



HIGH COURT OF AUSTRALIA

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Details of Filing

File Number: S174/2025
File Title: MACH Energy Australia Pty Ltd v. Denman Aberdeen Musw
Registry: Sydney
Document filed: Form 27C - Proposed Intervener's submissions (Union of Conc
Filing party: Intervener
Date filed: 19 Mar 2026

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IN THE HIGH COURT OF AUSTRALIA
 SYDNEY REGISTRY

BETWEEN:

MACH ENERGY AUSTRALIA PTY LTD
ABN 34608495441
 Appellant

DENMAN ABERDEEN MUSWELLBROOK SCONE
HEALTHY ENVIRONMENT GROUP INC
 First Respondent

and

INDEPENDENT PLANNING COMMISSION OF NSW
 Second Respondent

PROPOSED SUBMISSIONS OF THE UNION OF CONCERNED SCIENTISTS

PART I: Certification

- 20 1. These submissions are suitable for publication on the internet.

PART II: Basis for leave to be heard as *amicus curiae*

2. The Union of Concerned Scientists (UCS) seeks leave to be heard as *amicus curiae* solely in relation to Ground 3. The proposed submissions identify a basis upon which the Court may consider it appropriate to revoke special leave in relation to that Ground. The proposed submissions are filed in support of the First Respondent to that extent.
3. The Appellant's submissions on Ground 3 rely on factual evidence outside the scope of a strict appeal: **AS [63]-[64]**. The First Respondent intimates that the Ground could have been met by further or different evidence in the courts below: **RS [45] fn 38**. The First Respondent is correct at least for the reasons advanced in these proposed submissions.

PART III: Why leave should be granted

4. The UCS is a non-profit science advocacy organisation founded in 1969 by scientists and students at the Massachusetts Institute of Technology and headquartered in Cambridge, Massachusetts. Its mission is to use rigorous, independent science to solve pressing environmental and public health problems, including climate change.¹ The organisation’s founding document states that it was formed to “initiate a critical and continuing examination of governmental policy in areas where science and technology are of actual or potential significance”.² In 2026, the UCS comprises nearly 250 scientists, analysts, policy experts, organisers and communicators dedicated to its purpose.
- 10 5. Dr Delta Merner is the Associate Director and Lead Scientist of the Science Hub for Climate Litigation within the Climate and Energy Program at UCS. Dr Merner is an interdisciplinary research scientist with over 15 years of experience at the intersection of climate science, environmental systems and law. In her present role, Dr Merner leads scientific analysis to inform litigation relating to climate change, review legal filings for scientific accuracy, identify critical gaps in climate science relevant to legal proceedings, and coordinate research to address those gaps.
6. Dr Merner has a PhD in Geography and Environmental Systems from the University of Maryland, Baltimore County. Her thesis examined the critical physical geography of flood risk in southern West Virginia, integrating social science, hydrological modelling, meteorology and policy analysis.
- 20 7. Dr Merner has particular expertise in climate attribution science, which is the field that identifies and quantifies the contribution of human-induced climate change to global trends and extreme events. Dr Merner has authored or co-authored multiple peer-reviewed publications on climate attribution, and regularly presents at scientific conferences such as the American Geophysical Union and the American Association of Geographers. Dr Merner has advised extensively on the use of attribution science (and other aspects of

¹ See <https://www.ucsf.org/about>.

² See <https://www.ucsf.org/about/history/founding-document-1968-mit-faculty-statement>.

climate science) in courts. In particular, Dr Merner has contributed to litigation in the International Court of Justice, the Inter-American Court of Human Rights, and courts in the United States, Europe and Latin America.

