futures for testing resilience.
Clearly define the scope of operations covered (e.g. retail portfolios, locations).

3. Steps to constructing scenario analysis

Table 1 provides an overview of steps organisations in the energy sector can take to provide a structured and robust foundation to their scenario analysis.

Table 1: Key steps in climate scenario analysis

Step	Description
1. Establish governance oversight mechanisms and engage key stakeholders	Finalise and disclose the governance mechanisms within your organisation that support the development of climate scenario analysis. Given the systemic and long-term nature of climate risk to the energy sector (e.g., generation assets with long lifespans, exposure to policy changes, enabler of electrification and energy efficiency), engagement should include representatives from strategy, risk, finance, operations, and sustainability, including the board. Stakeholders such as climate scientists, government departments, and energy market bodies may also be consulted in the development of scenarios to provide diverse perspectives and help challenge organisational assumptions. Appendix 3 provides examples of how the company could present the information about the governance mechanisms.
2. Define the strategic focus	Clearly articulate the purpose and narrative of the scenario analysis by posing focal questions linked to energy-specific financial impacts. For example: • How might accelerated renewable deployment impact our wholesale pricing strategy, and longevity of existing assets? • What does a slower transition mean for existing generation assets (e.g. a coal fired power station or large wind farm approaching its technical end of life)? • Are new or existing assets able to withstand increasing physical climate risks? • Is our business positioned to capitalise on green finance opportunities, or alternatively able to remain economically competitive against new generation? • How are key stakeholders, such as investors, employees, and community groups, being engaged through the energy transition?

Step	Description
3. Identify key drivers and uncertainties relevant to energy markets	Map out the critical variables affecting future outcomes in the Australian energy market, both in terms of transition and physical risks. This may include: • Progress of national and state renewable energy policies (e.g. Capacity Investment Scheme, NSW Energy Roadmap). • Changes to coal closure dates (noting that current dates will need to be brought forward under a 1.5C scenario). • Evolving climate regulations (e.g. introduction of a carbon price, sectoral carbon budgets, more aggressive Safeguard Mechanism baselines). • Progress of energy market reform (e.g. the NEM Wholesale Market Settings Review). • Projected energy demand and relatedly technological developments (e.g. hydrogen growth, electrification, energy efficiency, data centres). • Expected reliance on offsets. • Ability to access private capital. • Volatility of financial markets (e.g. liquidity of contracts market, insurance premiums). • Exposure to physical climate risks (e.g. droughts affecting hydro capacity, extreme heat affecting cooling demands of coal generation).
4. Leverage existing work to model climate pathways and consider limitations	Organisations must model a minimum of two scenarios: one aligned with a global temperature rise of 1.5°C (in line with the most ambitious target in the *Climate Change Act 2022*), and one representing a higher emissions outcome (e.g. well above 2°C). There is a range of existing sources organisations can use to test the technology and demand assumptions under each climate pathway, including: • AEMO's 2024 Integrated System Plan models three temperature scenarios for the energy sector: Green Energy Exports (1.5C), Step Change (1.8C), and Progressive Change (2.6C). • WA Whole of System Plan looks at how the South West Interconnected System (SWIS) might evolve over the next two decades. • CSIRO's sector pathway work models how each sector can decarbonise according to two temperature outcomes: net-zero by 2050 (less than 2C), and net-zero by 2040 (1.5C). • IEA's Net Zero by 2050 takes a global approach to what is needed to transition to a net zero energy system by 2050.

Step	Description
	However, these models have limitations and organisations may wish to undertake their own analysis of material variables and assumptions in each model. This may include scrutiny of things like assumptions about green hydrogen development in the AEMO and CSIRO climate pathways, or the role of nuclear energy in the IEA's modelling. For physical risks, the National Climate Risk Assessment can be used. Transition risks and physical risks may be modelled separately; however, an overall assessment of climate resilience should be provided. Each scenario should cover short, medium, and long-term horizons. While each organisation will select time horizons appropriate to their business, it is likely the transition and physical risks will use different time horizons. As a guide: • The transition risks could follow climate target setting (e.g. short term to 2030, medium term to 2035, and long-term to net-zero by 2050), or the time windows used in the NEM Wholesale Market Settings Review. • The physical risks could follow the National Climate Risk Assessment's time horizons (e.g. short-term to 2030, medium-term to 2060, and long-term to 2100).
5. Develop energy-relevant narratives and quantify Impacts	Construct qualitative narratives that explain how your selected temperature scenarios affect variables like energy demand, generation mix, carbon pricing, and infrastructure resilience. Quantify financial and emissions impacts where feasible, such as asset impairments, capital expenditure changes, or forecast carbon liabilities. Modelling should be grounded in the narrative and help estimate directional impacts rather than predict exact figures.
6. Assess strategic resilience of your business model	Evaluate how each scenario may affect your current strategy, operating model, investment plans, and customer offerings. Identify where adaptation is necessary (e.g., asset retirement, technology investment, grid upgrades, or changes to contracting arrangements). Under AASB S2, disclose the flexibility of your financial resources, your ability to repurpose or decommission assets, and your strategy for managing risks and seizing opportunities across each timeframe. Monitoring early indicators of change (e.g. policy shifts, consumer demand) is essential to maintain adaptive capacity.

