2025 consultation

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NSW Net Zero Commission

Submission in response to 2025 Consultation

July 2025

About The Superpower Institute

The Superpower Institute's (TSI's) mission is to help Australia seize the extraordinary economic opportunities of the post carbon world.

A net zero Australian economy will reduce global emissions by just over 1 per cent. But if Australia successfully seizes the economic advantage in exporting zero emissions goods, this can create an opportunity for full employment with rising incomes for a growing population sustained over more than a generation, and reduce global emissions by up to 10 per cent.

Renowned economist Ross Garnaut and economic public policy expert Rod Sims have joined forces through The Superpower Institute, to focus on practical research and policy to unlock this opportunity. The Institute specialises in the policy settings and market incentives needed to make Australia an economic superpower and provides practical knowledge to governments and industry to realise this opportunity.

TSI works across the building blocks of the superpower economy including: renewable energy, green hydrogen, land carbon and minerals processing; the potential zero carbon export products including green iron and green aluminium; and the enablers of this economy including economic and fiscal policy, trade policy and regional development.

Please contact TSI's CEO Baethan Mullen and Chief Scientist Professor Peter Rayner via info@superpowerinstitute.com.au for any further information.

https://www.superpowerinstitute.com.au/.

Submission

TSI welcomes the opportunity to contribute to the New South Wales Net Zero Commission's 2025 Consultation. Our submission includes two parts in response to different aspects of the Consultation:

1. Uncertainty risks in methane emissions monitoring
2. Australia's decarbonisation opportunities

Uncertainty risks in methane emissions monitoring

This part of our submission is in response to the following questions posed in the Consultation Paper:

- Question 5: What additional information and evidence should the commission consider when assessing progress towards NSW's targets for reducing net greenhouse gas emissions?
- Question 16: How could transparency of how coal mines meet their Safeguard Mechanism obligations be improved?
- Question 18: What measures should be considered beyond the Safeguard Mechanism to reduce emissions of the resources sector, particularly methane emissions, to meet NSW's emissions reduction targets?
- Question 22: What should be included in a monitoring framework for NSW in the context of the transition to net zero, including any specific metrics and indicators?

The ultimate purpose of emissions reductions targets such as NSW's net zero target is to ensure that greenhouse gas emissions are reduced in line with an emissions budget that presents the most likely chance of limiting anthropogenic global warming to a certain level, such as the 1.5 degree goal of the Paris Agreement.

However, it isn't sufficient simply to reach net zero by a certain date. The volume of greenhouse gas emitted during that time will directly influence the temperature increase that is observed, as shown in Figure 1.

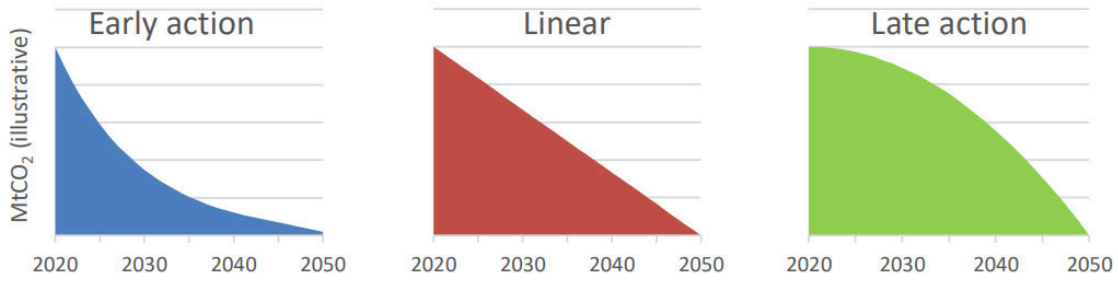

Figure 1: Illustrative decarbonisation trajectories to 2050. Each of these pathways reaches net zero by 2050, but in the Late Action pathway the total cumulative emissions are double the emissions of the Early Action pathway, which leads to double the warming impact.

McGu re et a ., "The ro e of carbon budgets n trans at ng the Par s Agreement nto nat ona c mate po cy," MaRE , October 2020, https://www.mare .e/wp-content/up oads/2020/10/D scuss on-Paper_The-ro e-of-carbon-budgets-n-trans at ng-the-Par s-Agreement- nto-nat ona -c mate-po cy.pdf.

Due to methane's higher global warming potential, particularly in the near term, rapidly reducing methane emissions represents an opportunity to immediately improve temperature outcomes, allowing time for the development of decarbonisation pathways for sectors that are more difficult to abate.

