DECARBONISATION INVESTMENT SOLUTIONS FOR SECTORS:

A discussion paper on Sector Transition Plans and their importance to investors

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Investor Group on Climate Change

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The Investor Group on Climate Change (IGCC) is a collaboration of Australian and New Zealand institutional investors focused on the impact of climate change on investments. IGCC represents investors with total funds under management of more than $3 trillion in Australia and New Zealand and $30 trillion around the world. IGCC members' beneficiaries include more than 7.5 million people in Australia and Aotearoa New Zealand.

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1. Executive Summary

As the custodians of trillions of dollars in retirement funds, investors have a fiduciary duty to deliver long-term returns for their beneficiaries that are commensurate with the level of risk taken.

Unless Australia's economy decarbonises in a manner that is rapid, orderly, and fair, the long-term retirement savings of millions of its citizens will be negatively impacted.

The more orderly the transition to net-zero, the better able investors will be to protect and preserve the value of their investments in the best interest of their beneficiaries. Therefore, investors are particularly focussed on the timing, level of ambition, and approach taken to reducing greenhouse gas emissions, both in Australia and globally.

The federal government in July this year announced it will work with investors, industry, civil society, experts, unions and the community to develop transition plans for six sectors; electricity and energy; industry; the built environment; agriculture and land; transport; and resources.

The government's move is very important because these sector transition plans will cumulatively guide Australia's efforts to contribute to meeting the Paris Agreement goals.

Various stakeholders will have different expectations of these sector plans, and will use them in different ways.

This discussion paper is a contribution from investors to this critical national policy process. It is a starting point for investor engagement with government and other critical stakeholders to help build a common understanding of investable sector pathways and plans. It describes how investors will use the pathways, how they would like to see them developed, and what information the pathways need to contain to meet investor needs.

On the next pages are our key messages.

Investors will make extensive use of sector transition pathways and plans, for a range of purposes.

Investors consider that the development of sector pathways, and the associated government policies established to facilitate the pathways, will significantly reduce the climate change policy risk facing their investments.

Investors will rely heavily on the sector transition pathways to make decisions about where and how they direct large amounts of capital that is potentially available to support Australia's decarbonisation efforts.

They will use aggregated data and information contained in the sector pathways to better understand the macroeconomic drivers facing Australia.

In particular, the sector pathways will help investors to better forecast:

- the extent and timing of changes in imports and exports (in particular fossil fuels, and climate solution commodities such as critical minerals);
- the extent and timing of capital investment requirements across the economy, driven by decarbonisation;
- the scale and timing of potential federal and state government debt issuances to support decarbonisation;
- national demand for labour skills, and likely changes in rural and regional populations, and in the associated services demand.

The pathways will also help investors to better understand the climate change-related risks and opportunities within their portfolios.

At the company level, the pathways will allow investors to more usefully engage with companies, and to direct capital to companies in a way that supports least-cost decarbonisation.

Sector pathways will also be used by investors to support their policy advocacy efforts with governments, and to help meet their own disclosure requirements.

Sector transition pathways will play a crucial role in building a common understanding within Australia of what must be done.

Decarbonisation needs to be a team effort. All actors need to be clear about which parts of the economy will be doing what, and all need to be confident that every sector is doing its fair share.

Having credible sector transition pathways will build a common understanding among governments, companies, investors, and the community of what's required in each part of the economy.

This will enable federal, state and territory governments to align their policy agendas with the needs of the various sectors, and with investor requirements.

Sector pathways will also help ensure all parts of the economy and society work in tandem to achieve an orderly, fair transition.

The global transition is going to be disorderly. Having sector transition pathways will minimise disorder in Australia's transition, and will allow Australia to help smooth the global process.

It's clear that there's not going to be a standard global carbon price any time soon that is sufficient to prompt global decarbonisation as fast as we need it to occur. There are going to be stumbles along the way, as the world makes the transition.

Against this sub-optimal international backdrop, the guidance provided through sector transition pathways and plans will help to protect Australia from these global buffetings. They will also give our trading partners important insights into how Australia expects to assist them in their efforts, for example by providing guidance on how our energy and commodity exports are likely to evolve.

We need to allocate the decarbonisation task among sectors in accordance with a national emissions budget that contributes to limiting global temperature rise to 1.5 degrees.

Climate change creates huge financial risks and opportunities for Australia. The greatest of these risks is the climate loss and damage that would be caused by global warming above 1.5˚C.

A key focus of sector transition pathways is to share the decarbonisation task across different parts of the economy on a least cost basis.

This should be done in the context of a national emissions budget for the period out to 2050. The budget should be based on what constitutes a least cost contribution to global efforts to achieve an orderly transition to the Paris Agreement goal of limiting temperature rise to 1.5˚C, with low or limited overshoot.

Sector pathways will help companies develop better individual transition plans.

Having sector transition pathways, and having confidence that government policies will be aligned to those pathways, will help companies to set ambitious emission reduction targets and develop credible transition plans to achieve them.

Sector pathways will also help them to better align their capital expenditure with decarbonisation requirements, and to take advantage of opportunities associated with the transition.

In addition, sector pathways will enable companies to better understand their technology and policy dependencies, and to more accurately evaluate their own progress.

Sector transition pathways will play a key role in ensuring government climate policies are fit-for-purpose.

Investors and companies need clear, coherent, stable and long-term supportive government policies to drive economy-wide decarbonisation.

Having sector transition pathways will enable federal, state and local governments to align their policies to effectively support sectoral decarbonisation efforts.

A wide range of policies will need to take into account the sector pathways, including policies on market failures, technology research and development, supporting infrastructure, workforce skills requirements, and support for affected workers and communities.

Governments will also need to take into account the sector pathways when deciding on temporary support for some sectors that will be competitively disadvantaged due to the disorderly global climate change response.

Some sectors will have simpler, more certain transition pathways than others.

For many sectors, we can have confidence about their short- and medium-term decarbonisation prospects, because the decarbonisation task can largely be achieved through existing mature technologies.

Having greater confidence about how to decarbonise in most sectors will help to give us more time to develop, commercialise and deploy technologies for those sectors in which decarbonisation is currently more challenging.

Sector transition pathways should be updated every five years.

Sector pathways will need to be updated regularly to ensure they stay current, taking into account factors such as new scientific findings, international developments, and overall domestic trends.