3.1 How can boundaries be determined?

A common question related to climate-related scenario analysis relates to w*here* boundaries should be drawn. The answer typically depends on a materiality assessment.

'Materiality' in AASB S2 means: information is material if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that primary users of general-purpose financial reports make on the basis of those reports.

Developing a clear map of the value chain can help stakeholders identify appropriate boundaries, informed by anticipated climate impacts and their relative materiality. This process can also reveal information gaps, such as the origin of critical materials or key geographical dependencies. The value chain may be defined elsewhere in the annual report, but more detail may be required to understand and analyse the impacts here.

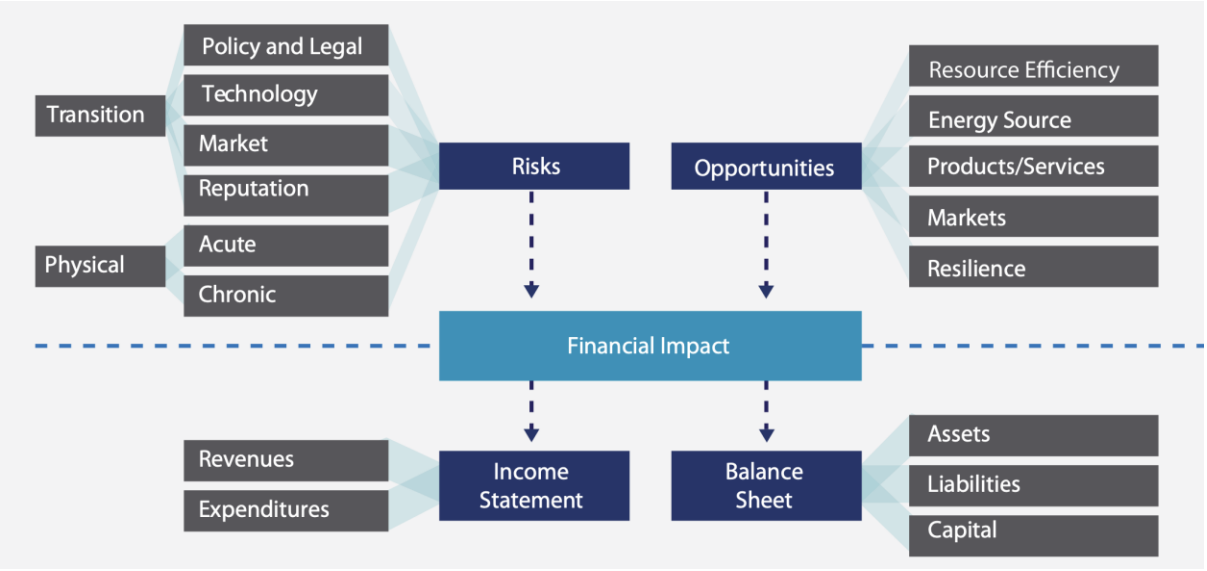
It is important to note that the 'boundaries' for the ASRS sustainability report must be the same as those outlined in an organisation's financial report. In other words, the organisation's coverage must be the same (including any parent-company, subsidiaries or related companies).

To help define meaningful boundaries and assess materiality, organisations may wish to consider which factors could affect their ability to operate, maintain sustainable revenue streams, impair asset value, increase liabilities, or limit access to finance.

In AASB S2 materiality judgements apply to decisions about which information to disclose in general purpose financial reports instead of the simple identification of risks and opportunities. This distinction is important.

These considerations are consistent with the key elements of the Task Force on Climate-related Financial Disclosures (TCFD) framework regarding climate-related risks, opportunities, and financial impacts (Figure 1).

