

Review of Climate Change Policies

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The Climate Institute welcomes the opportunity to provide input to the federal government's Review of Climate Change Policies. This submission and its attachments - *Reducing the horizons of uncertainty: Setting Australia's post-2030 emission goal* and The Climate Institute's submission to the Independent Review into the Future Security of the National Electricity Market - discuss five key elements of a national climate change strategy.

The context for national climate change policy is changing fast, and approaches that seemed ambitious ten years ago are revealed as inadequate today. To ensure that policy made today remains useful in future decades, decision-makers need to acknowledge the following developments and build their policies to be resilient to the strengthening of these trends:

- + **The private sector is facing growing pressure to do more.** Companies are facing increasing demands from investors, customers and employees to demonstrate that their business models are compatible with decarbonisation, and the standard by which they are judged is rising.¹ Enabling companies to succeed in a decarbonising world requires policies that provide clear, reliable and sustained signals for low- and zero-carbon investment.
- + **Clean technologies are upending markets.** Costs for key clean energy technologies continue to fall, while their growing role in energy markets is challenging established regulatory frameworks, operating processes and financial arrangements. Enabling the clean energy transition to accelerate while preserving energy affordability and security demands more responsive and forward-looking policy and regulatory frameworks.
- + **The Paris Agreement requires countries to increase their contribution to the Agreement's objectives.** The Agreement's objectives of limiting climate change to 1.5-2°C require developed countries like Australia to reach net zero emissions by mid-century.² The Agreement's five-yearly cycle of ambition creates an ongoing

"ratchet mechanism" under which countries are expected to continually increase their emission reduction targets.

- + **Australia is already experiencing climate change and is highly exposed to the damaging effects of further global warming.** Recent worsening of heatwaves and "fire weather" has been attributed to climate change.³ Heatwaves currently considered "extreme" will be normal by 2030 on the current emissions trajectory, and by 2040 under all emissions trajectories. A 2°C rise in average global temperatures would take the Australian climate into "uncharted territory"⁴, in which virtually all coral reefs will be severely degraded⁵, and water availability diminished by up to 40 per cent in parts of Australia.
- + **People want climate action that improves their lives.** The Australian public wants to access the opportunities to improve people's lives by reducing pollution, building new industries and creating jobs, and preserving Australia's natural systems and resources. Our research found that 73 per cent of Australians believe that leadership on climate action and energy policy will produce economic benefits for the nation.⁶

Five elements of an effective national climate change strategy

1. **A national target for net zero emissions by 2050**
2. **Faster decarbonisation of the electricity sector to drive decarbonisation of the economy.**
3. **Forward planning and ongoing management of the social and sectoral impacts of economic decarbonisation**
4. **Pragmatic policy combinations to guide decision-making**
5. **Incorporate adaptation to climate change into government decision-making frameworks**

1. A national target for net zero emissions by 2050

Businesses are increasingly aware that the Paris Agreement implies a rapid decline in emissions over the coming decades. The lack of a long-term national target and trajectory creates a policy vacuum that delays or deters investment decisions, or conversely will lead to stranding of assets that prove to be incompatible with future climate policies. The misalignment between international commitments and domestic policies has been repeatedly identified by investors and large companies as causing uncertainty that is detrimental to national prosperity.⁷

Setting a national target of net zero emissions by 2050 would provide an important parameter for long-term investment decisions. It would allow companies and investors to develop strategies that will deal with the risks and opportunities of a carbon constrained future and the process of transition. It would provide guidance to government policy makers and regulators to prioritise strategic actions. It would also provide a useful standard for public sector organisations with governance or planning responsibilities by enabling oversight, planning and regulatory responsibilities to incorporate climate change objectives.

Recommendations:

- + Set a 2050 target: As an outcome of the 2017-climate change policy review, defining a 2050 emissions target (or target range) for Australia will provide guidance for business, government and regulatory decisions.
- + Define a process for mid-century strategy: The review outcomes should establish a process to define detailed sectoral strategies to achieve this target.
- + Submit a mid-century strategy in 2018: In line with the processes under the Paris Agreement, this mid-century strategy to achieve net zero emissions should be submitted to the UNFCCC before the end of 2018.
- + Review target periodically from 2022: Develop a considered five yearly review process that aligns to the development of Australia's Nationally Determined Contribution under the Paris Agreement.