Updating them on a five-yearly basis would ensure they are revised in tandem with Australia's five-yearly reviews of its Paris Agreement pledges (known as its Nationally Determined Contribution).

Any uncertainty arising from five-yearly sector pathway reviews won't be of concern to businesses where medium- to long-term earnings do not significantly impact whether expected investment returns exceed the weighted cost of capital.

However, for assets that rely on stable earnings, have an economic life of more than 15 years or more, and have long development timelines and limited capital turnover (such as infrastructure assets), the uncertainty arising from reviews might be a significant barrier to investment.

These assets will require more policy continuity, or a form of guaranteed return, or some form of compensation, if changes adversely impact returns, in order to encourage the necessary investment in climate transition. However, support measures would not be suitable for fossil fuel-related assets, because these measures would not be aligned to climate change objectives, at either the national or international level.

Key features that sector transition pathways must have to satisfy investor needs.

Sector transition plans should have the following core features to ensure they support and encourage international and domestic investment in Australia's transition:

1. Alignment with the Paris Agreement goal of limiting temperature rise to 1.5 degrees.
2. Credibility – which will involve:
    - developing the pathways with input from investors on the potential sources of capital and return expectations, and with input from other key stakeholders;
    - developing them using both a top-down macro perspective and a bottom-up, sub-sector, location-specific and technology-specific approach;
    - ensuring the elements of each pathway are consistent with its stated objectives;
    - taking into account how sectors interact;
    - transparency on key energy, emission, industry, technology, investment and financial assumptions, and outputs across sectors and time;
    - assessments of physical climate related impacts.
3. Comparability to commonly accepted international transition pathways.
4. A focus on emission reduction within each sector, and limited reliance on offsets.
5. Comprehensiveness and granularity, involving an analysis of all sectors and sub-sectors, and all greenhouse emissions, and with pathways expressed in terms of both absolute emissions reductions and relevant production/activity intensity reductions, at the sub-sector and activity level.
6. An action-orientated approach that identifies R&D and capital investment needs, as well as social capital and just transition requirements, and supporting government policy requirements. Pathways should take a realistic view on sources of capital, which is cognisant of the purpose of the investment institutions from which capital is to be sourced, and the return expectations of these institutions.
7. Five-yearly updates to reflect changes in technology costs, new scientific findings, international developments, and the impacts of domestic policies.
8. An identification of pathway sensitivities to changes in core assumptions, as well as identification of key areas of uncertainty, such as the degree to which Australia will develop new export markets by taking advantage of its renewable energy competitive advantage.

2. Introduction

2.1 About this Discussion Paper

Due to the systemic nature of climate change risk, unless climate change is addressed in an orderly and just way, the long-term retirement savings of millions of Australians are under threat. Therefore, consistent with their fiduciary duty, investors are particularly focussed on the timing, level and approach taken to reduce Australia's and global greenhouse gas emissions.

Australia is a signatory to the Paris Climate Agreement which commits countries to limit "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels.". In recent years, world leaders have stressed the need to limit global warming to 1.5°C by the end of this century.

As part of meeting its commitment to the Paris Agreement, Australia has committed to be net zero by 2050 and has set an interim target to reduce greenhouse gas emissions by 43 percent below 2005 levels by 2030. Australia is also currently determining its 2035 emission reduction target. Achieving these targets, or tougher targets that will emerge, will not be straightforward.

The contribution made by various sectors towards achieve the national targets will vary over time, and will be shaped by their different rates of technology deployment, and the evolution of abatement cost curves within sectors and across the economy.

Delivery of these targets will require the alignment of available emission reduction technologies, infrastructure, and government policies, and will depend on the capital deployed by the public and private sectors over the next 30 to 40 years[1].

Investors recognise that, although all sectors[2] need to decarbonise, their transition pathways won't be either identical or linear. This discussion paper outlines an investor perspective of the role of sector pathways and plans and addresses the following questions:

1. What is the role of sector transition pathways?
2. How do investors use sector transition pathways?
3. How do investors expect companies to use sector transition pathways?
4. What are investor expectations of the role of governments in developing and using sector transition pathways?
5. What are the core elements or principles that investors require from sector transition pathways to support international and domestic investment in the decarbonisation of the Australian economy?

1 Article 2.1(c) of the Paris Agreement highlights the need to make "finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."

2 Sectors refer to broad sectors of the economy: energy, transport, building, industrial and agricultural sectors.

In developing the discussion paper a number of existing transition pathways have been reviewed[3].

Global Transition Pathways	• "Net Zero by 2050 A Roadmap for the Global Energy Sector", IEA, October 2021 (4th revision), • "NGFS Climate Scenarios", NGFS, 2023 • "Sectoral Pathways to Net Zero Emissions", Institute for Sustainable Futures, UTS, December 2020,
Australian Transition Pathways	• "Scaling up Climate Action in Australia" Climate Analytics, November 2020 • "Solutions, actions and benchmarks for a net zero emissions Australia", ClimateWorks Australia, March 2020, • "Pathways to industrial decarbonisation Positioning Australian industry to prosper in a net zero global economy – Phase 3 Report", Australian Industry Energy Transitions Initiative, ClimateWorks Centre, February 2023, • "Net Zero Australia: Final results from a groundbreaking study", Net Zero Australia, July 2023 • "Decarbonising the NEM Report", Clean Energy Investment Group, 2023,
Sector-specific Transition Pathways	• "Making Net-Zero Steel Possible – An industry-backed, 1.5˚C-aligned transition strategy", Mission Possible Partnership, September 2022 • "Making Net-Zero Aluminium Possible – An industry-backed, 1.5˚C-aligned transition strategy", Mission Possible Partnership, April 2023 • "Making Zero-Emissions Trucking Possible – An industry-backed, 1.5˚C-aligned transition strategy", Mission Possible Partnership, July 2022
Investor-orientated Transition Pathways	• "TPI Sectoral Decarbonisation Pathways", Transition Pathway Initiative, February 2022, • "Carbon Performance assessment of steelmakers: Discussion Paper" Transition Pathway Initiative, July 2023, • "Pathways To Net-Zero – SBTi Technical Summary" SBTi, (Version 1.0) October 2021, • "SBTi Corporate NetZero Standard", SBTi, (Version 1.1) April 2023, • "From Global Emission Budgets to Decarbonization Pathways at Property Level", CRREM, (Version 1.0), January, 2023.