Figure 1: TCFD's framework on climate-related risks



3.2 What scenarios to choose?

In line with AASB S2, reporting entities must include at least two relevant possible scenarios, one of which must be consistent with the most ambitious global temperature goal set out in the *Climate Change Act 2022* (the Act) (i.e. 1.5°C above pre-industrial levels).[1] Specifically, the objects of the Act are: (a) to set out Australia's greenhouse gas emissions reduction targets which contribute to the global goals of: (i) holding the increase in the global average temperature to well below 2°C above pre-industrial levels; and (ii) pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

AEC members should, therefore, at a minimum, include a:

a. 1.5°C Scenario: consistent with the Act. As part of this, members should take into consideration the Act's commitment to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

b. Well above 2°C Scenario (e.g., 2.5°C or higher): where climate policies are insufficient, resulting in global warming outcomes 2°C or higher.

Some organisations outside of the energy sector (e.g., BHP) use 1.5°C scenarios to inform their understanding of the potential impacts of an acceleration in global decarbonisation.

Under AASB S2, B14 an entity's resilience assessment will be informed not only by the individual inputs to its climate-related scenario analysis, but also by the information it develops in combining those inputs to carry out the analysis. The entity shall prioritise the analytical choices (for example, whether to use qualitative analysis or quantitative modelling) that will enable it to consider all reasonable and supportable information that is available to the entity at the reporting date without undue cost or effort. For example, if an entity is able, without undue cost or effort, to incorporate multiple carbon price pathways associated with a given outcome (for example, a 1.5°C outcome), this analysis is likely to strengthen the entity's resilience assessment, assuming such an approach is warranted by the entity's risk exposure.

Further under AABS S2, B15, quantitative information will often enable an entity to carry out a more robust assessment of its climate resilience. However, qualitative information (including scenario narratives), either alone or combined with quantitative data, can also provide a reasonable and supportable basis for the entity's resilience assessment.

According to AASB S2, climate-related scenario analysis is an evolving practice and, therefore, the approach that an entity uses is likely to change over time. As described in paragraphs B2–B7, the entity shall determine its approach to climate-related scenario analysis based on its particular circumstances, including the entity's exposure to climate-related risks and opportunities and the skills, capabilities and resources available for the scenario analysis. Those circumstances are also likely to

[1] The objects of this Act are: (a) to set out Australia's greenhouse gas emissions reduction targets which contribute to the global goals of: (i) holding the increase in the global average temperature to well below 2°C above pre-industrial levels; and (ii) pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

change over time. Therefore, the entity's approach to climate- related scenario analysis need not be the same from one reporting period or strategic planning cycle to the next (see paragraph B18).

3.3 Quantitative and qualitative data within scenario analysis

Climate scenario analysis often involves a mix of quantitative and qualitative methods. Determining when and how to use each approach depends on data availability, time horizons, decision-making needs, and the nature of the risks or opportunities being assessed.

Quantitative Analysis – When to Use

Quantitative analysis involves using numerical models or financial calculations to estimate the impact of specific climate drivers. It is most effective when:

- Assessing near- to medium-term risks (0–15 years) where data is more reliable (e.g. carbon pricing, energy demand, fuel costs).
- Evaluating financial exposures, such as EBITDA sensitivity, capital expenditure alignment, or asset impairment.
- Comparing strategic options under different policy or technology pathways (e.g. renewables vs gas peaking investments).
- Conducting regulatory disclosures that require clear metrics (e.g. Scope 1–3 emissions, net present value under scenarios).

Examples:

- Stress testing financial performance under certain shadow carbon pricing settings.
- Forecasting electricity margins under ISP scenarios.
- Estimating capital at risk for a coal closure pathway.

Benefits:

- Decision-useful for finance and investment teams.
- Enables comparability and tracking over time.

Limitations:

- Relies on assumptions that may be uncertain or volatile over long horizons.
- May give a false sense of precision if not contextualised with narrative.

Qualitative Analysis – When to Use

Qualitative analysis involves structured judgments, narrative exploration, and scenario storytelling. It is particularly valuable when:

- Considering long-term futures (20+ years) with high uncertainty or non-linear shifts (e.g. tipping points, abrupt policy changes).
- Identifying emerging risks or opportunities not yet quantifiable (e.g. reputational, legal, geopolitical).
- Exploring business model vulnerabilities, customer sentiment, or leadership responses.
- Engaging boards and stakeholders in strategic thinking and resilience.

Examples:

- Exploring what a 1.5°C world means for customer expectations or licence to operate.
- Assessing how community opposition could delay transmission projects.
- Mapping reputational risks if net-zero commitments are perceived as uncredible.

Benefits:

- Supports deeper insight into uncertainty and system complexity.
- Builds organisational awareness and strategic agility.

Limitations:

- Less precise or standardised.
- May require strong facilitation to ensure rigour and actionability.

3.4 Combining quantitative and qualitative approaches

Robust scenario analysis integrates both approaches:

- Use qualitative framing to develop coherent scenario narratives (e.g. policy ambition, technology change, social response).
- Quantify key variables where possible (e.g. emissions, margins, capex).
- Contextualise quantitative results with qualitative interpretation of what those outcomes mean for strategy and governance.