8. As explained in detail below, climate attribution science is potentially relevant to Ground 3, but was not explored either before the Independent Planning Commission (**IPC**) or the courts below. The Court may consider that that means that the Appellant should not be permitted to raise Ground 3 or that this case is otherwise an inappropriate vehicle to decide the argument raised by Ground 3. To that extent, the UCS seeks leave to be heard as *amicus curiae* on the basis that it “will make submissions which the Court should have to assist it to reach a correct determination”: *Roadshow Films Pty Ltd v iiNet Ltd* (2011) 248 CLR 37 at [6] (the Court). The proposed argument outlined below is both useful for the Court’s consideration and different from the arguments of the parties. Any costs or delay from hearing the UCS will not be disproportionate to the expected assistance: *Roadshow Films* at [4]. UCS would seek to supplement these written submissions by only very brief oral argument.

9. Finally, as Dr Merner’s experience indicates and the submissions of both parties confirm (see **AS [63]-[64]**, **RS [48]-[49]**), whether or not it is possible to draw a link between particular emissions and particular impacts is an issue that has been considered by overseas domestic courts and by supra-national and international courts. Any decision by this Court on the point is likely to be of international significance and given weight and scrutiny in future cases where the issue arises. These submissions are intended to assist the Court to recognise that the issue is one that it may consider inappropriate to decide in this case, given the way in which the proceedings were conducted below and the limited materials on which the Court is permitted to proceed in the strict appeal.

PART IV: Argument

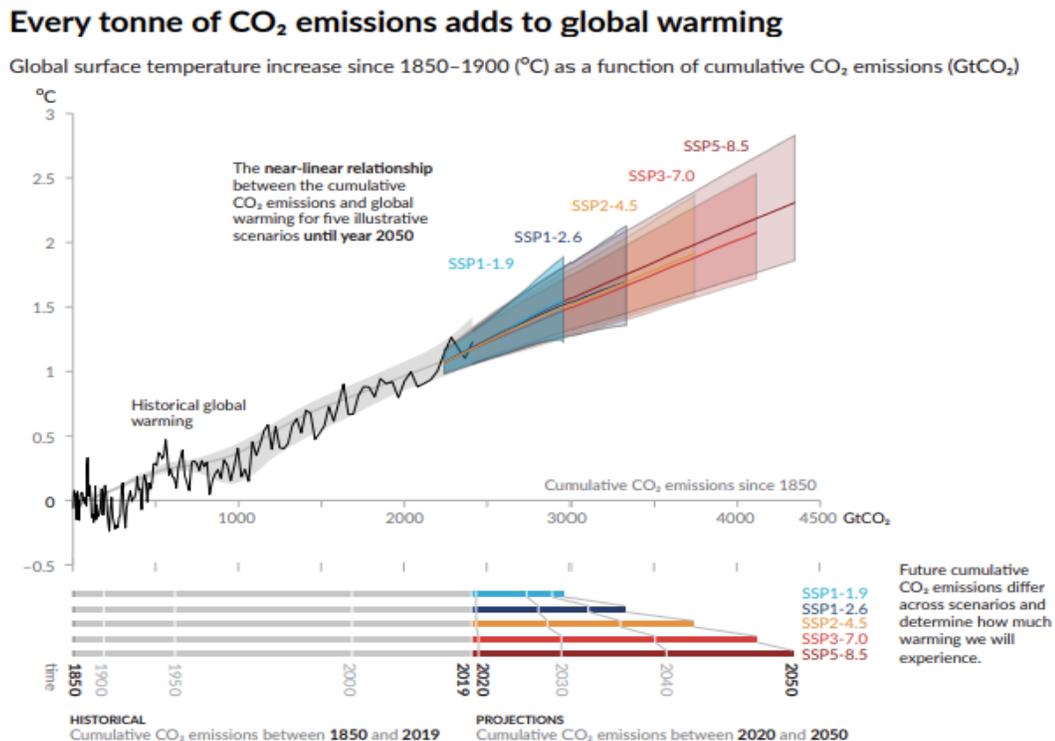
Climate attribution science

10. It has long been understood that global temperature rise since the late 1880s has been approximately linear to the total amount of CO₂ released into the atmosphere from human

activities, especially burning fossil fuels: In other words, every tonne of CO₂ adds roughly the same amount of heat to the system, whether it originates from the Scope 3 emissions of a coal mine in Australia or anywhere else.