These pathways has been used to identify best-practice approaches to developing credible, useful and comparable transition pathways.

3 References, including links, to the transition pathways reviewed and other related material is given in Section "Selected related References"

2.2 The Role of Sector Transition Pathways

While the Paris Agreement requires countries to set emission reduction targets or Nationally Determined Contributions (NDCs), meeting the Paris Agreement's objective of limiting global temperature increase to 1.5˚C will require Australia's cumulative emissions up to 2050[4] to be within an emissions budget consistent with the temperature goal.

The role of sector pathways is to allocate Australia's long-term emissions budget among sectors. Collectively the sector pathways represent Australia's roadmap for meeting its Paris Agreement Commitment and, for this reason, responsibility for developing sector pathways lies with the federal government.

The sector pathways provide a clear and common understanding for government, companies and investors of each sector's emissions reduction task, and the timing and type of actions expected of it, which then enables all three to work together to achieve an orderly transition for both the economy and communities.

The allocation of emissions to sectors over time is not straightforward. Investors believe an overall least-cost approach should be the basis for identifying how the emission reduction budget is allocated between sectors and sub-sectors, taking into account the cost of the abatement opportunities and the capital lifecycles in each sector. Sector transition pathways developed on a least-cost basis can avoid the potential for stranded assets, allow investors to allocate capital confidently and remain invested in companies/assets that need capital to transition, provide clear signals for green investments, reduce transaction/deadweight costs, and provide economically efficient solutions.

The sectoral allocation of Australia's emissions budget needs to reflect the complex interaction between sectors and the current, and future characteristics and dependencies of the Australian economy. It needs to recognise that Australia's decarbonisation is likely to occur in the context of a disorderly global transition and credible Australian pathways cannot rely on price signals from international markets to drive change in the time required.

This does not mean that Australia will inevitably be passively buffeted by a disorderly global transition. Although it is a relatively small open economy, Australia as a country has agency. Australia can control its conduct and the nature of the commodities it supplies to global markets, and the decisions it makes can and do influence global supply chains and policy-makers.

The development of granular sector transition pathways, supported by coherent, stable and long-term government policies, will be essential for an orderly shift to net zero in Australia, and will allow investors to identify risks, including stranded asset risks, and to effectively direct capital towards decarbonisation.

Sector transition pathways can:

1. Guide the design of sector-specific and broader government policy.
2. Focus research, development and commercialisation of new technologies.
3. Support the development of company-specific transition strategies within each sector.
4. Assist with workforce and skills planning, and planning for a just transition.
5. Guide and facilitate public and private sector investment.

Sector transition pathways will provide an important degree of clarity about future government policy, but will need to be updated regularly to reflect new scientific findings and changes in economic, social and technical conditions. Although a central pathway will be needed for each sector, it will also be important to understand the sensitivity of each pathway to some of the key technology, economic and policy effectiveness assumptions that underpin it.

The urgent need for economy-wide decarbonisation means pathways will be developed without perfect knowledge. Fortunately, for some major-emitting sectors, such as electricity generation and passenger vehicles, the emission reduction pathways are relatively straightforward, enabling some time for the further development and commercialisation of technologies needed in other sectors.

4 Some overshoot of the emissions budget is possible up to 2050, which would require more negative emissions from 2050 onwards.

2.3 What Sector Transition Pathways are not

There can be some confusion about the purpose of sector transition pathways and plans, and it is worth clearly noting what they are not.

- **They are not just another scenario to consider.**

  Scenarios are projections of what can happen, which are developed by creating plausible, coherent, and internally consistent descriptions of possible climate change futures. Considering a range of climate change scenarios allows companies and investors to assess the resilience of their investments to climate change. Sector transition pathways represent the "core" or baseline scenario in scenario planning, and should form the basis of action by government, investors and companies. They aim to guide and encourage action, not test resilience.

- **Sector transition pathways are not fixed-forever prescriptions of the future.**

  The future is inherently uncertain and so pathways need to be dynamic. Sector pathways will drive and align actions by companies, investors and governments, but they are not forecasts of the future that will never need review or updating.

- **Sector pathways don't change how responsibilities for climate action are allocated.**

  Governments remain responsible for developing and implementing effective policy that supports sector decarbonisation and protects the social and economic interests of Australians. Companies remain responsible for developing and implementing effective, sufficiently ambitious climate change strategies that are in their best interests. Investors remain responsible for making companies accountable, and investing to provide acceptable risk-adjusted returns.

- **Sector pathways aren't a replacement for the Safeguard mechanism.**

  The reformed Safeguard Mechanism is a policy to incentivise low-cost abatement in large-emitting facilities, through a market mechanism. It will allow companies in different sectors to share the cost of decarbonisation by creating and trading Safeguard Mechanism Credits (SMCs).

- **Sector pathways and the Safeguard Mechanism will complement each other.**

  The sector pathways will help Safeguard-covered businesses gain insights into what opportunities they might have in future years to generate revenue and minimise costs, by either buying SMCs from companies in other sectors, or selling SMCs to them. It will do this by helping each company to understand its own in-house decarbonisation costs relative to the likely in-house costs of other Safeguard facilities.

  In turn, the Safeguard Mechanism is a tool that developers of the sector pathways can take into account as part of efforts to determine how sectors will interact with each other. The Safeguard Mechanism will also be an important policy to facilitate the achievement of the sector decarbonisation goals.

- **Sector pathways are not an excuse for delay.**

  The Australian sector transition pathways will be developed, at least initially, in an international environment where there is a disorderly global transition. This will create some uncertainty, but the magnitude of Australia's transition task means that work on developing the sector pathways needs to start now.

3. Investor Use of Sector Transition Pathways

Investors have a diverse set of profiles, needs and investment approaches. For example, a bank will invest its assets differently to a superannuation fund, due to factors such as their different investment time horizons and liquidity requirements. Our consultation with a cross-section of investors, suggests they will use sector transition pathways for a number of reasons.

1. **Understanding emission reduction goals at national, sector and sub-sector levels, and the allocation of the emission abatement task between sectors.**

2. **Understanding macroeconomic and energy sector drivers, and gaining insight into government policy goals.**

   One of the most important benefits of sector pathways will be clarity about the goal of government policy and the type of policies required over the medium to long-term. Policy uncertainty and instability has been a major barrier, and an unnecessary investment risk, that investors operating in Australia have faced for more than 30 years. While investors recognise that policies may need to be nuanced over time, the implementation of aligned, stable and coherent policies across all sectors will make a significant contribution to addressing this issue.