An entity may adopt a simpler approach to climate-related scenario analysis, such as using qualitative scenario narratives, if this is appropriate to its specific circumstances. However, given the energy sector's significant exposure to climate-related risks and opportunities, and assuming access to the necessary skills, capabilities, and resources, the standards stipulate that organisations of this nature would be required to apply a more advanced approach to climate-related scenario analysis.

Climate scenario analysis can be updated in line with an organisation's strategic planning cycle (e.g., every three to five years).

4. Use of AEMO's Integrated System Plan (ISP) in scenario analysis

The Integrated System Plan (ISP), developed by the Australian Energy Market Operator (AEMO), is a key reference document that provides modelling of future energy system transition pathways. The modelling is based on a range of assumptions about technology uptake and energy demand levels and assumes that all federal and state climate and renewable energy targets are met on time.

The ISP is specific to the National Electricity Market (NEM), which covers Queensland, New South Wales, Victoria, South Australia, and Tasmania. Western Australia has separate modelling of the energy transition for its system, the South West Interconnected System (SWIS), and this is done through the Whole of System Plan (WOSP).

While the ISP is regularly used in the energy sector as a reference point for policy conversation about energy transition planning, it is not intended to be nor is it an authoritative forecast.

4.1 When the ISP Is relevant

The ISP is most applicable when:

- Contemplating transition risk scenarios that reflect Australia's energy decarbonisation trajectory (e.g. coal closure, renewable buildout, demand-side participation).
- Testing strategic resilience under varying policy and technology assumptions.
- Aligning internal scenario assumptions with sector-wide energy forecasts that policymakers and investors are familiar with.
- Engaging regulators or investors, who expect credible and transparent inputs to scenario modelling.
- Planning capital investments in generation, storage, or grid infrastructure with long-term horizons and mapping out their integration.

The table below shows how the ISP may apply to different AEC members.

Table 2 – How the ISP may be used in scenario analysis

Use Case	Example Application
Reference scenario framework	Use ISP's Step Change or Progressive Change scenarios as baselines for internal 1.5°C or 2.6°C scenarios.
Asset retirement/investment timelines	Align assumed coal closure dates, renewable capacity additions, and storage rollouts with ISP modelling.
Demand and technology forecasts	Use ISP projections for grid demand, DER uptake, hydrogen development, or electrification to inform assumptions.
Policy and market signals	Reflect the ISP's assumptions on carbon targets, policy ambition, or transmission investment to shape transition pathways.

Stress testing and comparison	Compare internal strategies against ISP-aligned scenarios to test for gaps or overreliance on aggressive assumptions.
Stakeholder engagement and credibility	Demonstrate consideration of AEMO's modelling to build investor and regulator confidence in your scenario work.

4.2 Conditions and caveats

While the ISP is a helpful reference, organisations should adapt its assumptions to their specific business context (e.g. asset location, market exposure). The ISP primarily focuses on supply-side and market-level dynamics and is constrained by assumptions that all government policy is delivered in full and on time.

Additional inputs may be needed to capture firm-specific risks, scope 3 emissions, and international policy factors, as well as stress trust some of the assumptions used in the ISP. Companies should clearly disclose how ISP assumptions were used or modified, ensuring transparency under AASB S2.

Furthermore, it is not clear to what extent the ISP considers the physical impacts of climate change across the modelled scenarios. Other resources should be used to test physical climate risks, such as the National Climate Risk Assessment.

4.3 Considerations when preparing a 1.5C transition scenario

Almost all current 1.5C climate modelling relies on a base assumption that the electricity sector will see coal-fired generation phased out before 2035, and renewable generation pushing into the high 90 per cent range (see Table 3).

Table 3 – Projected share of renewable electricity generation

		2035	2050
Author	Scenario description	Renewable generation	Renewable generation
Net Zero Australia	Rapid electrification with full renewables rollout	99.8%	100%
AEMO	Green Energy Exports	99.3%	99.8%
Net Zero Australia	Rapid electrification	98.8%	99.6%
Climateworks	1.5 degrees aligned	98.2%	99.8%
AEMO	Step Change	95.6%	98.6%
CSIRO for CCA	AusTIMES modelling (A40/G1.5)	93.2%	99.3%
Climateworks	well below 2 degrees aligned	93.3%	99.7%
CSIRO for CCA	AusTIMES modelling (A50/G2)	89.5%	98.8%
Net Zero Australia	Rapid electrification with constrained renewable roll-out	88.3%	99.2%
DCCEEW	Projections baseline	83%	Not available

Source: **Climate Change Authority**, Sector Pathways Review p. 30.

