Australian National University

Submission: Senate Inquiry into the Climate Risk Assessment

ANU Institute for Climate, Energy & Disaster Solutions

This submission is the collated perspective of independent researchers that work at the Australian National University. The views and opinions expressed in this submission reflect those of the authors and contributors.

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10 September 2025

Committee Secretary
Senate Standing Committees on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600

Re: Submission invitation – Senate Inquiry into the Climate Risk Assessment

Dear Committee Secretary,

Please find enclosed a submission by the ANU Institute for Climate, Energy and Disaster Solutions (ICEDS) for the Senate Inquiry into the Climate Risk Assessment.

ICEDS connects industry, governments and communities with climate, energy and disaster-risk research from the Australian National University. Our goal is to advance innovative solutions to address climate change, energy system transitions and disaster risk management by facilitating integrated research, teaching, and policy engagement across disciplines.

The enclosed submission contains contributions from experts in climate science, environmental sustainability, water governance, energy transition, science communication, and youth climate anxiety. The submission is the collated perspective of independent researchers that work at the Australian National University. The views and opinions expressed in this submission reflect those of the authors and contributors.

Our network of ANU researchers will gladly offer further information.

Sincerely,

Professor Llewelyn Hughes
Interim Director
Institute for Climate, Energy and Disaster Solutions

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Summary

Australian communities and ecosystems are under threat from escalating climate risks. The National Climate Risk Assessment ("the Assessment") is designed to provide information to support adaptation, policy and investment decisions. The second pass assessment, which provides in-depth analysis on 11 priority risks, will soon be released. It is expected that Australia's capacity to anticipate, prepare for and respond to climate impacts will be enhanced by the release of the Assessment.

This submission responds to the terms of reference (c) *the expected ongoing impacts upon the Australian community that are contained within the assessment;* (d) *the budgetary costs of both climate driven natural disasters and any government adaptation plans*, as follows:

1. **Expected community impacts of climate risk in Australia**
    - Communities and other entities need access to reliable information to adapt to climate change.
    - In an environment of increasing climate risk disclosure obligations, the Commonwealth faces increased scrutiny in relation to climate risk assessment.
    - Young people experience increased climate anxiety and perceptions of government inaction on climate change.

2. **Budgetary costs of climate disasters**
    - Australia is experiencing increased frequency and severity of climate-related disasters, costing billions in response, recovery and lost productivity.
    - Proactive adaptation based on accurate climate risk information would reduce the financial burden of climate disasters.

3. **Climate risk governance in Australia**
    - Effective governance requires transparent and science-based decision making. The Commonwealth can look to contexts where the latest climate science is legally required to be included in policy decisions, for example, the Murray Darling Basin Plan.

This submission makes the following recommendations:

1. Release the National Climate Risk Assessment Second Pass report in order to:

    a) Support Australian communities' ability to plan for and adapt to climate risk;
    b) Promote climate risk assessment and disclosure;
    c) Bolster public trust and confidence in Commonwealth action on climate risk;
    d) Reduce costs associated with disaster recovery by implementing adaptation policy informed by the National Climate Risk Assessment Second Pass report.

2. Ensure the best available science is applied and accounted for transparently in responding to climate risk assessments.

1. Expected Community Impacts of Climate Risk in Australia

The first pass National Climate Risk Assessment report (NCRA 1) notes the importance of understanding climate risk so that "we can take action to safeguard the things we value as a society" (DCCEEW, 2024). The release of the NCRA 2 can be expected to have the following benefits:

Support Australian communities' ability to plan for and adapt to climate risk

Communities across the country continue to experience the effects of climate change, and access to risk data will better enable them to plan, adapt, and advocate effectively (Nelson *et al.*, 2010; Sevoyan and Hugo, 2014; Mason, 2020). The release of the NCRA 2 can be expected to enhance communities' ability to prepare for and respond to climate impacts. Ensuring trust in information generated and supplied by the Commonwealth is also critically important given the increased use of campaigns based on misinformation (Parliament of Australia, 2025). Timely and transparent reporting is therefore not only not only an ethical and scientific imperative but a strategic necessity for effective community mobilisation on climate action (Mason, 2020).

Improve organisations' ability to manage climate disclosure obligations

Entities across Australia face climate risk disclosure obligations (Chalmers, 2024). The Australian Government also has responsibilities to disclose information that affects public welfare and national planning in relation to climate risk assessment and management, including:

- *Commonwealth Climate Disclosure 2024*
  Requires greater transparency, accountability and credibility in the way climate risks are managed across the public sector in Australia (Department of Finance, 2024)

- *Australian Sustainability Reporting Standard AASB S2 Climate-related Disclosure Standard 2024*
  Requires relevant organisations to disclose information about climate related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term (AASB, 2024)

- *Public Governance, Performance and Accountability Act 2013*
  Mandates transparency in government performance and risk management (Department of Finance, 2013)

Accordingly, the release of NCRA 2 will contribute to public and private sector organisations' ability to assess and manage climate risk in meeting these obligations.