   Many investments, especially those in capital-intensive sectors, are the outcome of 10 years of consideration, from concept and business-case decision, through to detailed design, approvals, and finally construction. Clarity on government policy goals is essential when making these investment decisions, especially if the decision involves investment in a different technology and/or a change in location or operations. These sorts of assets usually have an operating life of more than 40 years, and to minimise the risk of stranded investments or the impairment on the value, both companies and investors need clarity on sector policy goals and approaches.

   Investors will use aggregated data and information within the sector transition pathways to understand the macroeconomic drivers facing Australia. In particular, the sector transition pathways will help investors to forecast:

   - The quantum and timing of changes in imports and exports, in particular fossil fuels and climate solutions like critical minerals;
   - The quantum and timing of capital investment across the economy, driven by decarbonisation;
   - The quantum and timing of potential government debt issuance, at the federal and state level, to support decarbonisation;
   - National demand for labour skills, and the capabilities required to support new industries;
   - Likely changes in rural and regional population and services demand (for example housing).

   These factors will all feed into investor strategic asset and sector allocation decisions.

3. **Identifying and assessing potential investment risks and opportunities in real assets.**

   Investors are already significant direct property and infrastructure owners in Australia. Climate change poses a range of asset and sector specific investment risks and opportunities for these investments. Clarity on sector transition pathways will assist these investors to understand, assess and manage the climate change risks and opportunities associated with these assets.

   Investors also recognise that there will be significant new opportunities for direct investments, particularly in the significant infrastructure assets, such as renewable energy and hydrogen assets and infrastructure, and infrastructure required to support the transition to electric vehicles.

   Sector transition pathways, especially for the energy sector, will allow investors to better understand the type, timing, quantum and location of the capital investment required for this infrastructure. Investors have a choice of where they deploy capital, and the pathways will enable them to engage with government on the necessary policy to support investment in Australia.

   Pathway sensitivity analysis will also assist investors to assess the resilience of these investments to key pathway uncertainties.

4. **Improving decision-making about investments in listed companies.**

   Australian investors are significant owners of Australian listed companies. Sector transition pathways and plans will assist investors to better understand the climate change transition risks facing these companies. They will help investors to evaluate a company's alignment with sector decarbonisation expectations and identify any associated climate investment risks. They will also assist investors to better understand the potential timing and magnitude of future capital requirements (both debt and equity) that companies will need to call on as part of their transition. In addition, it will help them to evaluate the policy needs associated with these investments.

   This information will feed into company evaluation and investment decisions and will enable investors to monitor and benchmark company performance against the relevant sector transition pathway.

5. **Enabling better evaluation and management of portfolio climate change risks.**

   Investors aggregate investment in individual companies or assets into investment portfolios. Investors also assess the aggregated risks, including climate change risks, at a portfolio level and attribute the investment risk to sectors and specific companies.

   Sector and company-specific transition risk can then be managed through portfolio construction, for example through the setting of climate risk targets as part of the investor's responsibility to manage investment risk.

6. **Assisting investors to meet regulatory climate change requirements.**

   Australian financial institutions have obligations to manage climate change risks and Australia's proposed climate related financial disclosure will apply to investors, as owners of companies, through their direct assets, and as managers of funds. Sector pathways and the associated policies supporting the pathways will assist investors in meeting these disclosure requirements.

   Sector pathways will be used as the "core" scenario for climate-related scenario analysis and will help investors to identify and manage climate risks and opportunities over the short-,medium-, and long-term. They will also assist in the development of portfolio climate change targets.

7. **Supporting companies in their climate change transition.**

   Investors need to engage with and support companies as they develop and implement their decarbonisation strategies. Having sector transition pathways, which are known to be supported by government policy, will assist significantly in aligning investor climate risk management and company decarbonisation strategies. This alignment will need to cover matters such as the company's climate change targets, its research and development spend, and the timing, quantity and sourcing of capital it requires to implement climate solutions. Sector decarbonisation pathways will enable both companies and investors to better understand investment risks. The decarbonisation strategy for some companies will be challenging, and it will be critical that companies have the support of investors.

   Similarly, investors want companies to use shareholder funds in a way that will create value over the medium to long-term. Clearly identified pathways will assist investors to engage with companies where the company strategy and capital expenditure are misaligned with sector decarbonisation expectations, which risks destroying company value.

8. **Engaging with governments on climate change policy.**

   Mobilisation of the necessary capital to achieve decarbonisation will require both supportive investment policies and the removal of unintended barriers to climate change investments, such as fossil fuel subsidies. Sector pathways will facilitate investor engagement with government for policies to support the investment needed.

4. Investor Expectations of Sector Decarbonisation Pathways

4.1 Recognition of the Complexity of Development of Sector Decarbonisation Pathways

From an economic perspective, the objective of the sector pathways is to achieve national climate change goals in a way that minimises total costs to the economy, while addressing the uncertainty of developing new technology to address climate change.

This includes managing, and where possible avoiding, further investment in assets that are likely to be stranded as a result of global decarbonisation. Investors recognise that a price signal to minimise costs, such as a carbon price, while necessary, will not be sufficient to achieve national climate change goals. Non-market mechanisms, such as energy efficiency standards and behavioural change, will also be required.

Sector transition pathways will need to explicitly identify the contribution that non-market mechanisms are assumed to contribute to expected emission reductions, at a sector and sub-sector level, and will need to specify relevant policies that are already in place, or are still required.

Fortunately, most transition pathway studies have noted that most of the decarbonisation task can be achieved through existing, mature technologies. This provides confidence about short and medium term decarbonisation prospects in the majority of sectors, which in turn will give some time for the development and commercialisation of technologies for those sectors where decarbonisation will be more challenging, and inherently riskier for investors.

Investors recognise that sector pathways will need to be developed using both a top-down and bottom-up approach.

Top-down models will be needed to:

- Overlay socioeconomic trends;
- Consider changes to Australia's exports and imports;
- Incorporate consideration of physical climate risks;
- Consider interlinkages between sector decarbonisation pathways and other policy levers, such as climate transition plan reporting;
- Develop consistent pathways across sectors;
- Enable a focus on achieving climate goals at the least cost to the Australian economy by allocating the emissions reduction burden between sectors over time;
- Identify key national skills and capability needs;
- Identify key infrastructure requirements to support transition.