For more detail on this element, see *Reducing the horizons of uncertainty: Setting Australia's post-2030 emission goal* (The Climate Institute, 2017.)

2. Decarbonisation of the electricity sector to drive decarbonisation of the broader economy.

Electricity decarbonisation is a crucial precursor to emissions reduction across the economy, as it enables decarbonisation of key segments of transport and industry. Scenario analysis by CSIRO indicates that the electricity system will be required to contribute at least 50 per cent of total national emissions reductions under <2°C and <3°C global warming scenarios.⁸

Analyses by CSIRO⁹, the Climate Change Authority¹⁰, The Climate Institute¹¹, and the International Energy Agency¹² show that the electricity sector's emissions intensity will need to approach 0.1tCO₂e/MWh by 2040. This implies a major investment opportunity in new cleaner generation capacity, but while approximately 5000 megawatts of fossil fuel generation capacity have been withdrawn from the market, this has not been replaced by sufficient clean energy. This is due to the ongoing lack of clarity over the electricity sector's emissions reductions requirements and delivery mechanisms over the next few decades: investors deferred expenditure on new and existing assets until clearer policy signals emerged, and this has resulted in significant electricity price increases.¹³

The government's current 2030 target suggests that the emissions intensity of the electricity sector would decline only to 0.55tCO₂e/MWh by 2030. Investors will likely draw various inferences from this research: that policy settings will have to adjust to drive much steeper emission reductions beyond 2030; that the 2030 target itself may be revised to drive more emission reductions before 2030; that the electricity sector will have to reduce emissions by a more than proportionate share of the national target; or indeed all of the above. To encourage efficient investment, emissions reduction policy for the electricity should be set with parameters that are demonstrably consistent with the objectives of the Paris Agreement.

Recommendations:

- + Define a stable and reliable electricity sector decarbonisation policy package.
- + Set the parameters of this scheme such that electricity is decarbonised before 2050, as a way of ensuring a stable and predictable investment signal, and test investment options against their compatibility with this objective
- + Establish measures to ensure the systematic and predictable replacement of all existing coal-fired generators with clean energy over the next 15-20 years

For more detail on this element, see The Climate Institute's submission to the Independent Review into the Future Security of the National Electricity Market.

3. Forward planning and ongoing management of the social and sectoral impacts of economic decarbonisation

Decarbonisation inevitably affects groups and sectors in different ways. Particularly exposed are low income households; communities heavily reliant on high-carbon activities; and emission-intensive, trade-exposed (EITE) industries. Many of the impacts on these groups are predictable, and can be managed through good policy.

Low-income and other disadvantaged households

Electricity is recognised within Australian law as an essential service as well as a tradeable commodity. However, electricity has become unaffordable for many Australians experiencing poverty and disadvantage, and some states have seen a doubling of electricity disconnections as a result of non-payment due to hardship since 2009-10.¹⁴ While climate policy has been widely considered a driver of higher electricity prices, it has become clear that climate policy *uncertainty* has already steeply increased electricity prices such that well-designed climate policies that enable efficient investment in clean energy should result in *lower* prices.¹⁵

However, it is important to recognise that while steep price rises are a key contributor to decreasing affordability, the unit price of electricity is less important than the total cost to vulnerable households of securing their energy needs. This is the result of many other factors which policy-makers can influence. These include housing circumstances, which influence energy consumption and the amount of household income available to pay for energy; when energy is used and how much is consumed in total; the ability to exercise choice in energy provider and technology options; energy market design; eligibility for concessions and the structure of the concession.

Outcomes for vulnerable consumers need to be explicitly considered when solutions to energy security and climate challenges are put forward. Work undertaken for The Climate Institute, Australian Council of Social Service and the Brotherhood of St Laurence has identified five policy objectives, which go beyond price concerns to encompass the broader set of factors influencing vulnerable consumers' energy costs. Pursuing all five can preserve universal access to affordable energy services while facilitating effective decarbonisation of the electricity system.¹⁶

- + Energy priced efficiently, including integrated climate policy
- + Informed and engaged consumers
- + Energy consumed efficiently and productively
- + Robust consumer protections

- + All households have a capacity to pay their energy bills.

Each of these objectives may be achieved through multiple policy measures. TCI, ACOSS and BSL are engaging across the community and the environment sectors to understand which policy options are considered to be top priorities for implementation. We will provide a joint submission discussing these issues in more detail.