A recent analysis by Climate Resource[2] of least cost emissions reduction scenarios consistent with 1.5 to 2 degree outcomes found that at both global and national levels, methane emissions from energy (as opposed to agriculture, forestry, and other land uses) need to decline rapidly by 2030. For example, in Australia methane emissions from energy are reduced by between 73% and 79% by 2030 relative to 2020, depending on whether the scenarios allow for peak warming of 1.6 degrees or 1.8 degrees (see Figure 2). This implies reducing fossil fuel methane emissions is some of the least cost mitigation in Australia and globally. If the reductions in fugitive methane emissions from fossil fuels are not achieved, the cost of limiting warming will be higher.

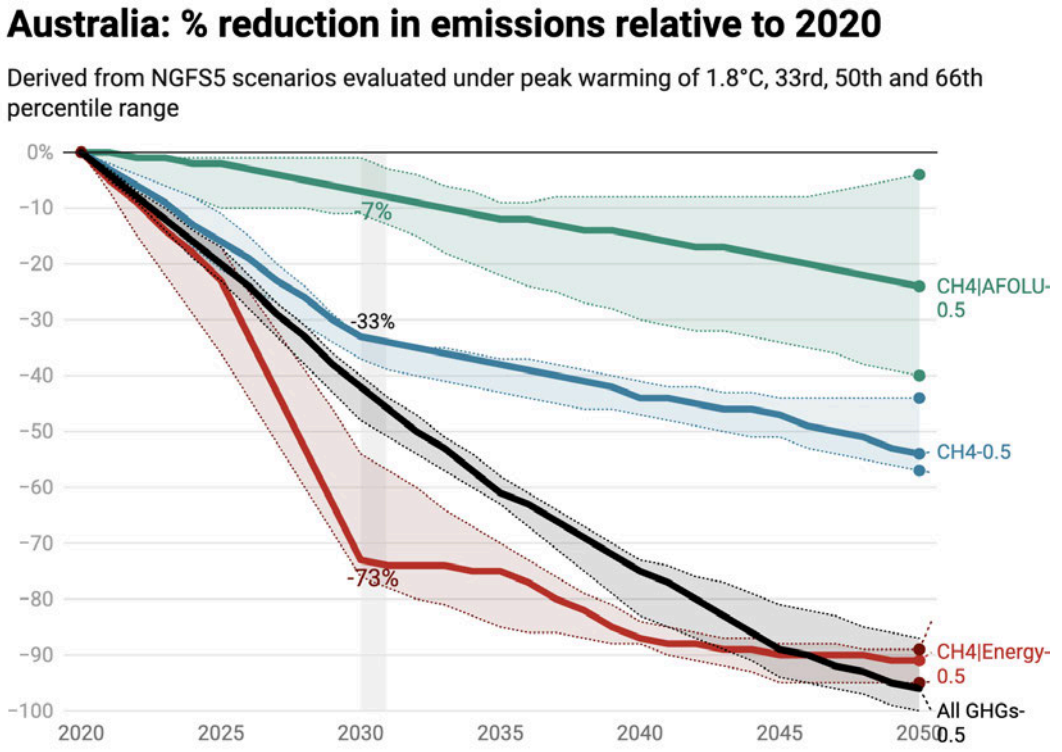

Figure 2: Australian methane emissions from energy and land use, under scenarios with a peak warming of 1.8 degrees.[3]

[2] C mate Resources spec a ses n ass st ng governments and bus ness to tack e phys ca c mate r sks, trans t on cha enges and opportun t es on our ourney to a zero-em ss ons future - https://www.c mate-resource.com/.

[3] Burdon, Lew s, and Sp er, 'Austra an Methane Targets Cons stent w th the Par s Agreement Temperature Goa - ns ghts from ntegrated Assessment Mode s' (June 2025), https://dr ve.goog e.com/f e/d/1 c0N_O SwhJdw0haGD_k2 Xn 0gwN8x_/v ew.

Conversely, increasing methane emissions in the near term (including through the expansion of fossil fuel extraction and consumption) risks making it more difficult to reach net zero, and also increases the likelihood that even if we meet net zero, we will exceed temperature perturbation targets. We note the findings and recommendations of the Environmental Defenders Office's analysis of the additional measures NSW could take to address fugitive methane emissions, in addition to measures in place under the Safeguard Mechanism.[4] We also note the findings of the NSW Productivity and Equality Commission that Australian governments must make decisions as soon as possible about the future of coal mining.[5]

There is evidence of significant uncertainty in methane measurements and monitoring, which further increases these risks. Preliminary results from Open Methane[6] show evidence that methane emissions from Australia's twenty highest emitting fossil fuel sites may be emitting up to twice as much methane as is being self reported through mechanisms such as the National Greenhouse and Energy Reporting Scheme.[7] This is supported by other recent studies.[8] The reporting errors are most likely to be systematic, meaning emissions from future projects (especially coal mines) are also underestimated. Increased emissions from future projects may leave NSW no feasible pathway to net zero by 2050.

