Submitted by website.
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# Australian Academy of Science submission to the Climate Change Authority consultation on *Setting, tracking and achieving Australia's emissions reduction targets*

It is beyond dispute that climate change is one of the greatest threats to Australia's social, economic, and ecological well-being.

While we have a real need for action, Australians cannot do what needs to be done on our own; we share one planet and atmosphere. Along with every other citizen of every other country, Australians need action to be taken – locally and globally.

It is imperative, therefore, that Australia work with all members of the global community to achieve more ambitious targets for greenhouse gas emissions reduction than those that have been announced so far.

As a rich, developed country, Australia should play a leadership role in mitigation and adaptation to climate change. We should lead by example; our actions should be clear and our ambitions achieved. We should pursue a 'do as we do' style of leadership, not a 'do as we say.'

Five major actions relating to emission reduction should be undertaken:

- **Emission Reduction:** Australia must intensify efforts to reduce greenhouse gas emissions. To be most effective, we must embrace our responsibility for the emissions coming from all sources (including Scope 3).
- **Measuring Scope 3 emissions**: A critical omission in fully accounting for emissions; Australia could lead the development of suitable and globally acceptable accounting methods.
- **Commitment to greenhouse gas removal:** Australia should commit to building capacity to draw down greenhouse gases at scale, particularly carbon dioxide.
- **Adaptation and Resilience Building:** Australia should develop adaptation and resilience-building measures - investing in research, infrastructure, and strategies that enhance the ability of communities and ecosystems to adapt to the effects of climate change.
- **International Collaboration and Investment:** Australia must partner with other nations to limit the extent of climate change, including providing resources to support developing nations in their climate action mitigation and adaptation challenges.

By taking these actions, Australia can contribute to a comprehensive and better global response to climate change, managing our own future and that of the planet.

## Recommendations for a reduction target

Australia is a signatory to the Paris Agreement: a global temperature target "well below 2°C above pre-industrial levels". The preferred target is 1.5°C to 'avoid dangerous anthropogenic interference with the global climate system'.

Emission reductions are a means to this goal, but current international commitments leave the planet well short of the Paris targets.

The Climate Change Authority issues paper discusses the current Nationally Determined Contributions (NDCs) under the Paris Agreement and notes Australia's current targets:

- A pledge to reduce greenhouse gas emissions to 43 per cent below 2005 levels by 2030, implemented as a single-year point target.
- A multi-year emissions budget for the period 2021 to 2030, with an indicative value of 4381 million tonnes CO2-e, corresponding to the 43 per cent target.
- Net zero by 2050.

**The Academy supports a more ambitious target for Australian emissions reduction, in keeping with Article 4.4 of the Paris Agreement.**[1]

In 2021, the Climate Targets Panel[2] updated the earlier Climate Change Authority (2014) Emission Reduction Targets. The Panel found:

- To be consistent with the Paris Agreement goal of limiting global warming to 1.5°C, Australia's 2030 emissions reduction target must be 74% below 2005 levels, with net-zero emissions reached by 2035.

**The Academy supports building to this more ambitious target – noting the effort and behavioural changes that must be made to get even close.**

## Measuring Scope 3 emissions[3]

Generally, national commitments do not count Scope 3 emissions: indirect emissions beyond the immediate control of suppliers or customers. Scope 3 emissions can be affected by decisions made outside a company or country.

But the export of coal and fossil gas from Australia, for example, is the responsibility of the Australian federal and state governments. The inferred greenhouse gas emissions associated with fossil fuel exports are more than double Australia's domestic emissions. Australia's direct contribution to global warming, combining domestic emissions and the export and sale of fossil fuels, is treble the domestic emissions alone.

This is also true of corporate entities and organisations: Scope 3 emissions are often much larger than an entity's Scope 1 and 2 emissions.

Failing to account for such emissions leaves a large gap in greenhouse gas reduction policy.

Establishing appropriate accounting practices for all emissions will permit a more detailed understanding of emission patterns, facilitate targeted emission reduction policies in areas of maximum impact, and inform choices leading to lower emissions pathways.

There are multiple sites in a supply chain where Scope 3 emissions are released; if measuring these sites were straightforward, it would have been done. This complexity is not insurmountable – indeed, it must be surmounted. A comprehensive and nuanced approach is required.

**Australia should play a leading role in developing an internationally accepted accounting scheme that attributes Scope 1,2, and 3 emissions to sources.**

**The Academy is committed to constructive contributions to this challenging issue.**

## Removing greenhouse gases

Australia has no policy to remove greenhouse gases from the atmosphere.