Maintaining community prosperity through transition

Decarbonisation inevitably involves economic transformation and areas of the country dependent on high-carbon activities will inevitably face significant change. Given the costs of regional economic decline and the benefits of maintaining community health and prosperity, federal and state governments both have important roles in assisting communities through industrial restructuring.

As the recent retirements of coal-fired power stations demonstrate, Australian governments have tended to deny the need for transition assistance until the last minute, whereupon a hastily developed rescue package is presented. These packages have generally not been based on thorough community consultation or long-term economic planning. It should be noted that decarbonisation is far from the only driver of significant industrial change and the need for better governmental approaches will have broader applicability over coming decades.

Research into the job prospects for retrenched manufacturing workers has found that roughly one-third find similar jobs, one-third find inferior employment and the final third never return to the workforce.¹⁷ Examples from other countries show that better options exist. Germany instituted a long-term phase-out of coal mining that focused on “socially responsible workforce reduction” and reduced coal mining jobs by 87 per cent while successfully re-deploying workers who did not qualify for retirement. This was achieved through a negotiated agreement between the industry and governments and the sustained commitment of all parties through several decades.¹⁸

It is inevitable that Australia's existing coal generators will be replaced with cleaner energy, and desirable from a decarbonisation perspective that this is done on a schedule consistent with the Paris Agreement objectives. Roughly, this implies that all coal generators are retired by 2035 at the latest.^{19 20} Without sound planning and financial support, this closure schedule presents a severe risk to the economic well-being of several Australian regions. Essential elements of effective community assistance include:

- + *Accurate anticipation of closures.* Currently, companies can retire coal generators without giving much advance warning to the energy market or the broader community. While some indications of impending closure may be visible, many are not, and this makes the timing and location of closures highly unpredictable. Inaccurate or vague expectations of coal generators' operating lives play havoc with decisions across the community as well as among policy-makers and energy market participants. Coal generators should be required to provide at least three years' advance notice of their retirement.
- + *Planning starting several years before generators retire.* This includes assessment of the economic impacts of retirement, economic needs of the region, opportunities for economic activity to replace coal-fired power generation, and necessary strategies and funding (private and public) to realise these opportunities and address impacts. An important aspect of planning identified by the Committee for Gippsland is a ready pipeline of funded and released infrastructure projects.²¹
- + *Plans developed with input from across the affected community.* Each region will have different strengths, opportunities and needs, and these will only be reflected within plans if community stakeholders are enabled to provide input.
- + *Adequate funding for plans and their execution.* Funding should come from industry and government as appropriate - that is, industry should at a minimum fulfil their obligations with regard to redundancies and site rehabilitation, while public funding should be directed toward areas such as income support, education and training programs, and investments in appropriate infrastructure. Ensuring companies make sufficient provision for high-quality site rehabilitation is a key government responsibility.
- + *Prioritise worker retraining and start it early.* Research suggests that considerable training would be necessary to enable coal generator employees to find jobs paying similar wages.²² A key condition of the success of the German coal mining transition was that worker re-training began well in advance of retrenchment.
- + *Plans have a long-term focus and maintain ongoing public and private support.* The success of community transition is measured over many years. Similarly, creating a successful transition demands sustained efforts over many years by a series of governments.

Assisting industrial transformation

Currently, the key emissions reduction policy for emission-intensive trade-exposed industries is the Safeguard Mechanism, which in its current form is neither effective in reducing emissions nor efficient in allocating emission reduction costs.

Converting safeguards to a declining trajectory consistent with national climate commitments would make them more effective, by creating a material and ongoing obligation on companies to reduce their emissions. Enabling companies to trade their emissions liabilities would lower the costs of compliance. Lowering the threshold for entities to be covered by the scheme would broaden responsibility for emissions reductions to a larger pool of emitters and thereby increase the overall efficiency of the scheme.

It is important to acknowledge that EITE industries may face carbon costs that could comprise a competitive disadvantage. The level of disadvantage varies significantly by sector and by competitor, and will change further over time, making the correct assessment of the appropriate level of assistance complex and in need of regular review.