Empower youth engagement in climate action

Young people bear a disproportionate burden from climate change, facing a life course marked by increasingly frequent and severe climate-induced disruptions (IPCC, 2023).

Uncertainties about the future under climate change can elicit a range of distressing feelings, including fear, which appear to be especially prevalent among young people (Poortinga et al., 2023). A study of 10,000 young people in 10 countries showed that most were 'very' or 'extremely' worried about climate change. The study also found that climate anxiety was associated with perceptions of governmental failure to take adequate climate action (Hickman, Marks et al., 2021). A separate study found young Australians described the federal government as having primary responsibility for leading climate responses, and distrusted that government would do so (Russell, 2024).

Taken together, this suggests access to NCRA 2 could support young people to make decisions about their future and participate in societal responses to climate risks.

2. Budgetary Costs of Climate Disasters

Changing climate impacts

In first quarter of this century, Australia has experienced a sequence of extreme and unprecedented climatic conditions resulting in major flood, fire and drought disasters. The Millenium drought crisis resulted in numerous national, state and regional policy reforms (Alexandra and Rickards 2021).

The impacts of Australia's changing climate are becoming more pronounced. In the first half of 2025 Australia experienced unprecedented floods in NSW and Qld and severe droughts in SA and Victoria. Cool season droughts in the south and warm season floods along the east coast and northern Australia are consistent with the predictions of decades of climate science (Southern Eastern Australian Climate Initiative, 2012).

Rising costs of natural disasters on the Australian economy

Treasury projections estimate up to $130 billion in cumulative costs over the next 40 years, when assuming a temperature rise of up to 3°C by the end of the century (Spencer, 2025). Costs include (Insurance Council of Australia, 2024):

- Emergency relief payments and insurance claims.
- Infrastructure damage and repair.
- Health system strain and productivity losses.
- Displacement and housing stress.

The release of NCRA 2 will enhance governments and institutions ability to allocate resources efficiently and proactively, enabling cost-effective adaptation by:

- Enabling local governments and infrastructure managers' access to risk data relevant for planning.

- Supporting implementation of community-led and place-based adaptation and disaster reduction initiatives.
- Enhancing confidence in adaptation policies and funding programs.

3. Climate Risk Governance in Australia

Many of the risks facing Australia's ecosystems (e.g. rivers, coastal lake systems and estuaries, and their catchments) are evolving, and we cannot rely on static risk assessment models for their management (Spencer and Alexandra 2024). Ecosystem and water resource management must deal with non-stationarity and changing climatic and geochemical cycles (Alexandra 2020). The post-normal world is characterised by "irreducible complexity, deep uncertainties, multiple legitimate perspectives, value dissent, high stakes, and urgency of decision-making" with science unable to provide absolute truths and confident solutions (Dankel et al., 2017, 2).

These conditions require us to ensure the best available science is applied and accounted for transparently in responding to climate risk assessments. Climate risk assessment and management should be interdisciplinary, participatory, and trans-disciplinary approaches, and utilise forms of governance that are inclusive, integrative, adaptive, and transformative (Spencer and Alexandra, 2024).

Case study: The Murray Darling Basin

The Murray Darling Basin (MDB) Ministerial Council formally recognised climate risks in 2004 (Alexandra, 2023). The National Water Initiative also recognised climate risks, establishing a framework assigning risk for climate-related reductions in water availability to water entitlement holders (COAG, 2004).

Governments' recognition of climate risks catalysed efforts to quantify impacts and understand the causal processes involved (Alexandra, 2021, 2022, 2023). Thus, significant scientific evidence underpinned the repeated warnings about southeastern Australia's vulnerability to climate change.

In response, the Commonwealth legislated a Murray–Darling Basin Plan (MDBP) that responded to climate risks. The Water Act (2007, S22) requires the Murray Darling Basin Authority (MDBA) to develop strategies to mitigate climate risks. To prepare or revise the Basin Plan, the MDBA needs to assess climate risks, including more intense and prolonged droughts, declining stream flows and less reliable water resources. The Water Act (S 50-54) requires reviews and revisions of the Basin Plan – like that scheduled for 2026 – to use the best available science (Alexandra, 2020 & 2021). The legislation imposes a positive duty on the MDBA to act independently and proactively in assessing climate risks, to ensure risk assessment methods are credible, rigorous and transparent and that the strategic responses recommended have defensible scientific foundations (Walker 2019; Alexandra 2023).

Importantly, the legal requirement to use best available science in the revision of the Murray Darling Plan requires governments to have professional capabilities for science policy-integration. The climate risk management provisions of the 2012 MDBP attracted criticism (Walker, 2019; Alexandra, 2020 & 2021). With increased acceptance of climate change, expectations are building that the 2026 MDBP revision will more comprehensively address climate risks. There are pressing imperatives for reform, with legal definitions of procedural and administrative safeguards for ensuring that the best available science is applied and accounted for transparently in climate risk policy (Walker, 2019; Alexandra, 2021).

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