There are further assumptions about substantially increased electricity consumption, spurred by:

- Other sectors (namely transport and the built environment) decarbonising through electrification (e.g. electric vehicles, substituting gas for space heating and cooking).
- Demand for hydrogen production via electrolysis to decarbonise hard-to-abate sectors.[2]

In the CSIRO modelling, there are also assumptions around:

- Gradual uptake of Carbon Capture and Storage (CCS) technology to drive abatement in the industrial sector, to the effect of about 12 Mt Co_2-e each year by 2050.
- Negative emissions (e.g. direct air capture, future land sequestration) playing a substantial role, abating 177 Mt CO_2-e per year by 2040. This reliance on negative emissions is needed to offset slow decarbonisation in agriculture and industry.

The IEA's global roadmap to net-zero likewise uses assumptions around negative emissions and CCS.

It is understood that these assumptions are for modelling purposes only and not intended to be treated as forecasts. However, entities using these assumptions in their scenario analysis are likely to face some tension with regulatory expectations around credible transition planning.

These tensions include, but are not limited to:

- Reliance on negative emissions or maturity of CCS technology – mitigation hierarchy guidance generally expects entities to prioritise direct emissions abatement over use of offsets. Where offsets are used, they are to be used for residual emissions, not whole sectors.
- Likelihood of rapid commercialisation of immature technologies (e.g. large-scale green hydrogen production) – ambitious assumptions like this may not represent a director acting with proper care and diligence.
- Quantitative financial modelling of carbon price – can be challenging for directors with fossil fuel electricity generation assets given the political uncertainty and overt influence it has on market dynamics.

There is no silver bullet to these tensions. It is most important that entities communicate the limitations or uncertainty of the assumptions used, so stakeholders are aware of them.

For example, if entities choose to deviate from some of the assumptions used in the AEMO ISP, it could be noted for context that an expert panel consisting of government, industry, researchers, and consumers considered the 1.5C scenario of *Green Energy Exports* to be the least likely ISP transition scenario.

[2] For example. the CSIRO sectoral modelling assumes for hydrogen uptake of about 350 PJs in 2040, increasing to 500 PJs by 2050, which "implies an additional 113 TWh of electricity production by 2040 and 155 TWh by 2050" (p15).

Where entities do challenge or present new assumptions, the reasons for this should be transparent and referenced to authoritative work, as much as possible. For entities operating in the electricity sector, there is likely to be a bias towards some conservativism due to electricity representing a system-wide provision of an essential service. There is also the existence of a system operator (AEMO), which means electricity sector companies cannot operate wholly independently from each other (e.g. asset closures must be coordinated through AEMO to ensure reliable and secure supply).

Assumptions that differ from a 1.5C scenario, especially around short-term transition horizons, may be due to regard to the technical operational of the grid (e.g. to support system security and reliability as laid out in documents like AEMO's Electricity or Gas Statement of Opportunities).

5. Selection of risks

The selection of climate-related risks typically involves an analysis of:

Physical risks

This includes evaluating past and current vulnerability to both *acute* and *chronic* physical climate hazards.

- *Acute risks* are typically event-driven, short-term hazards such as cyclones, floods, bushfires, heatwaves, and other extreme weather events that can cause immediate and severe disruption to operations, assets, and supply chains.
- *Chronic risks* refer to longer-term shifts in climate patterns, such as rising average temperatures, ongoing drought, sea level rise, or changes in precipitation. These risks tend to evolve gradually but may have compounding impacts on business viability, infrastructure integrity, and resource availability over time.

Both types of risks should be considered in scenario analysis to understand their potential impact across the value chain. It is expected that the National Climate Risk Assessment will help businesses assess their physical risks.

Transition risks

This refers to the organisation's exposure to economic, regulatory, legal, market, and societal changes driven by efforts to address climate change. Relevant factors include carbon pricing mechanisms, evolving consumer preferences, and fluctuations in energy or transport costs. These shifts may affect revenue, compliance costs, reputation, and business models.

Interactions with broader change drivers

It is important to assess how climate-related trends intersect with other forces shaping the business environment—such as technological innovation, geopolitical developments, or demographic shifts. These interactions can influence competitive positioning, reduce returns on investment in specific market segments, or intensify competition for talent and resources.

6. Looking ahead

While some energy companies have prior experience preparing public climate scenario analysis, for most this is a new exercise. It is anticipated that the first wave of disclosures will set the baseline, and from there scenario analysis will become more robust over time. The modified liability arrangements are designed to encourage this iterative evolution.