Inadequate assistance presents the risk that companies and potentially whole industries would be unable to compete successfully, and production would shift to other countries with laxer emission constraints. This could lead to an increase in total emissions, or "carbon leakage". Analysis for the World Bank notes that research has so far found little evidence that carbon leakage has occurred (at least from the EU, which is what most studies have assessed) but it is not clear whether this was because policies to prevent leakage were effective, because climate policy impacts were modest, because leakage risk was minimal or because methods of assessment failed to capture it. The risk of carbon leakage diminishes as more jurisdictions adopt and strengthen climate policies; however, the unevenness and uncertainty of this process suggests management of carbon leakage risk remains important.²³

That said, excessive assistance to emission-intensive industries also presents significant risks. It can increase the emissions reduction burden on other sectors of the economy, be an inefficient use of public funding, and insulate companies so well from emission reduction incentives that they become disadvantaged relative to lower-carbon competitors. These risks increase as more jurisdictions strengthen their climate policies and more lower-carbon competitors enter markets.

Effective EITE assistance needs to:

- + *Target only sectors truly vulnerable to carbon leakage.* Only those genuinely exposed to international competitors whose carbon constraints are clearly weaker should be eligible for assistance. Note that comparing countries' headline carbon prices is not a sufficient basis for judgement given the range of measures that create implicit carbon prices.
- + *Maintain an incentive to reduce emissions.* Assistance should be structured in ways that preserve a signal to reduce emissions rather than insulate companies entirely from the costs of their emissions or sectoral decarbonisation trends.
- + *Be regularly reviewed and reset by an independent body.* Assistance should be transparently calculated and regularly reviewed by independent agencies such as the Climate Change Authority or Productivity Commission.

Access to international carbon units can be an important transitional measure as they may reduce the costs of achieving short-term emission reduction targets. However, the use of international units does not enable countries to avoid the transition to a net zero domestic economy. Despite the current low prices for carbon units produced through the Clean Development Mechanism, the outlook for units is uncertain. The Paris Agreement requires all countries to target emission reductions (compared with only a subset of countries under the Kyoto Protocol), which creates a strong incentive for countries to provide preferred access to any carbon units they produce to their own domestic industries. In a world limiting climate change to 1.5-2°C, all countries will need to achieve net zero emissions. In this environment, the international trade of units will be severely constrained.

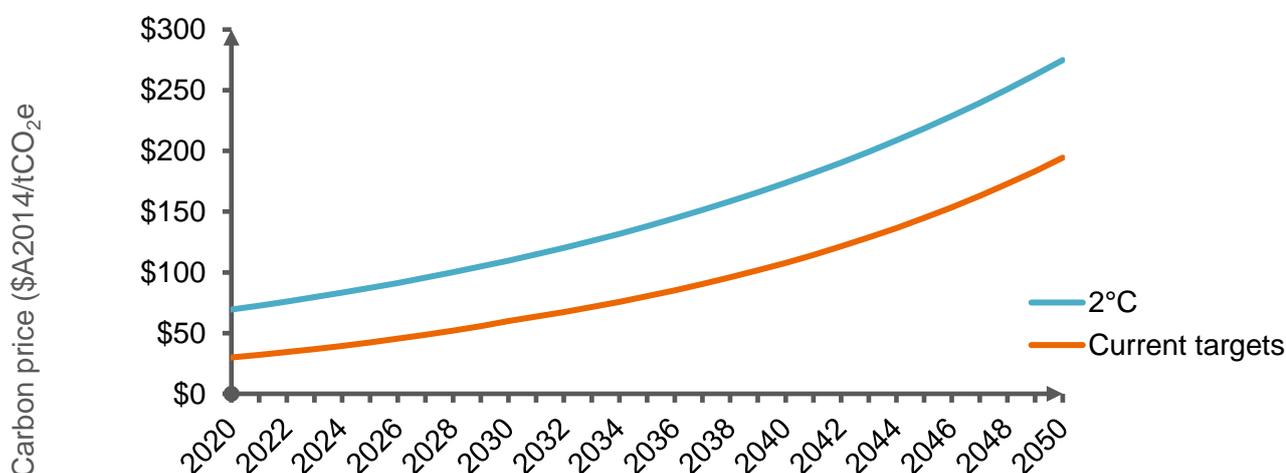
To illustrate this Figure 1 shows two indicative price paths for internationally traded units over the period from

<2°C scenario and the other is the global price for a scenario consistent with the commitments that countries have currently made.²⁴ In both cases global prices are substantially higher than current levels.

