

Pathways Call for Evidence Submission

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Fergus Green submission to NSW Net Zero Commission Call for Evidence to inform the development of the first NSW-specific set of decarbonisation pathways

6 August 2026

I am an Associate Professor in the Department of Political Science and School of Public Policy, University College London and an Honorary Senior Fellow at the Melbourne Law School, University of Melbourne. My expertise includes climate change law and policy, with a particular focus on the fossil fuel production sector. I have published on this subject in leading academic journals including *Science*, *Nature Climate Change*, and *Climatic Change*, and I am a three-time chapter coauthor of the UNEP Fossil Fuel *Production Gap Report* (2019–21). Recent work has also considered the role of so-called ‘offsets’ in Australia’s Safeguard Mechanism.¹

I wish to make a brief submission addressing two issues—fossil fuel production sector decarbonisation (especially coal mining) and land-based carbon removals—which relate most closely to my expertise. The submission relates most closely to Questions 1(c) (“What are the drivers and risks to reaching NSW’s interim targets in 2030 and 2035, and net zero by 2050?”) and the sector specific areas of focus for Resources, Land and agriculture, and Carbon Management.

Coal sector decarbonisation

As the Commission has repeatedly pointed out, including in its 2026 *Annual Progress Report*, “Continued approval of coal mining extensions and expansions is a barrier to resources sector decarbonisation and achievement of legislated targets”.² I agree.

I note that “[t]he Commission wrote to the Secretary of DPHI in May 2026 to ask how the NSW Government’s new position will inform assessment of coal mining extension and expansion applications and offer its support to develop guidance that would improve the consideration of emissions in these assessments.”³

There are various ways in which the assessment of the climate impacts of GHG emissions from coal mines could be improved. A key improvement would be to include, as I argue in a current working paper, consideration of relevant scopes of project emissions in light of (i) remaining global, national and state carbon budgets and emissions reduction trajectories; and (ii) cumulative committed emissions from existing and approved (or under-development) fossil fuel projects globally.⁴ Such an approach

¹ Fergus Green and Frances Medlock, ‘Safeguarding the Fossil Fuel Industry? How Carbon Offsetting Undermines the Safeguard Mechanism’, The Australia Institute (June 2026) <https://australiainstitute.org.au/report/safeguarding-the-fossil-fuel-industry/>.

² Net Zero Commission, 2026 *Annual Progress Report* (July 2026) 81.

³ Ibid 81 (reference and footnote omitted).

⁴ Fergus Green, ‘The Overflowing Bucket: the significance of fossil fuel emissions under environmental impact assessment law’, Working Paper, version 1.3 (7 July 2025) <https://www.ucl.ac.uk/social-historical->

would be consistent with the approach taken by the UK Government in its June 2025 Supplementary Guidance for assessing the effects of downstream scope 3 emissions on climate from offshore oil and gas projects (the underlying approach being applicable to emissions of any scope).⁵

With regard to (ii), I note that the Intergovernmental Panel on Climate Change (IPCC) in its Sixth Assessment Report (AR6) observed based on previous studies of committed emissions of fossil fuel-consuming infrastructure, that GHG emissions from existing fossil fuel infrastructure will already exceed the remaining carbon budget for limiting warming to 1.5°C with a 50% chance.⁶ Research since AR6 confirms that conclusion for fossil fuel-extraction projects, accounting for embodied emissions from such projects.⁷ The IPCC concludes that “the Paris climate goals could move out of reach unless there are dedicated efforts for early decommissioning, and reduced utilisation of existing fossil fuel infrastructures, cancellation of plans for new fossil fuel infrastructures, or compensation efforts by removing some of the CO₂ emissions from the atmosphere”.⁸

While the mandatory incorporation of such considerations into planning assessment would be an improvement, it would not necessarily preclude the approval of coal mine extensions/expansions, since the consent authority would always retain the discretion to assess the climate impacts as being outweighed by economic and social benefits, and therefore to approve proposed projects. Accordingly, my own view is that, since coal mine extensions and expansions are not consistent with the achievement of the state’s legislated targets, a simpler and more effective approach would be to simply ban coal mine extensions/expansions in NSW, which could be done straightforwardly (in a legal sense) via legislation.

As the Commission has also observed, strengthened policies are also required to reduce emissions from existing coal mines. The Commission has given extensive consideration to options for doing so. I would merely add that, in light of the IPCC conclusions quoted above, the Commission should also recommend that existing coal operations be decommissioned early and/or subject to reduced utilisation in order to meet climate goals.

[sciences/political-science/research/climate-politics/overflowing-bucket-fossil-fuel-emissions-and-environmental-impact-assessment-law.](#)

⁵ Department for Energy Security and Net Zero [UK], *Environmental Impact Assessment (EIA) – Assessing effects of downstream scope 3 emissions on climate: Supplementary guidance for assessing the effects of downstream scope 3 emissions on climate from offshore oil and gas projects* (June 2025)

⁶ Intergovernmental Panel on Climate Change [IPCC]. *Sixth assessment report: Working Group III: Mitigation of climate change* (2022) Ch 2, pp 219, 265–267.

⁷ Kelly Trout et al, ‘Existing fossil fuel extraction would warm the world beyond 1.5°C’ (2022) 17 *Environmental Research Letters* 064010.