11. The diagram below is taken from the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2023) (at 83).³ It shows that global warming increases in near-direct proportion to the total amount of CO₂ emitted. The historical record (black line) and future projections (coloured pathways) show a nearly linear relationship between cumulative CO₂ emissions and rising global surface temperature. This means that each additional tonne of CO₂ adds to warming.

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- 20 12. The significance of climate attribution science is its ability to describe a causal link between particular emissions and particular impacts in a given area. The field is explained in a recent book chapter of which Dr Merner is a co-author: Phillips, Merner and Otto, “Attribution

³ See https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf.

Science: Insights into Climate Change and Its Consequences” in Wewerinke-Singh and Mead (eds), *The Cambridge Handbook on Climate Litigation* (Cambridge University Press, 2025).⁴ In that article, the authors explain that “[c]limate attribution science is an umbrella term that encompasses distinct yet intertwined scientific research subfields” (at 80). This science is “well established and accepted by the scientific community, as evidenced by its inclusion and prominence in the latest IPCC assessment” (at 101). One subfield is “event attribution science”, which uses methods “to assess and quantify the relative contribution of multiple causal factors, such as anthropogenic climate change, to an extreme weather event” (at 86-87). This is a field that has existed for the past two decades (at 80). Separately, “source attribution” studies are capable of “quantif[ying] how emissions from specific sources contribute to a given impact” (at 84).

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13. As the authors explain, “[e]vent attribution research involves the comparison of a world with and without anthropogenic climate change” (at 87). In other words, the research employs a counterfactual approach to simulate two scenarios – one that includes all observed natural and human influences (the “factual” world), and another that excludes anthropogenic emissions, particularly carbon dioxide and other greenhouse gases, while keeping natural factors like solar activity and volcanic eruptions unchanged. By comparing outcomes across these simulations, researchers can isolate in relation to a particular observed event in a particular location the influence of human-caused climate change from natural climate variability. Attribution studies do not require identifying the origin of each CO₂ molecule. They rely on the total cumulative emissions from human activities, including those from exported fossil fuels, which drive the global temperature rise that amplifies local extremes. The “studies in this field can now explain how climate change makes a heatwave hotter or a heavy rainfall event more intense” (at 80).

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14. By way of example, the authors refer (at 92) to a 2021 study that used attribution science to demonstrate that the bushfire risk in south-eastern Australia had increased by at least 30 per cent since 1979 as a result of climate change: see Oldenborgh et al, “Attribution of

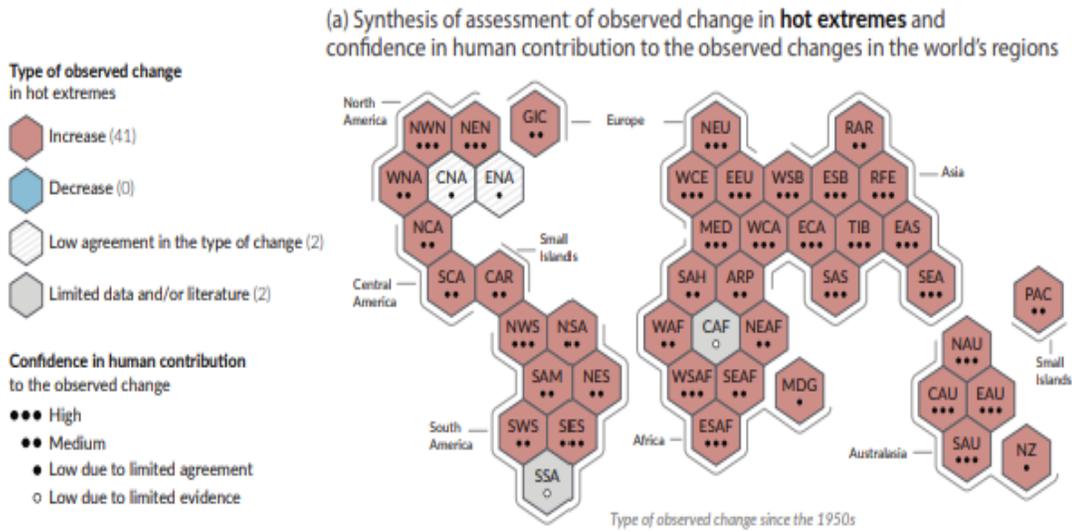
⁴ Available here: <https://www.cambridge.org/core/books/cambridge-handbook-on-climate-litigation/4970332A24405A651D2E68821E24C558>.