Recommendations:

- + Address all five of the identified policy objectives to improve the fairness and accessibility of the energy transformation underway to low income and vulnerable households. Prioritise concessions reform and minimum energy efficiency standards for rental properties as essential policies within this package.
- + Complement orderly transition within the electricity market with fully funded strategies for orderly and constructive transition across communities affected by the switch away from coal generation.
- + Enable EITE industries to access flexible emissions reductions via a trading mechanism, and establish process for ongoing and transparent assessment and calibration of the level of assistance EITE sectors may need.

Figure 1: Indicative trajectories for internationally traded carbon units consistent with countries' current national targets and global warming of 2°C



2020 to 2050. One is the global price of carbon under a

4. Pragmatic policy combinations to guide decision-making

Much discussion of climate policy has focused on preferences for or against individual mechanisms, such as vehicle emissions standards, or an emissions intensity scheme for electricity. But international experience to date suggests that every sector will need several policy types, including several or all of the following: regulation to provide minimum standards of action, transparency, and protection; market signals to enable competition and choice and minimise compliance costs; and subsidies to reward public good innovation.

Carbon pricing mechanisms such as an emissions intensity scheme or emissions trading scheme are in theory best positioned to tackle most of these objectives, though it should be noted that market barriers may also need specific policy interventions. However if such a policy were to be established, it would only be effective if investors were confident that it would deliver price signals of sufficient robustness.²⁵ Almost all examples of carbon pricing in Australia and around the world suggest that, as currently implemented, emissions markets are too volatile and weak, and their future too uncertain, to provide the long-term signal necessary to affect major investment decisions.

This suggests that, while emissions markets are an essential part of a policy package, they need features that diminish volatility and increase long-term price signals, such as long-term legislated emissions constraints, and they need to be buttressed with other policies. Multiple policies in theory increase costs by diminishing efficiency; however, if they significantly reduce the range of investment uncertainty and provide clearer guidance as to required emissions reductions, these benefits may more than compensate.

Backstopping an emissions market with, for example, regulations that clearly define conditions under which emissions-intensive electricity generators must retire, could be done on the basis that the regulations should not need to have an impact, because the emissions market would be the primary driver of retirements, but the presence of the regulation increases the strength and clarity of the investment signal and provides greater certainty of achieving expected emission reductions.

Similarly, in the land sector incentives for abatement should be supported by regulations constraining large-scale land-clearing. The government's move to establish standards for vehicle emissions while still maintaining – and even enhancing – consumer choice is a welcome recognition of the essential contribution of minimum standards within an effective policy framework.

A key criticism of regulation is its lack of flexibility. To an extent, this is beneficial as it diminishes volatility and

uncertainty. However, regulations also need to adapt to changes in technology and market behaviour. Creating minimum requirements along with a process of foreseeable opportunities to update or strengthen these can ensure regulations remain fit for purpose. These may be aligned with the five-yearly reviews of Australia's national emissions target through the Paris Agreement framework; or they may be triggered by sectoral developments – for example, energy efficiency standards for appliances may be based dynamically on the efficiency progress made by leading appliance providers.

Recommendations:

- + Design policy packages that explicitly establish minimum requirements for sectoral emissions reduction or energy efficiency. Areas where standards are necessary include land-clearing restrictions; equipment and vehicle efficiency; buildings, particularly rental properties; and emissions-intensive power generation. These standards should include trigger points or timeframes for updating and strengthening minimum requirements
- + Market mechanisms, such as carbon pricing or emissions intensity trading, should be coupled with minimum requirements, such as a price floor, to reduce the risk of inadequate price signals.

5. Incorporate adaptation to climate change into government decision-making frameworks

Adaptation to climate impacts is absent from the discussion paper, yet climate impacts should, by definition, be integral to Australia's climate change policy framework. As the Government states, "Decisions made today about infrastructure, health, water management, agriculture, biodiversity and housing will have lasting consequences for future generations."²⁶ When overlaying the longevity of policy and investment decisions with what is already known about climate change, it is entirely likely that all sectors of the Australian economy will be affected by the impacts of climate change in the next few decades.

Australia's adaptation policy gap

Under the Paris Agreement all countries are now expected to develop adaptation plans, which are to be regularly reviewed and strengthened on the same five-yearly cycle as national mitigation commitments.²⁷ Australia's current National Climate Resilience and Adaptation Strategy falls well short of the reporting and planning commitments articulated in the Paris Agreement.