This Guide equally intends to serve as a living document that will evolve with best practice. Reporting entities will need to stay aware and monitor how transition scenarios change. Soon after the publication of the Guide, it is expected the Australian Government will release its 2035 emissions reduction target, accompanying sector pathway analysis, and National Climate Risk Assessment. This will influence the policy landscape of climate change.

Appendix 2 of this Guide lists further resources that may assist organisations to complete scenario analysis. These documents are regularly updated, either annually (in the case of the Electricity and Gas Statement of Opportunities) or biannually (in the case of the ISP). Their updates should be monitored by reporting entities – as one example, AEMO has indicated that the next version of the ISP will have more conservative assumptions about hydrogen production.[3]

Compliance with AASB S2 is a significant uplift in corporate disclosures related to climate change and compliance with these standards has been established as a duty of company directors.

Businesses must apply healthy scrutiny of material assumptions and variables within scenario analysis to ensure robust climate resilience assessments that meet investor and regulator expectations.

[3] See AEMO's 2025 Inputs, Assumptions, and Scenarios Report.

Appendix 1 – Glossary of terms

Term	Definition
1.5°C Scenario	A hypothetical future pathway reflecting global efforts to limit the increase in average global temperature to 1.5°C above pre-industrial levels, in line with ambitious climate goals. This scenario typically involves rapid decarbonisation and significant changes across various sectors.
AASB S2 Climate-related Disclosures	A new financial reporting standard in Australia (introduced in 2025) that mandates reporting entities to disclose climate-related risks and opportunities. This includes using climate-related scenario analysis to assess the resilience of their strategies.
Acute Risks	Event-driven, short-term hazards resulting from climate change, such as cyclones, floods, bushfires, and heatwaves. These events can cause immediate and severe disruption to operations, assets, and supply chains.
Australian Energy Council	An organisation providing guidance to its members, primarily in the energy sector, on matters such as climate-related scenario analysis and disclosure.
Carbon Budgets	A defined limit on the total amount of greenhouse gas emissions that can be released into the atmosphere over a specific period, consistent with particular temperature goals (e.g., limiting warming to 1.5°C).
Carbon Capture and Storage	Technology used to capture carbon dioxide emissions from industrial processes or power generation and store them underground, preventing their release into the atmosphere.
Chronic Risks	Longer-term, gradual shifts in climate patterns, such as rising average temperatures, ongoing drought, or sea level rise. These risks can have compounding impacts on business viability and infrastructure over time.
Climate Change Act 2022	Australian legislation that sets out the country's greenhouse gas emissions reduction targets, contributing to global goals of limiting temperature increases to well below 2°C and pursuing efforts to limit it to 1.5°C above pre-industrial levels.
Climate Policies	Governmental or organisational strategies and regulations designed to mitigate climate change or adapt to its impacts, such as carbon pricing mechanisms or renewable energy targets.
Climate Resilience	The ability of an organisation's strategy and business model to withstand and adapt to climate-related risks, changes, and uncertainties, while also capitalising on opportunities.
Climate-related Scenario Analysis	A process that uses hypothetical future pathways to explore how developments like climate policies, technologies, and physical impacts could affect business outcomes. These scenarios are tools to test the resilience of business models rather than predictions.
Consumer Energy Resources	Generation or storage assets owned by consumers and installed behind-the-meter. These can include rooftop solar, batteries and electric vehicles (EVs). CER may include demand flexibility.
CSIRO	Australia's national science agency. In the context of the document, it refers to their modelling of sectoral pathways to net-zero emissions, providing Australian-specific scenarios aligned with global temperature targets.
Disclosure Requirements	The specific information that reporting entities are mandated to provide under standards like AASB S2, pertaining to their climate-related risks, opportunities, and the results of their scenario analysis.
Higher Emissions Outcome	A hypothetical future pathway representing a scenario where efforts to reduce greenhouse gas emissions are insufficient, resulting in global warming above 2°C.
Integrated System Plan	A planning document published by the Australian Energy Market Operator (AEMO) every two years, which considers different transition pathways for the electricity sector, often including scenarios aligned with global temperature goals.
Limited Assurance	A level of assurance where an auditor provides a conclusion on whether anything has come to their attention that causes them to believe the information is materially misstated. It offers a lower level of confidence than reasonable assurance.
Materiality	In the context of climate-related disclosures, materiality refers to whether a climate risk or opportunity could reasonably be expected to influence decisions made by