⁸ IPCC, above n 6, 267 (references omitted).

Carbon management and land-based removals/‘offsets’

I am concerned about the extent to which the NSW Government’s approach to achieving the state’s net zero target implicitly or explicitly relies on so-called carbon offsets from land-based removal projects, or land-based removals more generally. I recommend that the decarbonisation pathways developed by the Commission follow international best practice by creating separate pathways for decarbonisation and carbon removals.

I have set out the fundamental problems with avoidance offsets and vegetation-based removal offsets, and the adverse impact they are having on incentives to decarbonise that could otherwise be provided by the Safeguard Mechanism, in a recent paper with Frances Medlock.⁹ I do not propose to rehearse these arguments here, but will summarise the key points (the remainder of this section draws heavily on that report).

In summary, when fossil fuels are extracted and burned, a large fraction of the CO₂ generated lasts in the atmosphere for thousands of years.¹⁰ For a carbon credit to be of high integrity—and certainly for it to be used as a carbon offset for actual emissions—it must remove and store carbon for the same amount of time.¹¹ Vegetation-based removals are incapable of achieving that outcome (as are ‘avoidance’ credits, though I will focus on land-based removals and associated credits here).

Carbon stored in trees or soils—often referred to as ‘land-based carbon sinks’—is incapable of undoing the harm caused by extracting and combusting coal and other fossil fuels because, at best, it remains stored for around 100 years (and often less) before it is released back into the atmosphere.¹² Consequently, “offsetting the effectively permanent consequences of CO₂ with temporary carbon storage necessarily leads to higher temperatures at the end of the temporary carbon storage period”.¹³

This fundamental mismatch between purported offsets and industrial emissions was acknowledged by EnergyAustralia in a public statement it made as part of a settlement agreement with Parents for Climate, an advocacy group that sued EnergyAustralia for

⁹ Green and Medlock, above n 1.

¹⁰ David Archer et al, ‘Atmospheric lifetime of fossil fuel carbon dioxide’ (2009) 37 *Annual Review of Earth and Planetary Sciences* 117.

¹¹ Danny Cullenward, Grayson Badgley and Freya Chay, ‘Carbon offsets are incompatible with the Paris Agreement’ (2023) 6(9) *One Earth* 1085; Myles R Allen et al, ‘Geological Net Zero and the need for disaggregated accounting for carbon sinks’ (2025) 638(8050) *Nature* 343.

¹² Brendan Mackey et al, ‘Untangling the confusion around land carbon science and climate change mitigation policy’ (2013) 3(6) *Nature Climate Change* 552; Kate Dooley, ‘Net-Zero Climate Goals and the Role of Land-Use’, in D. J. Fiorino, T. A. Eisenstadt and M. Kaur Ahluwalia (Eds), *Elgar Encyclopedia of Climate Policy* (Edward Elgar Publishing, 2024) 302–305; Barbara K Haya et al, ‘Comprehensive review of carbon quantification by improved forest management offset protocols’ (2023) 6 *Frontiers in Forests and Global Change* 958879; Cullenward, Badgley and Chay, above n 11.

¹³ Cullenward, Badgley and Chay, above n 11, 1086, citing Miko U F Kirschbaum, ‘Temporary carbon sequestration cannot prevent climate change’ (2006) 11(5–6) *Mitigation and Adaptation Strategies for Global Change* 1151.

alleged misleading and deceptive conduct in claiming that its Go Neutral gas and electricity products were carbon neutral in virtue of relying on offsets:¹⁴

... offsets do not prevent or undo the harms caused by burning fossil fuels for a customer's energy use. Even with carbon offsetting, the emissions released from burning fossil fuels for a customer's energy use still contribute to climate change. ...

Some carbon offsets claim to remove carbon dioxide from the atmosphere by planting trees or forest regeneration. However, EnergyAustralia today accepts the scientific consensus that these "offsets" do not indefinitely remove greenhouse gas emissions from burning fossil fuels, because carbon is stored in plants for a substantially shorter time than those emissions remain in the atmosphere. Storing carbon in plants is not equivalent to keeping it stored in fossil fuels (by not burning those fossil fuels in the first place).

Given the above-mentioned fundamental problems with land-based removals when used to 'offset' actual emissions or when held out as 'net emissions' reductions (e.g., in government carbon accounting inventories), I recommend that the decarbonisation pathways developed by the Commission follow international best practice by creating separate pathways for decarbonisation and carbon removals.¹⁵

I would be happy to discuss these matters further with you (please note I will be on annual leave from 7–28 August).

¹⁴ EnergyAustralia settlement statement, available from <https://equitygenerationlawyers.com/case/ap4ca-v-energyaustralia/>.

¹⁵ Andrew Macintosh et al, 'Carbon credits are failing to help with climate change — here's why' (2025) 646 *Nature* 543; Duncan P McLaren et al, 'Beyond "Net-Zero": A Case for Separate Targets for Emissions Reduction and Negative Emissions' (2019) 1 *Frontiers in Climate* 4; Win Carton, Jens Friis Lund and Kate Dooley, 'Undoing Equivalence: Rethinking Carbon Accounting for Just Carbon Removal' (2021) 3 *Frontiers in Climate* 664130.