The Strategy, in its own words: "*affirms a set of principles to guide effective adaptation practice and resilience building, looks at leading practice nationally, and considers areas for future review, consultation and action*".²⁸

As this text suggests, the Strategy contains little useful guidance that might assist either policy makers or private sector investors to optimise any decisions or commitments that could be affected by climate impacts. Its four priorities for adaptation, lack any concrete details or parameters on which to base policy development. The lack of clarity on time frames, scope, and more specific indication of priorities means the document serves little purpose.

Meanwhile, a large body of adaptation-related policy reviews and recommendations remain unacted upon. Some robust exploration of climate adaptation needs and policy priorities have already been conducted at Commonwealth government level. Examples include the proposed National Adaptation Assessment framework from 2013²⁹, and the Productivity Commission inquiries into Natural Disaster Funding Arrangements³⁰ and Barriers to Effective Climate Change Adaptation³¹.

Moreover, there is a great deal of expertise, existing knowledge and ongoing research that can support stronger policy. Although adaptation policy remains effectively on hold, Commonwealth-funded research programmes exist that can facilitate research to support emerging adaptation policy requirements. The Earth Systems and Climate Change Hub, for example,

established under the National Environmental Science Programme, provides a forum for end users to interact with the research community researchers on outcomes. Maintenance of these information development and sharing capabilities is critical to ongoing success in preparing for and managing climate change impacts.

Why does adaptation to climate change impacts matter?

The global climate has already warmed. In Australia, average annual temperatures are now 0.9°C higher than they were in 1910. Australia is particularly exposed to climate change impacts, such as more frequent hot extremes, less frequent cold extremes (high confidence), and increasing extreme rainfall creating flood risk in many locations (medium confidence). Annual average rainfall is expected to decrease in southwestern Australia (high confidence) and elsewhere in most of far southern Australia.³² Moreover, the consequences of climate change on the Asia-Pacific region, whose economies are highly vulnerable to sea-level rise and loss of food production and thereby also vulnerable to significant political instability, will inevitably affect Australia.³³

Examples of fiscal and macro-economic implications of climate change are:

- + Damages arising from weather-related catastrophes can create a fiscal burden that exceeds the resources of state governments and requires Commonwealth support.
- + Impact risks will increasingly be factored into sovereign credit ratings, as the major credit ratings agencies have affirmed over the past two years.³⁴³⁵
- + Significant public health implications of climate change impacts are well established.³⁶
- + Impacts via the housing sector have been identified by banks³⁷ and the prudential regulator, APRA.³⁸

Severe effects on individual sectors or regions will also have significant consequences for national economic activity. Some industries, particularly in the agricultural sector, have already been affected; particularly viticulture³⁹, dairy⁴⁰ and wheat. Recent research from CSIRO found that Australia's wheat yield potential has fallen by 27 per cent in the past 25 years.⁴¹

While adaptive responses can *to some extent* offset productivity losses arising from changing climatic conditions, natural systems have thresholds beyond which they cannot survive, and these present hard limits to existing economic practices. For example, as temperature rise causes increasingly frequent mass bleaching events of the Great Barrier Reef⁴², preserving the Reef becomes less and less possible, and this can

be expected to have significant economic impacts on Queensland, given the Reef's role in the local economy⁴³.

Recommendations:

- + Take explicit account of the benefits of avoiding climate change impacts in policy design and governmental decision-making.
- + Commit to a national adaptation plan within a time frame that takes into account the Paris Agreement's requirements for adaptation reporting as part of the Global Stocktake, and in particular the 2018 Facilitative Dialogue and the first full Global Stocktake.
- + Engage in constructive and outcomes-focused adaptation policy programme work with state governments, via the Council of Australian Governments and other fora as appropriate.
- + Transparently and systematically stress test and manage climate change impact risks in all relevant areas of government responsibility. This should include consideration of scenarios of 1.5-2°C as well as higher temperature rise in the development of the national adaptation plan, intergenerational reports, and in national policy development including energy, defence, financial sector, overseas development assistance, health, infrastructure and natural disaster response.
- + Management of climate change impacts should be integrated into all infrastructure and public works policy and planning.
- + Ensure adequate resourcing is available to maintain and build scientific capacity to undertake and maintain the above tasks.

ENDNOTES

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