Australia is a signatory to several relevant international agreements, including the Paris Agreement and the Global Methane Pledge. Our ability to meet our national obligations under these pledges is at risk if policy decisions to manage methane emissions are made based on underreported emissions. We are now at the midpoint

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[4] Env ronmenta Defenders Off ce, *Improving Regulation of Coal Mine Methane in NSW* (May 2025), https://www.edo.org.au/wp-content/up oads/2025/06/250531-EDO-Report- mprov ng-coa -m ne-methane-regu at on- n-NSW-1.pdf.

[5] NSW Product v ty and Equa ty Comm ss on, *Ensuring a Cost-Effective Transition*, Ach ev ng Net Zero Paper 1 (November 2024), https://www.product v ty.nsw.gov.au/s tes/defau t/f es/2024-11/NSW-Product v ty-and-Equa ty-Comm ss on-Ach ev ng-net-zero-paper-1-Ensur ng-a-cost-effect ve-trans t on.pdf.

[6] Open Methane s a free, open source p atform that ut ses sate te observat ons and env ronmenta mode ng to detect, measure and ocate methane em ss ons n Austra a.

[7] Rayner and Grant, Groundbreak ng Sate te Mon tor ng Too Shows S gn f cant Underest mat on of Methane Em ss ons from oss ue S tes (9 October 2024), https://openmethane.org/ana ys s/top-methane-em tt ng-hotspots.

[8] See, for examp e, Karacan et a ., 'M t gat ng C mate Change by Abat ng Coa M ne Methane: A Cr t ca Rev ew of Status and Opportun t es', nternat ona Journa of Coa Geo ogy 295 (December 2024): 104623, https://do .org/10.1016/ .coa .2024.104623 and Borchardt et a ., ' ns ghts nto E evated Methane Em ss ons from an Austra an Open-Cut Coa M ne Us ng Two ndependent A rborne Techn ques'. *Environmental Science & Technology Letters* 12, no. 4 (8 Apr 2025): 397–404, https://do .org/10.1021/acs.est ett.4c01063.

of the term of the Global Methane Pledge, so ensuring that we have an accurate understanding of our methane emissions is critical to meeting the goals of the pledge.

Recommendations:

We have two recommendations in response to the above questions. That:

1. The Commission supports the efforts of other NSW government departments and statutory bodies to improve emissions monitoring, with a focus on high emission sites such as fossil fuel extraction facilities.
2. When formulating policy, the Commission considers the policy risk associated with uncertainty in emissions measurement, particularly the risk that methane emissions are being underestimated in future fossil fuel project approvals.

As referenced above, we also note:

1. The findings and recommendations of the Environmental Defenders Office's analysis of the additional measures NSW could take to address fugitive methane emissions, in addition to measures in place under the Safeguard Mechanism.
2. The findings of the NSW Productivity and Equality Commission that Australian governments must make decisions as soon as possible about the future of coal mining.

Australia's decarbonisation opportunities

This part of our submission is in response to Question 13: What policies or programs at a sectoral level could complement the Safeguard Mechanism to support the accelerated decarbonisation of heavy industry in NSW?

This part of our submission also addresses the Commission's future work in contributing to whole of economy emissions reduction policies and plans, as described on page 19 of the Consultation Paper.

In the global effort to pursue net zero and to limit global warming, Australia can play a significant role in contributing to emissions reductions, and seize extraordinary economic opportunities by doing so.

In addition to reducing Australia's domestic emissions, work by TSI has demonstrated that Australia can play a major role by leveraging its comparative advantage in renewable energy capacity and endowment of natural resources and minerals.[9] By supplying green metals, fertilisers and fuels to the world, Australia can contribute to a reduction of up to 10% of global emissions, far in excess of the 1.3% of emissions that are attributed to Australia. TSI's analysis found that seizing this opportunity would generate $693 billion per annum on today's level of production by 2060, or $987 billion based on forecast 2060 levels of production.

The most immediate superpower opportunity, and the one with the highest economic potential for Australia, is the development of a green iron industry using our existing iron ore resources combined with enormous potential renewable energy capacity.[10]

These analyses demonstrate the outsized potential of Australia (and its states and territories) to improve future economic prosperity while also supporting global decarbonisation. While many of the policy recommendations in these reports are more applicable for the Federal government, State based policies have a key role in facilitating investment in new industries and developing export markets for superpower commodities.

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[9] The Superpower nst tute, *The New Energy Trade* (November 2024), https://www.superpower nst tute.com.au/work/the-new-energy-trade.

[0] The Superpower nst tute, *A Green Iron Plan for Australia: Securing Prosperity in a Decarbonising World* (May 2025), https://www.superpower nst tute.com.au/work/green- ron-p an.