

**Senate Standing Committee on Environment and Communications Legislation
Committee Inquiry**

***Climate Change Bill 2022 and the Climate Change (Consequential Amendments)
Bill 2022***

Submission by Prof (honorary) David Karoly, FAA

I am an honorary Professor in the School of Geography, Earth and Atmospheric Sciences at the University of Melbourne and an honorary Senior Research Fellow in Melbourne Climate Futures. I am an internationally recognised expert on climate change and climate variability and a Fellow of the Australian Academy of Science.

I was Leader of the Earth Systems and Climate Change Hub in the Australian Government's National Environmental Science Program, based in CSIRO, during 2018-21, and retired from CSIRO in January 2022. From 2007 to February 2018, I was Professor of Atmospheric Science at the University of Melbourne and in the A.R.C. Centre of Excellence for Climate System Science. From 2003 to 2007, I held the Williams Chair in the School of Meteorology at the University of Oklahoma.

I was a member of the National Climate Science Advisory Committee during 2018-19. From 2012 to 2017, I was a Member of the Climate Change Authority, the only climate scientist to ever be appointed as a Member. I have been heavily involved in the Assessment Reports of the Intergovernmental Panel on Climate Change in 2001, 2007, 2014 and 2021 in several different roles.

I am making this submission in a personal capacity on aspects of the Climate Change Bill 2022.

Summary

The Climate Change Bill 2022 provides critically important legislation defining Australia's greenhouse gas emissions reduction targets for 2030 and 2050 that are substantially stronger than from the previous government. It also requires an annual climate change statement from the Minister and defines new advisory responsibilities for the Climate Change Authority.

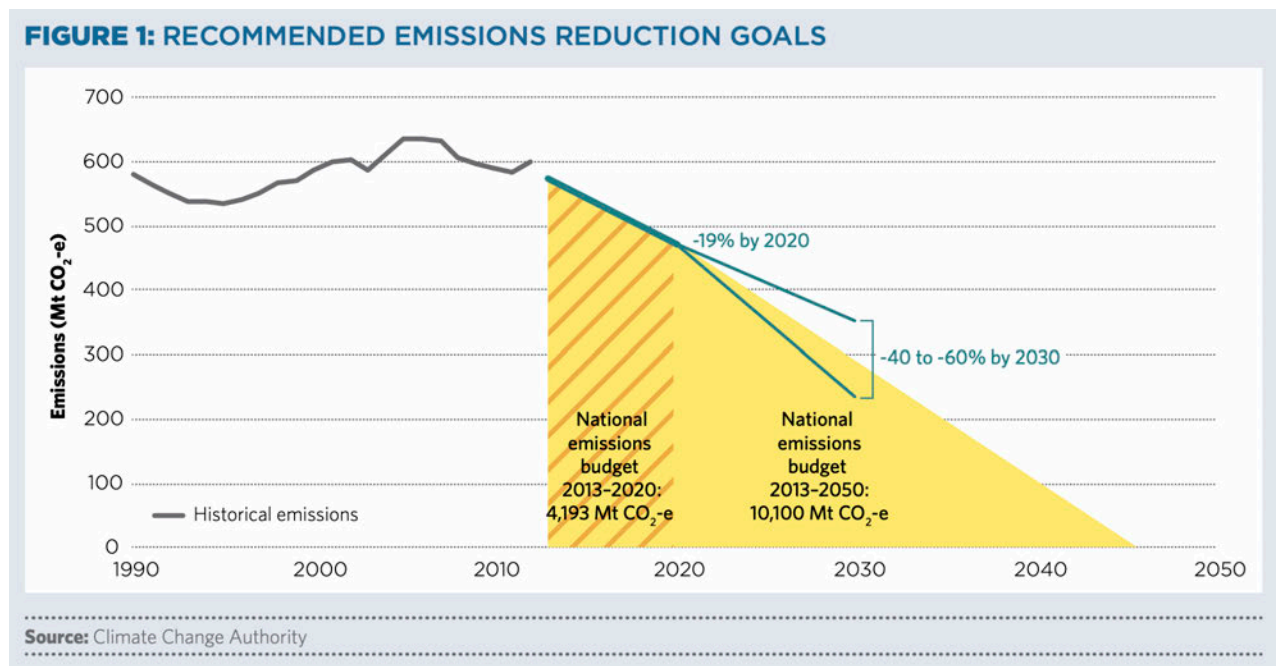
The following aspects of the current Bill require further consideration:

- The 2030 emissions reduction target is too weak to represent Australia's fair share of global emission reductions needed to meet the Paris Agreement target of limiting global warming to 1.5°C above pre-industrial levels. The legislation needs a mechanism for ratcheting up the 2030 emissions reduction target and bringing earlier the date for net zero emissions.
- The annual climate statement may duplicate existing climate statements including the biennial State of the Climate reports from CSIRO and BoM, and the Quarterly Updates of Australia's Greenhouse Gas Inventory, previously from DISER.
- The new advisory responsibilities for the Climate Change Authority appear to overlap with or duplicate responsibilities covered under the Climate Change Authority Bill 2011.
- Some relevant additional matters are suggested to broaden the scope of the Bill.

Australia's greenhouse gas emissions reduction targets

Part 2 of the Climate Change Bill sets Australia's net greenhouse gas emissions reduction targets to 43% below 2005 levels by 2030 and reducing Australia's net greenhouse gas emissions to zero by 2050. These are much stronger targets than used by the previous federal government and they provide formal legislation for these targets for the first time, both of which are very important.

However, these two targets are weaker than the Climate Change Authority recommended in its *Targets and Progress Review Final Report*¹ in 2014. Recommendation 9 of that Report recommended emission reductions of between 40% and 60% below 2000 levels by 2030, as Australia's fair share of global emission reductions need to limit global warming to below 2 degrees above pre-industrial levels. Given that 2005 emissions were 14% higher than in 2000, 40% emissions reductions below 2000 levels corresponds to 47% emissions reductions below 2005 levels. This is illustrated by Figure 1 below from the Summary¹ of the Report, which also shows that the national carbon budget is fully expended by 2045, after which net zero emissions would be needed.



In January 2021, the Climate Targets Panel released a report *Australia's Paris Agreement Pathways*² that updated the Climate Change Authority's 2014 emissions reduction targets for both the Paris Agreement 2°C target and the 1.5°C target based on updated national carbon budgets allowing for Australian emissions from 2013 to 2019. These emissions reduction targets are much stronger than those in the legislation.

Hence, in order to meet Australia's obligations under the Paris Agreement, the legislation needs a mechanism for ratcheting up the 2030 emissions reduction target and bringing earlier the date for net zero emissions.

It is also important to recognize that Australia's responsibility for increases in greenhouse gas emissions is significantly higher than the domestic emissions covered by this legislation. Australia's

economy and the Australian government benefit from the sale of coal and fossil gas exports to other countries. Australia is the third largest fossil fuel exporter in the world. Emissions in other countries from their use of these coal and fossil gas exports would more than treble Australia's responsibility for increasing global warming.

Annual climate change statement

Part 3 of the Climate Change Bill requires the Minister to prepare an annual climate change statement focused on progress during the year towards achieving Australia's greenhouse gas emissions reduction targets. This is an important part of the legislation.

However, there is the potential for overlap with or duplication of two other existing regular climate change reports by the Australian government. The first of these is the Quarterly Updates of Australia's National Greenhouse Gas Inventory³, prepared most recently by the Department of Industry, Science, Energy and Resources for the period ending December 2021. These quarterly reports have been very important for monitoring progress in Australia's greenhouse gas emission reductions and should be continued on a quarterly basis in the future, to complement the Annual Climate Change Statement.

The second of these existing climate change reports is the biennial *State of the Climate* reports prepared jointly by the Bureau of Meteorology and CSIRO. The most recent of these was the *State of the Climate 2020*⁴ report, with the next under preparation and due to be released before December 2022. These reports provide a very important update on the science underpinning understanding of climate in Australia and include new information about Australia's climate of the past, present and future. These reports should be continued as they also complement the Annual Climate Change Statement.

Advisory functions of the Climate Change Authority

Part 4 of the Climate Change Bill provides requirements for the Climate Change Authority to provide advice to the Minister in relation to the preparation of the Annual Climate Change Statement and on Australia's greenhouse gas emissions reduction targets.