	primary users of general-purpose financial reports. AASB S2 recognises materiality as a threshold for disclosure and encourages companies to apply judgement based on the nature, magnitude, and likelihood of climate impacts.
Materiality Assessment	A structured process to identify and prioritise climate-related risks, opportunities, or sustainability issues that are most relevant to both the organisation and its stakeholders. In climate scenario planning, this assessment helps focus analysis on issues likely to influence strategic outcomes or financial performance. It may be qualitative or quantitative and should be reviewed regularly.
National Climate Risk Assessment	An upcoming Australian assessment (due in July 2025) that will provide additional information on physical climate risks.
Negative Emissions	Technologies or processes that remove carbon dioxide from the atmosphere, such as direct air capture or certain land sequestration methods.
Participatory Systems Mapping	A collaborative technique used to visualise and understand the dynamic relationships between different actors, drivers, and outcomes within complex systems (e.g. energy transitions or climate adaptation). By engaging internal and external stakeholders, this method can help organisations explore interdependencies, feedback loops, and unintended consequences, improving the design of scenarios and transition strategies.
Physical Risks	The risks posed by climate change through changes in weather patterns and extreme weather events. These are categorised as either acute or chronic risks.
Reasonable Assurance	A higher level of assurance provided by an auditor, indicating a high but not absolute level of confidence that the information is free from material misstatement.
Reporting Entities	Organisations that are required to comply with financial reporting standards, such as AASB S2, and disclose specific information related to climate change.
Resilience Assessment	The evaluation of how robust an entity's strategy and business model are in the face of climate-related risks, changes, and uncertainties, informed by climate-related scenario analysis.
Scenario Narratives	Qualitative descriptions that explain the context and key developments within a chosen climate scenario, such as how it affects energy demand, generation mix, or carbon pricing.
Scope 1 and 2 Emissions	Scope 1 emissions are direct greenhouse gas emissions from sources owned or controlled by an entity (e.g., from burning fuel in company vehicles). Scope 2 emissions are indirect greenhouse gas emissions from the generation of purchased energy (e.g., electricity, heat, or steam).
Scope 3 Emissions	All other indirect emissions that occur in a company's value chain, both upstream and downstream, not included in Scope 1 or 2 (e.g., emissions from transportation of goods, employee commuting).
Sensitivity Analysis	A technique used to determine how different values of an independent variable affect a particular dependent variable, often used in scenario analysis to understand the impact of changes in key drivers like carbon pricing.
Strategic Planning Cycle	The regular process by which an organisation defines its long-term direction and makes decisions on allocating resources to pursue that strategy. Climate-related scenario analysis is often updated in line with this cycle.
Task Force on Climate-related Financial Disclosures (TCFD)	A global framework developed by the Financial Stability Board to guide organisations in disclosing climate-related financial risks and opportunities. The TCFD framework is structured around four pillars—Governance, Strategy, Risk Management, and Metrics & Targets—and has informed the development of Australia's AASB S2 standard. It encourages the use of scenario analysis to assess resilience under different climate futures.
Time Horizons	The periods over which scenario analysis is conducted, typically categorised as short-term (e.g., to 2030), medium-term (e.g., to 2050), and long-term (e.g., to 2070-2100), relevant to an entity's business model and asset lifecycles.
Transition Risks	The risks arising from the process of adjusting towards a lower-carbon economy, including changes in policy, law, technology, markets, and societal preferences that could affect an organisation's revenue, costs, and business model.

Appendix 2 – Helpful Resources

Title	Reasons for use
Governance	
AICD governing for net zero	- Lays out considerations for board directors about the integrity of transition planning - Sets out responsibilities of CFO (p14) - Summary of legal opinion on director duties (p19) - Lists governance red flags for risks and opportunities (p27), leadership capability (p29), stakeholder engagement (32), managing uncertainties (p37), board committees (p40), and monitoring/review (p41)
Climateworks Centre guide to transition plans	- Sets out 7 criteria and 31 sub-criteria for companies to use to develop and assess climate transition plans - Links considerations for credible transition planning to specific AASB disclosures (p27) - Provides list of additional resources that cover transition planning (p31)
IFRS guidance on transition plan disclosure	- Clarifies some semantic distinctions (e.g. meaning of transition planning versus transition plan, material information, location of disclosures) - Example of governance competency consideration in energy (oil and gas) sector (p19) - Example of transition plan assumptions in electricity generation (p24) - Example of mitigation and adaptation efforts in electricity generation (p28-29)
EY illustrative example of climate-related disclosure	- Provides Australian entities with an illustrative example of how to meet AASB disclosure requirements - Covers Strategy (p9), Governance (p30), Risk Management (p39), Metrics and Targets (p46)
Scenario analysis	
2024 AEMO Integrated System Plan Note: 2026 ISP currently under development	- Models different transition scenarios for electricity sectors: ---- Green Energy Exports scenario (1.5C) ---- Step Change scenario (1.8C) ---- Progressive Change scenario (2.6C) - Reference point for assumptions underpinning each transition scenario (e.g. coal closure dates, carbon budget, buildout of renewables, hydrogen, and electrification, etc.)