A bottom-up approach is needed to:

- Facilitate engagement with companies/industry bodies in the sector;
- Facilitate engagement with investors on sector-specific required returns to attract funding for decarbonisation;
- Identify sector-specific growth or decline trends, thereby enabling both absolute and activity/production intensity pathways to be developed;
- Assess sector technology options and identify specific technology needs, including research and development needs;
- Identify the timing and quantum of the investment required for sector decarbonisation;
- Consider physical climate risks;
- Consider sector-specific issues, such as firming capacity in the electricity sector;
- Consider sector-specific policy needs to facilitate sectoral decarbonisation;
- Identify particular regional or community requirements;
- Provide the granularity of detail needed for investor investment decisions and company engagement.

4.2 Key Expectations of Investors

The following core features of sector transition pathways will support international and domestic investment in Australia's transition:

Clear, Paris Agreement Aligned Objectives

Investors have welcomed the revised 2030 emission reduction target for Australia. However Australia's target, like the targets of most other countries, is inadequate to achieve an orderly transition to achieving the Paris Agreements goal of limiting global temperature rise to 1.5˚C by 2050, with low or limited overshoot.

The sector pathways should be based on a least cost emissions budget for Australia consistent with the 1.5˚C temperature goal and with achieving net zero by no later than 2050, in the context of a disorderly global transition.

Credible

The pathways will therefore need to be Consistent with the stated objective and recognise pathway interactions between sectors.

To be internally consistent the pathways need to recognise the interaction of sector pathways, particularly the impact of changes in the electricity sector on other sectors.

Informed

While the government has responsibility for developing the sector pathways, any outside organisations that assist in their development need to be credible, and must have a demonstrated capability to undertake top-down and bottom-up analysis. Any conflicts of interests need to be disclosed and managed.

The developers of the sector pathways need to engage sector companies, or industry associations, on important areas such as industry growth assumptions and potential emission abatement opportunities within the sector, including the costs of such abatement. Those developing the pathways also need to engage the finance sector to understand the potential sources and drivers of finance and expected investment returns to support capital flows. Any engagement should be transparent.

Investors also recognise that other stakeholders will use sector transition pathways for a range of potentially different purposes. Buy-in from a range of stakeholders, including affected workers and communities, will be critical to the successful implementation of sector transition pathways.

Transparent

The underlying assumptions should be transparent, including about:

- Underlying macro socioeconomic conditions, such as GDP and population growth (with information also provided about the socioeconomic models used);
- Final energy demand and supply at a macro level, including the energy supply mix (fossil fuels, renewables, hydrogen and biofuels);
- Sector and sub-sector production/demand over time, by technology used;
- The cost of emission abatement, including the expected return on capital;
- Technology development;
- The contribution of different abatement technologies for each sector and how this varies over time, including the contribution of non-market driven abatement, for example as a result of behavioural changes and energy efficiency improvements;
- The effective carbon price over time;
- Greenhouse gas emissions by scope and type at a sector and sub sector level;
- Climate solution exports, such as critical minerals and green hydrogen.

There should be public access to the methodologies used and the underlying data.

Comparable to commonly accepted international pathways

- Underlying assumptions and presentation of outputs should be broadly consistent with other major recognised transition pathways, such as the Network for Greening the Financial System (NGFS) and the IEA Net Zero scenario;
- The focus of pathways needs to be on emission reductions within sectors rather than reliance on offsets. Sector and sub-sector transition pathways need to be realistic about the sustainability and commercial viability of negative emission technology, including: carbon capture and storage; direct air capture; land use-based sinks; and biofuels and bioenergy with carbon capture and storage (BECC).

Comprehensive

The sector transition pathways should cover all greenhouse gases and all sectors. They should consider physical climate change impacts, and should deal with exports (in particular fossil fuel exports) in a way that is aligned with each sector's climate budget and goals.

Investors will apply the results of sector transition pathway modelling to individual companies, and in some cases to individual facilities, so the outputs from the modelling need to be available to at least a sub-sector level, showing breakdowns by the contribution of emission abatement technology, including the electrification of fossil fuel energy use, and showing how this varies over time.

Given the way investors and companies will use the sector transition pathways, the goals they contain need to be presented in both absolute and relevant production, or activity, intensity terms.

Action Orientated

Investors recognise that sector transition pathways represent the desired outcome of actions by the government, companies, investors and the community. Sector pathways need to be complemented by investment climate solutions, research & development in technology, investment in supporting infrastructure, the development of skills and capabilities, and the provision of a just transition for affected workers and communities. Critically, all these need to be supported by clear, coherent, long-term government policies.

From an investor's perspective, sector transition pathways should have a realistic view about sources of capital, taking into account the purpose of the investment institutions from which capital will be sourced, and the return expectations of those institutions. The sector pathways should assist in identifying potential capital flows by outlining:

- The speed of technology development and commercialisation required;
- The quantum and timing of the necessary investment;
- The type, quantum and timing of infrastructure needed to support decarbonisation;
- Potential stranded assets at the sub-sector level;
- The type and quantity of skills and capabilities required to support sector pathways;
- The timing of the transition away from fossil fuel exports and domestic fossil fuel use;
- The location and timing for community transitions, both away from older technologies and towards support new technologies.

Dynamic

Assumptions used to develop the sector transition pathways will need to be regularly updated to reflect the rapid development of new technologies and falling technology costs, new climate change science, international climate change developments (in particular in our major export markets), and any evolution of relevant policies.

The sector pathways will also need to be updated to deal with any misalignment between predicted pathways and actual sector emissions, for example due to higher than expected production levels, or abatement at faster level than was originally anticipated.

For these reasons, pathways should be updated on five-year basis, in-line with updates of Australia's Nationally Determined Contributions under the Paris Agreement.

The dynamic nature of sector pathways highlights the inherent uncertainty both in the pathways and potential policies implemented to facilitate climate transition. The importance of this uncertainty will depend on the emission intensity of the asset, its expected economic life, the level of capital turnover, and the risk and return characteristics of the investment.

For assets that rely on stable earnings, have a long economic life (15+ years) and/or have long development timelines (10+ years) and limited capital turnover, notably infrastructure type assets, this uncertainty may be a significant barrier to investing. These assets will require continuity in policy, or a form of guaranteed return, or some form of compensation, if changes in policy adversely impact returns, to encourage the necessary investment in climate transition. These support measures would not be suitable for fossil fuel related assets, because they would not be aligned to climate change objectives, at either the national or international level.