These requirements overlap substantially with the requirements the Climate Change Authority Bill 2011⁵. For example, "Clause 11 provides that the functions of the Authority include conducting reviews into and making recommendations on progress in achieving Australia's emission reduction targets and any national carbon budget ..."

These reporting requirements of the Climate Change Authority were undertaken by the Authority in the period up to 2015, culminating in the emissions reduction targets in its *Targets and Progress Review Final Report*¹ already mentioned. When new Members and a new Chair were appointed to the Authority in October 2015, it no longer provided independent advice on Australia's emission reduction targets in the period 2016 to the present and accepted the government's emissions reduction targets.

I believe that I am the only former Member or current Member of the Climate Change Authority with specific expertise in climate change science and with research publications on the global

emissions reductions needed to meet specific global warming targets. This expertise is essential for at least one Member of the Climate Change Authority and could be provided through the appointment of a new Member.

Other matters relevant to the Bill

Assessing and analysing climate risk

The value and impact of the Annual Climate Change Statement could be further strengthened through inclusion of an annual assessment of climate risks. This could usefully include assessment and analysis of the risks of climate change impacts to:

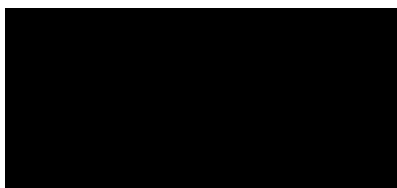
- i) the health and wellbeing of vulnerable regions and communities;
- ii) essential energy, transport and communication infrastructure;
- iii) key industry sectors and employment outcomes; and
- iv) Australia's security interests, building on outcomes from the review of climate security risks currently being undertaken by the Office of National Intelligence and the recent report on Australian Climate and Security Risk Assessment⁶ by the Australian Security Leaders Climate Group.

The climate risk assessment process could also usefully include assessment and analysis of transition risks (ie social, economic and environmental impacts arising from the transition to a low carbon economy). Key drivers of transition risk include changes in public sector policies; innovation and changes in the affordability of existing technologies; and changes in investor and consumer sentiment towards the acceleration of greenhouse gas emission reductions.

Maximising social and economic co-benefits and opportunities

In addition to identifying climate risks, the Annual Australian Climate Change Statement could also usefully include an assessment of opportunities for maximising the social and economic co-benefits and opportunities from a well-managed and equitable transition to a zero-carbon economy. This assessment could include identification of priority actions for:

- i) maximising the health co-benefits of emissions reduction and climate adaptation policies (informed by the outcomes of the climate and health strategy currently being developed by the Commonwealth Government)
- ii) maximising economic and employment opportunities arising from the Commonwealth government's commitment to accelerate the transition to a low carbon economy
- iii) strengthening the social, economic and environmental resilience and sustainability of regions and communities, including action to address issues identified in the 2021 State of the Environment Report



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References

- ¹ Summary, *Reducing Australia's Greenhouse Gas Emissions - Targets and Progress Review Final Report*, Feb 2014, Climate Change Authority, Commonwealth of Australia, pp 7-14.
<https://www.climatechangeauthority.gov.au/sites/default/files/2020-06/Target-Progress-Review/Targets%20and%20Progress%20Review%20Final%20Report.pdf>
- ² Hewson, J., W. Steffen, L. Hughes and M. Meinshausen, *Australia's Paris Agreement Pathways: Updating the Climate Change Authority's 2014 Emission Reduction Targets*, Jan 2014, Climate Targets Panel, Climate and Energy College, University of Melbourne.
<https://www.climatecollege.unimelb.edu.au/files/site1/docs/%5Bmi7%3Ami7uid%5D/ClimateTargetsPanelReport.pdf>
- ³ Quarterly Updates of of Australia's National Greenhouse Gas Inventory,
<https://www.industry.gov.au/data-and-publications/national-greenhouse-gas-inventory-quarterly-updates>
- ⁴ *State of the Climate 2020*, Bureau of Meteorology and CSIRO, 24 pp.
<http://www.bom.gov.au/state-of-the-climate/documents/State-of-the-Climate-2020.pdf>
- ⁵ Climate Change Authority Bill 2011
https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd1112a/12bd067
- ⁶ Australian Climate and Security Risk Assessment, Australian Security Leaders Climate Group, June 2022, 22 pp.
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