AEMO Electricity Statement of Opportunities	- Provides a 10 year outlook of investment requirements to maintain reliability in the National Electricity Market
AEMO Gas Statement of Opportunities	- Reports on the adequacy of central and eastern gas markets to supply forecast demand over a 20-year outlook period
CSIRO sector pathways to net zero emissions	- Models sectoral transition pathways for two scenarios ---- Scenario one is “less than 2C” (net-zero in 2050) ---- Scenario two is “limit global warming to 1.5C” (net-zero in 2040, 75 per cent reduction in 2035) - Scenario two helpful reference point for assumptions used in each sector to meet 1.5C economy-wide
WA Whole of System Plan Note: to be updated by September 2025	- Models different transition pathways for Western Australia’s principal electricity system, the South West Interconnected System (SWIS)

Appendix 3 – Key Concepts

Governance Element	Description
Board Oversight	The Board has oversight of climate-related risks and opportunities. Supported by the Risk and Sustainability Committee, the Board overseas and ensure scenario planning is conducted in line with AASB S2. Climate risks and opportunities are standing agenda items reviewed biannually, with key assumptions and scenario outputs tabled for discussion and challenge. The board is also responsible for ensuring that recruitment and remuneration aligns with climate goals.
Executive Accountability	Climate governance is a collective responsibility across the executive leadership team. The Chief Executive Officer (CEO) ensures that climate risks and opportunities are properly considered throughout the organisation's culture and frameworks, and that sufficient resources are allocated. The Chief Risk Officer (CRO) coordinates and delivers climate scenario analyses, ensuring alignment with the risk-management framework and AASB S2 requirements, supported by a cross-functional working group. The Chief Financial Officer (CFO) integrates climate considerations into financial planning, capital allocation and disclosures. The Chief Investment Officer (CIO) uses scenario insights to inform long-term investment decisions and enhance infrastructure resilience. The Chief Information Officer (CIO) manages the digital infrastructure that underpins climate modelling, emissions tracking and reporting.
Risk and Sustainability Committee	Chaired by a member of the Board, this Committee meets at least quarterly. Its mandate includes: Reviewing latest climate science and regulatory developments; Co-developing scenario assumptions and methodologies; Ensuring consistency with relevant external frameworks and scenarios (e.g., AEMO's ISP); Engaging external advisors and experts as needed, including as committee members; Monitoring progress and ensuring integration of insights.
External Expert Input	Independent climate science experts from [e.g., CSIRO] were engaged to review physical risk assumptions and provide scientific validation. Policy and economic scenario parameters were reviewed in consultation with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and other relevant economic forecasting bodies.
Stakeholder Engagement	A series of scenario validation workshops were held with key stakeholders, including investors, regulators, and consumer advocacy groups, to test scenario relevance, transparency, and applicability. Feedback from these engagements was incorporated into the final analysis.
Integration with Strategy	Scenario analysis outcomes are used to inform: Capital allocation and asset retirement plans; Resilience assessments aligned to AASB S2 (or equivalent sustainability reporting standards); Long-term emissions reduction targets and transition pathways; Business continuity planning and risk management frameworks; Outcomes are reported annually in the Climate Report and integrated into strategic planning cycles.

Methods for Evaluating Key Climate Scenario Drivers and Uncertainties

Method	Best For	When to Use	Description / Application
Driver Mapping	Early-stage scenario design	When identifying and prioritising the key variables influencing climate risk and opportunity (e.g. carbon pricing, technology costs)	Categorise drivers into groups (e.g. policy, physical risk, market) and assess relevance through internal workshops and desktop reviews.
Sensitivity Testing	Analysing impact of single assumptions	When testing how changes in key variables (e.g. discount rate, fuel costs) affect outcomes	Adjust one variable at a time to assess the impact on financial or operational metrics such as asset valuations or margins.
Scenario Matrix	Exploring interaction between key uncertainties	When comparing multiple plausible futures (e.g. strong vs weak policy; fast vs slow technology uptake)	Combine two or more uncertainties to create 2x2 or 3x3 scenario grids. Useful for strategic planning and resilience testing.
Monte Carlo Simulation	Quantifying a range of outcomes	When modelling risk distributions for financial exposures or investment decisions	Use probabilistic modelling to simulate thousands of potential outcomes based on variations in input assumptions.
Expert Elicitation	Incorporating qualitative insights	When data is limited or uncertain, or when validating scenario plausibility	Draw on internal and external expert judgment (e.g. scientists, economists, policymakers) to stress-test assumptions and refine scenarios.