Pathway and policy uncertainty is less of a concern where medium (5–10 years) to long term (>10 years) earnings do not significantly impact whether expected investment returns exceed the weighted cost of capital. This provides greater policy flexibility for these sectors to achieve emission reductions over the medium to long term.

Considerate of Pathway Sensitivities

Existing modelling for decarbonisation of the global economy and geographic regions is sensitive to underlying assumptions and the models used. Similar sensitivities will apply to Australian sector transition pathways. Therefore, a sensitivity analysis should be applied to the base model to illustrate the impact of core assumptions and key areas of uncertainty, such as costs and timing of technology development, and the degree to which the Australian economy takes advantage of its competitive advantage as a potential global supplier of renewable energy or low emission but energy intensive materials, for example, green iron.

The sensitivity analysis should not be considered a scenario analysis, but should be used by investors and companies to better understand the risks associated with each sector transition pathway and to help governments focus on critical areas of policy development and implementation.

More detail on investor requirements for sector transition pathways, and an explanation of the investor relevance, is provided in the table in Appendix. These elements will also be used as an evaluation framework to assess the usefulness of pathways to investors.

5. How Investors See Companies and Governments Using Sector Transition Pathways

5.1 Expectations of Companies

Investors consider that the development of sector pathways, and the associated government policies to facilitate the pathways, will significantly reduce the climate change policy risk facing their investments. For some companies it may take up to 10 years to consider and assess abatement opportunities, undertake preliminary designs and costings, gain planning consent and other approvals, complete a detailed design, construct the new facility or asset, and commission it. A clear understanding of the direction and timing of government policy will be critical to facilitate investment in these complex abatement opportunities.

The sector pathways will provide companies and governments with a common basis for discussions on the support needed for research and development, and for the management of social and economic impacts associated with decarbonisation.

Investors believe the development of sector transition pathways, along with government policies to support the pathways, will assist companies to develop and implement credible transition plans by providing a clear basis for:

- Setting emission reduction targets aligned with sector transition pathways;
- Estimating the type and timing of capital expenditure required for emission reduction;
- Estimating the type and timing of capital expenditure required to take advantage of opportunities;
- The clear articulation of technology and policy dependencies;
- The monitoring and reporting of company climate transitions.

5.2 Expectations of Government

Investors and companies need clear, coherent, stable and long-term supportive government policies to drive co-ordinated and planned economy-wide decarbonisation.

Investors believe one of the major objectives of sector transition pathways will be to enable the development of supportive federal, state and local government policies. As noted earlier, the Safeguard Mechanism is an important policy in establishing a price signal for emission abatement. Other existing policies may also be supportive, or require modification. Certainly new policies will be required to accelerate economy-wide emission reduction.

The potential scope of the required government policies will be broad. Governments will have to:

- Facilitate the alignment of policies across all three levels of government;
- Address market failures and barriers and drive demand;
- Support technology development and investment;
- Facilitate investment in supporting infrastructure;
- Develop sector-specific policies, for example on industry relocation;
- Train the workforce, building the skills and capabilities needed to support decarbonisation;
- Identify land use needs to support renewable energy infrastructure, and properly manage any constraints;
- Support just transitions of communities and employees.

The progress of sectors along their respective pathways will enable governments to assess the effectiveness of policies, and identify the need for policy changes, including adjustments to policies that are inadvertently a barrier to sector decarbonisation.

Government policies may also need to be changed as a result of the regular re-evaluation of sector transition pathways. Well-developed long-term policies should mitigate the need for major policy changes and minimise the policy risk facing investors and companies.

As noted above, the international context for Australia's transition is likely to be one of disorderly global transition. Some sectors may face, at least in the short-term, a competitive disadvantage in international competitive markets if they decarbonise. This may be a significant disincentive to invest the necessary capital to decarbonise. Investors recognise that some sectors may not remain competitive in a decarbonised world, while other sectors may require government support to maintain and potentially increase their international competitiveness in a decarbonised global economy.

Any sector support should be clearly temporary, and should not result in sectors being dependent for the long-term on support in order to be internationally competitive in a decarbonised world. Except for supporting a just transition, sector support should not be available to industries such as fossil fuel producers, which have a limited future in a net zero economy.

6. Conclusions

The development of Australian specific sector transition pathways will play a key role in supporting international and domestic investment in Australia's transition. Sector pathways will result in investors, governments and companies having a common understanding of the role of different sectors across in Australia's decarbonisation.

Having clear decarbonisation goals within sector pathways will allow clear, stable and long-term government policies to emerge to support investment by companies and investors, reducing the significant policy risk that has plagued Australia's response to climate change to date.

The development of sector transition pathways will help investors to avoid investing in potentially stranded assets, and will allow them to allocate capital confidently, remain invested in companies/assets that need capital to transition, provide clear signals on green investments, reduce transaction/deadweight costs, and provide economically efficient solutions.

Sector transition pathways will:

1. Help guide the development and commercialisation of technology;
2. Support the development of company transition strategies;
3. Assist with community, workforce, and skills planning; and
4. Help ensure investors effectively support decarbonisation.

Sector transition pathways will assist investors to:

1. Understand macroeconomic and energy sector drivers in each sector, and provide clarity on government policy goals;
2. Identify and assess potential investment risks and opportunities in real assets;
3. Evaluate, and incorporate into investment decisions, climate change risks and opportunities facing listed companies;
4. Evaluate and manage portfolio climate change risks;
5. Assist investors to meet regulatory climate change disclosure requirements;
6. Support companies in their climate change transition;
7. Engage with governments on climate change policy.