In its April 2022 Report, the IPCC identifies that meeting the modelled 1.5°C pathways requires a net negative carbon dioxide emissions volume of 20-660 gigatons by 2100.[4]

Building capacity to remove carbon dioxide from the atmosphere – at scale along with the capacity to store it safely for centuries – is critical. The impact of carbon dioxide on climate lags by approximately 40 years. Additional global warming is already 'baked-in' because of the current greenhouse gas concentrations – particularly carbon dioxide but also shorter-lived but more potent greenhouse gases.

**Australia should announce a GHG removal target encompassing nature-based and technological solutions. This should be in addition to ambitious emission reduction targets.**

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[1] Article 4.4 of the Paris Agreement refers specifically to developed countries like Australia: *"Developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets."* See: United Nations (2015), Paris Agreement.

[2] Climate Targets Panel (2021). *Australia's Paris Agreement pathways: Updating the Climate Change Authority's 2014 emissions reductions targets*.

[3] "Scope 1, 2 and 3 emissions" are terms for emissions responsibility as defined by the GHG Protocol, a private sector initiative. See: World Business Council on Sustainable Development and World Resources Institute (2004), *The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard*; and World Business Council on Sustainable Development and World Resources Institute (2011), *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*.

[4] IPCC (2022), Climate Change 2022: Mitigation of Climate Change. Working group III contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Summary for Policymakers.

## Adaptation and resilience building

The full impact of climate change on Australians will clearly depend on what local and global actions are taken. Impacts will depend on when the world gets to (at least) net zero, what the atmospheric greenhouse gas levels will be at that time, the extent to which the 'baked-in' carbon dioxide can be reduced, and by when.

Nevertheless, we should plan how to adapt or adjust lifestyles to climate change because it will be significant and not immediate. It will change the way Australians go about their lives: what they do, what they eat, how they live and where. All Australians will be affected, but there will be parts of the community more affected than others.

The necessary changes will likely be extensive, but none should be implemented 'overnight'. These changes must be developed in consultation with communities, starting immediately. Local and national dialogue about dealing with a reality – and removed from political opportunism – must be the order of the day.

**There should be early, comprehensive and coordinated consideration of the impact of policies on communities, including indigenous communities, disadvantaged communities, rural communities, and children/young people.**

## Further research

The best way to prepare for change is to work to know what we need to know, and explain it carefully. When we do, we can adapt better than we would in a fog of ignorance, influenced by scare campaigns or speculations based on part-knowns.

There is a lot more to learn.

**Climate change research must be an important priority for Australia, as should mechanisms for accelerating the translation of climate change research to policy outcomes.**

Focussed and appropriate levels and duration of support should include (but not be limited to):

- Understanding different carbon sinks, including the impacts of land clearing and restoration, the response of carbon sinks to climate and atmospheric changes, and especially the expected behaviour of natural carbon sinks in the near, medium and longer term.
- Improving modelling of climate change impacts, especially at regional and local levels, including climate-driven weather events and extreme weather events.
- Increasing our understanding of climate "tipping points", including developing markers to assess the probability and immediacy of tipping points.
- Modelling of the Antarctic ice sheet and the impacts of climate change on the ice sheet, including its accelerated melting and the impacts on sea level rise.
- Researching new technologies in hard-to-abate sectors, such as carbon-neutral jet fuels, fertilisers, and steel production.
- Developing long-range energy transmission and long-term battery storage systems to realise the benefits of decentralised energy production.
- Building holistic assessments of climate risk, moving beyond direct impacts to understand how initial impacts can cascade and amplify across society, economy, and politics.
- Developing cost-effective and socially acceptable technologies that remove $CO_2$ from the atmosphere at scale and technologies for storage on the timescales of hundreds of years.
- Sustainably mining is critical to support a zero-carbon planet through responsible practices and innovation.
- Building sustainable offshore solar and wind farms to harness renewable technologies and advance clean energy generation.
- Innovations in sustainable (zero carbon) shipping practices with international implementation.

## International partnerships.

Australia cannot do it alone. But we do have the capacity to develop knowledge, processes, science and technology that can contribute to global mitigation or adaptation. That we need to for our own benefit is unarguable. But we do share the planet, and we will all benefit from concerted, cooperative and open partnerships.

Australia has a lot of strengths; all we have to do is develop them and use them wisely. We are not a superpower but we can be a voice for good. We can be a strong partner amongst middle-power voices and be a contributor to the support of developing nations.

**Australia should be building partnerships of all types at multiple levels – scientific, technological, commercial, local, national and international (particularly our neighbourhood) – to make every possible attempt to manage effectively the impact of climate change here and overseas.**

To discuss or clarify any aspect of this submission, please contact Mr Chris Anderson, Director Science Policy at Chris.Anderson@science.org.au.