



Submission to Senate Environment and Communications Legislation Committee

- Climate Change Bill 2022 and Climate Change (Consequential) Amendments Bill 2022

About the ARC Centre of Excellence for Climate Extremes

The **Australian Research Council (ARC) Centre of Excellence for Climate Extremes (CLEX)** is Australia's leading climate science centre, and includes five partner universities - The University of New South Wales, Monash University, The Australian National University, The University of Melbourne and The University of Tasmania as well as multiple international partner organisations.

CLEX works to understand and reduce Australia's economic, social and environmental vulnerability to climate extremes through leading the development of fundamental climate science, and improving models that analyse the extremes of the past and predict the extremes of the future. Our research focuses on weather and climate interactions, drought, ocean extremes, and how climate change affects risk.

CLEX is led by Centre Director Andy Pitman, AO.

The ARC Centre of Excellence for Climate Extremes (CLEX) welcomes the opportunity to make a submission in relation to the provisions of the Climate Change Bill 2022 and Climate Change (Consequential) Amendments Bill 2022¹.

Climate extremes already affect many facets of Australian society including health, soil and water, agriculture, infrastructure, energy security and financial security posing significant risks to the global and Australian economy. Our region will face more, and more intense extremes in the future.

CLEX recognises the passing of the Climate Change Bill in the House of Representatives as a significant achievement. It signals nationally and internationally that Australia acknowledges and is committed to combatting climate change. Importantly it provides recognition of Australia's engagement in urgent climate action. This is a vital first step and we support the Bill's intent to legislate greenhouse gas emissions reduction targets.

CLEX agrees that climate change impacts all areas of Australian life and is supportive of the Bill's understanding that government agencies must consider climate change in their decision making.

This submission will comment on two aspects of the legislation: the emissions reduction target and the role of the Climate Change Authority.

Emissions reduction target

It may benefit the committee to consider that:

- Australia has warmed by 1.4°C since 1910, more than the global average of 1.1°C. On 13th January 2022, the coastal town of Onslow, Western Australia experienced 50.7°C, equalling Australia's hottest day. The number of days over 50°C has doubled since the 1980s worldwide, imposing real threats to human health. As the climate warms, heatwave conditions in Australia are expected to worsen with serious risks to health, infrastructure, ecosystems and agriculture.
- Every additional fraction of a degree of warming increases the risk of extreme events. New research is emerging that connects extreme weather to climate change. For example, the probability of weather events like the one that caused the extreme rainfall in March 2021 could increase by 80% in Sydney by

¹ This submission was prepared by the Australian Research Council Centre of Excellence for Climate Extremes



the end of this century due to climate change². Compound events – for example the co-occurrence of extreme heat and drought, or extreme rain and wind - are also influenced by climate change^{3,4}. The ability to predict how compound events will change by 2030 or 2050 *in general* is quite advanced, but the ability to predict whether compound events will impact specific communities, infrastructure and economic assets does not exist yet.

The link between carbon emissions and climate change is unequivocal. The last Intergovernmental Panel on Climate Change report⁵ underlined the urgent need for emissions reductions, and the increasingly small global carbon budget remaining to limit warming to well below 2°C, as stated in the ambition of the Paris Agreement. They have outlined that reaching and sustaining net zero global carbon dioxide emissions would slow anthropogenic global warming and help to avoid far more serious risks in the near future.

Therefore, whilst we applaud the ambition of the present government to legislate national greenhouse gas emissions, targets of 43% below 2005 levels by 2030 and a further net zero reduction by 2050, we urge the committee to make every effort to strengthen these cuts in emissions urgently.

Every tenth of a degree increases the risk to Australian communities, and therefore every opportunity to drive emissions down must be taken.

Australia's action on emissions reductions is essential to address climate change and limit warming to well below 2°C in line with the Paris agreement of which Australia is a party. We note that the 43% below 2005 levels by 2030 is ambitious, but not ambitious enough. If implemented globally, net zero emissions by 2040 only gives an 83% chance of avoiding exceeding the 2°C ceiling⁶.

Climate Change Authority

Australian business, industry, planners and policymakers need to prepare for more extreme events, with substantial regional variation in impact across Australia, but without knowing where and when these increasing events will occur. As our understanding of these events grows, the Climate Change Authority will need to assess and understand the role of these and many other processes as they gather their advice for Government.

The Climate Change Authority is an important focal point of climate science and must be underpinned by a strong evidentiary base in its deliberations. Providing current, robust expert climate advice is essential to inform and formulate policy.

The production of an annual climate statement requires clear scientific understanding which should draw on the wealth of Australian and international climate science knowledge available. CLEX recommends that the Climate Change Authority maintains strong links to the whole of the scientific community and conduct a transparent and thorough process of evidence gathering and advice. CLEX is supportive of the strengthened role of the Climate Change Authority and stands ready to assist the Climate Change Authority in any capacity including the provision of expert and independent Australian climate science advice, use of their advice networks, scientists and researchers as well as policy advice.

We are grateful for the opportunity to make a submission and comment on this important Australian legislation.

² <https://climateextremes.org.au/atmospheric-rivers-in-australia/>

³ <https://climateextremes.org.au/a-new-global-picture-of-compounding-weather-and-climate-hazards/>

⁴ <https://climateextremes.org.au/why-research-on-compounding-weather-and-climate-hazards-is-important/>

⁵ <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>

⁶ <https://climateextremes.org.au/what-is-left-in-the-global-carbon-budget/>