7. Selected Related References

- "Guidance on Use of Sectoral Pathways for Financial Institutions" GFANZ, June 2022, https://assets.bbhub.io/company/sites/63/2022/06/GFANZ_Guidance-on-Use-of-Sectoral-Pathways-for-Financial-Institutions_June2022.pdf
- "Net Zero by 2050 A Roadmap for the Global Energy Sector", IEA, October 2021 (4th revision), https://www.iea.org/reports/net-zero-by-2050
- "NGFS Climate Scenarios", The Network of Central Banks and Supervisors for Greening the Financial System, 2023, https://www.ngfs.net/ngfs-scenarios-portal/
- "NGFS Climate Scenarios Database, Technical Documentation V2.2", The Network of Central Banks and Supervisors for Greening the Financial System, June 2021, https://www.ngfs.net/sites/default/files/ngfs_climate_scenarios_technical_documentation__phase2_june2021.pdf
- "Solutions, actions and benchmarks for a net zero emissions Australia", Climateworks Australia, March 2020, https://www.climateworkscentre.org/wp-content/uploads/2020/04/Decarbonisation-Futures-March-2020-full-report-.pdf
- "Sectoral Pathways to Net Zero Emissions", Institute for Sustainable Futures, UTS, December 2020, https://www.uts.edu.au/sites/default/files/2020-12/OECM%20Sector%20Pathways%20Report%20FINAL.pdf
- "Pathways to industrial decarbonisation Positioning Australian industry to prosper in a net zero global economy – Phase 3 Report", Australian Industry Energy Transitions Initiative, Climateworks Centre, February 2023, https://energytransitionsinitiative.org/wp-content/uploads/2023/02/Pathways-to-Industrial-Decarbonisation-report-February-2023-Australian-Industry-ETI.pdf
- "Net Zero Australia: Final results from a groundbreaking study", Net Zero Australia, July 2023, https://www.netzeroaustralia.net.au/wp-content/uploads/2023/07/Net-Zero-Australia-Mobilisation-How-to-make-net-zero-happen-12-July-23.pdf
- "Decarbonising the NEM Report", Clean Energy Investment Group, 2023, https://ceig.org.au/wp-content/uploads/2023/04/CEIG-x-Baringa-Report_2023.pdf
- "Making Net-Zero Steel Possible – An industry-backed, 1.5˚C-aligned transition strategy", Mission Possible Partnership, September 2022, https://missionpossiblepartnership.org/wp-content/uploads/2022/09/Making-Net-Zero-Steel-possible.pdf
- "Making Net-Zero Aluminium Possible – An industry-backed, 1.5˚C-aligned transition strategy", Mission Possible Partnership, April 2023, https://missionpossiblepartnership.org/wp-content/uploads/2022/09/Making-1.5-Aligned-Aluminium-possible.pdf
- "Making Zero-Emissions Trucking Possible – An industry-backed, 1.5˚C-aligned transition strategy", Mission Possible Partnership, July 2022, https://missionpossiblepartnership.org/wp-content/uploads/2022/07/Making-Zero-Emissions-Trucking-Possible.pdf
- "TPI Sectoral Decarbonisation Pathways", Transition Pathway Initiative, February 2022, https://www.transitionpathwayinitiative.org/publications/2022-tpi-sectoral-decarbonisation-pathways.pdf
- "Carbon Performance assessment of steelmakers: Discussion Paper" Transition Pathway Initiative, July 2023, https://www.transitionpathwayinitiative.org/publications/2023-carbon-performance-assessment-of-steelmakers-discussion-paper.pdf
- "Pathways To Net-Zero – SBTi Technical Summary" SBTi, (Version 1.0) October 2021, https://sciencebasedtargets.org/resources/files/Pathway-to-Net-Zero.pdf
- "SBTi Corporate NetZero Standard", SBTi, (Version 1.1) April 2023, https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf
- "From Global Emission Budgets To Decarbonization Pathways At Property Level", CRREM, (Version 1.0), January 2023, https://www.crrem.eu/wp-content/uploads/2023/05/CRREM-downscaling-documentation-and-assessment-methodology_Update-V2_V1.01-03.05.2023.pdf
- "CRREM Global Pathways", CRREM, Version: v2.02, March 2023, https://www.crrem.eu/wp-content/uploads/2023/03/CRREM_Global_Pathways-V2.02_02-03-2023.xlsx
- "Scaling up Climate Action in Australia" Climate Analytics, November 2020, https://climateanalytics.org/publications/2020/scaling-up-climate-action-in-australia/

Appendix – Specific Investor Requirements of Sector Decarbonisation Pathways

Overarching Requirement	Specific Requirements	Investor Relevance
Clearly aligned with International Climate Goals	• In aggregate, sector decarbonisation pathways must meet the Paris Agreement climate change goal of limiting global temperature rise to 1.5˚C, by setting an overall carbon budget. • Pathways should extend to at least 2050, and demonstrate being net zero by no later than 2050.	• Climate change is a material investment risk. The material economic, social and environmental impacts of the physical impacts of the temperature rise that has occurred already highlight the need for ambitious climate action to minimise potential further economic, social and environmental impacts that will ultimately impact investment returns. • Asset owners need to have a long-term investment focus, consistent with their member's interest. Therefore, investors require long-term pathways. • Limit policy and market uncertainty to facilitate the approval, construction and operation of new technology or facilities (A timeframe of at least 10 years)
Credible	• Internally consistent and consistent with the stated objective. • Allocate emissions between sectors and over time based on least cost. • The organisation(s) that develop the sector decarbonisation pathways need to be credible and demonstrate an ability to bring together both a top-down and bottom-up approach in developing the sector pathways. • The developers of the sector pathways need to engage sector companies, or industry associations, on important areas, such as industry growth assumptions and potential emission abatement opportunities within sectors, including the costs of abatement. Any engagement should be transparent. • Those developing the pathways need to engage the finance sector to understand the potential sources and drivers of finance and expected investment returns to support capital flows.	• If the pathways are not considered credible, investors will not use them. Assumptions about sources of and returns on capital will be critical. • An economically efficient transition supports Australia's global competitiveness and the attractiveness of investing in Australia. • Investors will expect companies to use the pathways to develop their transition plans, including aligning their capital expenditure with the proposed pathways. • Investors will use pathways for the allocation of capital, and for engagement with companies on their transition plans. • Investors recognise that buy-in from stakeholders, including affected employees and communities, will be critical to the successful implementation of sector pathways, and therefore an important part of managing transition investment risk. • If Australia develops clear sector transition pathways and aligned policies it will minimise investor concerns about a disorderly domestic transition and the potential economic impacts on Australia's transition of a disorderly international transition.

Overarching Requirement	Specific Requirements	Investor Relevance
Credible (cont)	• Buy-in of stakeholders, including affected employees and communities, critical to the successful implementation of sector transition pathways. • Sector and sub-sector transition pathways need to be realistic about the sustainability and commercial viability of negative emission technology, including carbon capture and storage; direct air capture; land use based sinks; and biofuels and bioenergy with carbon capture and storage (BECC)	
Comparable	Underlying assumptions and outputs should be broadly consistent with other major recognised transition pathways, such as the NGFS and the IEA Net Zero scenario.	• Investors will compare assumptions and outputs with the results of other transition pathway models to better understand the nuances of the model outputs and the reason for differences, and to help consider Australia's transition within an international context, especially in the context of a disorderly transition at a global level.
Transparent	The underlying assumptions and outcomes should be transparent, including: • Underlying macro socioeconomic assumptions, e.g. GDP and population growth and the socioeconomic models used. • Energy efficiency assumptions by (sub) sector. • Final energy demand and supply at a macro level. • Energy supply mix, including the role of fossil fuels, renewables, hydrogen and biofuels. • Effective carbon price for those sectors. • Greenhouse gas emissions and (sub) sector emissions by scope and type. • (Sub) sector production/demand over time by technology used. • Scope 1 and Scope 2 emissions intensity over time by technology used. • Assumptions about technology development. • Assumptions about climate solution exports, like critical minerals and green hydrogen. • Contributions of different abatement technologies for each sector and how this varies over time, including the contribution of non-market driven abatement, e.g. as a result of behavioural, energy efficiency improvements. • Assumed investment returns expectations and length of capital investment cycles. There should be public access to methodology and underlying data.	• Transparency will help give investors confidence in the relevance and robustness of the sector pathways and will enable them to compare the pathways to their own macroeconomic assumptions and assumptions about future sector dynamics and technology developments. • Transparency also enables investors to undertake additional analysis on investment risks and opportunities, and to undertake company engagement at a more detailed level.

Overarching Requirement	Specific Requirements	Investor Relevance
Comprehensive	• The sector decarbonisation pathways should cover all greenhouse gases and all sectors. • Sector pathways should cover Scope 1 and Scope 2 emissions, separately and combined. • Material scope 3 emissions, associated with imports and exports should also be quantified. • They should incorporate physical climate change impacts. • Assumptions about exports, in particular fossil fuel exports, should be aligned with the climate goal • They should recognise the interaction of sector pathways, in particular the impact of electrification.	• Asset owners are universal investors, i.e. they invest, or are exposed, to all sectors of the economy. Investors are conscious that a lack of abatement in one sector or focussing on only one greenhouse gas will not be sufficient to address the climate change task or merely pushes the abatement task on to other sectors and disadvantaging investors in those sectors. Therefore take an economy wide view of the abatement task required. • Investors recognise that a comprehensive approach is more likely lead to lower overall costs to the Australian economy, enabling scarce investor capital to be deployed more efficiently • The Australian economy is currently significantly exposed to fossil-fuel exports and the transition of the economy away from this dependency is a broad macro-economic factor that investors consider in both assessing the investment risk of Australian and state government bonds and in strategic asset allocation. • The physical impacts of climate change have, and will, affect some of the underlying assumptions used to model (sub) sector pathways, e.g. energy demand and building and infrastructure design requirements, which may impact capital costs and therefore need to be incorporated into the model. • The pathway for decarbonisation is complex. The electrification or use of hydrogen as a fuel, replacing current fossil-fuel use, and changes in demand will lead to investment risks and opportunities that investors will need to consider.
Granular	• Pathways should be developed for sub-sectors if their pathway needs to be materially different due to emission abatement technology or policy requirements. • The sector pathways should be reviewed, as a minimum, every five years. • Pathway goals need to be expressed in both absolute and relevant production, or activity intensity terms.	• Investors need to apply the pathways to individual companies, incorporating estimated changes in company activity/production. Therefore, granular pathway data, expressed as emission intensities and transparent about the contribution of different abatement technologies and market forces, will be required to assess company and facility-level transition pathways.
Dynamic	• Updated every five years to reflect changes in macroeconomic and sector market environment, climate science and technology developments effectiveness of policies and whether sector emissions are aligning with expectations. • Any update should keep the overall climate goal, and may result in the need to accelerate emission reduction in some sectors if other sectors are not meeting decarbonisation expectations.	• Investors recognise that expectations about the future won't exactly match what occurs. Economies, markets and technologies are inherently dynamic, and models need to be recalibrated with the latest data. This will be used by investors to reassess investment risks and opportunities. • Investors also recognise that policies can vary in their effectiveness to attract capital and expected emission reductions in a sector may not be achieved. This may require changes to the overall burden and timing of emission reductions across sectors and changes to investment incentives.

Overarching Requirement	Specific Requirements	Investor Relevance
Action Orientated	Clearly identify the: • speed of technology research and development and commercialisation required. • quantum and timing of investment. • type, quantum and timing of required supporting infrastructure. • type and quantity of people skills and capabilities required to support sector pathways. • timing of transition away from fossil fuel exports and domestic fossil fuel use. • location and timing for community transitions, both away from older technology and to support new technology.	• Investors recognise that achieving emission reduction is the outcome of actions by governments, companies, investors, consumers and the community. Investors will gain confidence that the sector pathways analysis will facilitate the necessary action by all stakeholders if the pathways clearly identify the timing and magnitude of actions needed by different stakeholders. • Investors will use the timing and scale of capital expenditure as part of their assessment of where best to allocate capital. • Investors will incorporate potential capital expenditure and abatement costs into company valuations and their assessments of credit risk. This will include an assessment of the potential for stranded assets. • Investors will use pathways to assess companies' management of climate risk by assessing the adequacy of company transition plans, including emission reduction targets, proposed company actions such as capital expenditure plans, reliance on technology, policy and market contingency factors, and investment in R&D. This analysis will be used to engage with companies on progress against targets, proposed capital expenditure plans and financing, management of investment risks and management of just transition requirements. • Investors will use the pathways to engage with government on the policies needed to facilitate the actions and movement of capital required to achieve Australia's transition and to support company transition, within the context of a disorderly international transition.
Consideration of Pathway Sensitivities	Sensitivity analysis should be applied to the base model to illustrate: • the impact of core assumptions, and areas of uncertainty, such as, costs and timing of technology development. • the degree to which the Australian economy takes advantage of its renewable energy competitive advantage to be a supplier of renewable energy, including hydrogen and/or renewables-based, energy intensive industries.	• Investors will use sensitivities in assessing climate change investment risk at an asset, company and economy-wide level and in their assessments of investment opportunities associated with Australia's renewable energy competitive advantage.

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