the Australian Bushfire Risk to Anthropogenic Climate Change” (2021) 21(3) *Natural Hazards and Earth System Sciences* 941.

15. The IPCC’s Sixth Assessment Report (at 48) also included the following diagram that divides the world into different regions, including four areas of Australia (Northern Australia (NAU), Central Australia (CAU), Eastern Australia (EAU) and Southern Australia (SAU)). The diagram illustrates how, although the contribution of greenhouse gases to the increase in global temperatures is direct and linear, the impact of that contribution is felt differently in particular locations. The IPCC assessment shows increases in extreme heat across all assessed regions of Australia with “high confidence” that human influence is driving these changes. Australians are experiencing more frequent and more intense heatwaves than in the past, with clear scientific evidence linking these trends to human-caused greenhouse gas emissions.

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Climate change is already affecting every inhabited region across the globe, with human influence contributing to many observed changes in weather and climate extremes



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The relevance of event attribution science in the present case

16. Properly characterised, Ground 3 is a materiality argument (or perhaps an argument that relief would be futile to grant, if materiality is not a requirement of error of law on the face of the record, which would have been a sufficient ground at first instance: see s 20(1)(e) and s 20(2) of the *Land and Environment Court Act 1979* (NSW)). The Appellant’s

submission is that, *even if* s 4.15(1)(b) of the *Environmental Planning and Assessment Act 1979* (NSW) requires consideration of the environmental impacts of the development “in the locality”, it was inevitable that the IPC would have reached the same result because climate change was not an environmental impact of the Project “in the locality”. The argument is that the IPC’s compliance with the duty attacked in Ground 1 could not have made a difference to the outcome of the approval.

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17. The Appellant advances the submission in two ways. *First*, it submits that the Court of Appeal’s reasoning “reflects a logical fallacy” (AS [59]). It submits that the Court of Appeal “[a]ssumed a necessary and detectable causal link between the Scope 3 emissions of the Project (ie end users burning the coal in various places globally) and the various specific effects of climate change *on the locality*” (AS [59], emphasis in original). *Secondly*, the Appellant submits that “there was no basis for such a link in the material before the IPC” (AS [60]). It submits that the Court of Appeal “did not identify any finding, nor evidence before the IPC, to warrant the assumption that Scope 3 emissions referable to the Project could lead to a likely environmental impact *in the locality*” (AS [63], emphasis in original).
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18. These arguments were not advanced in the courts below (see RS [45]). At first instance, the Appellant’s submission was that the IPC had considered Scope 3 emissions and their impacts (see, eg, PJ [97]). In this regard, in this Court the Appellant emphasises the primary judge’s findings that, before the IPC, “the existence of climate change (and its negative impact on the environment) was something that did not need to be resolved” and that the IPC “was aware of, and accepted that, ... the Project’s Scope 3 emissions would contribute to [anthropogenic climate change] (AS [18], referring to PJ [101], [80]). In addition, as the Appellant notes (AS [20]), the issue of the proper construction of s 4.15(1)(b) ultimately determined by the Court of Appeal did not arise at first instance.
19. As the Respondent intimates (RS [45] fn 38), had the Appellant advanced the arguments raised under Ground 3 before the primary judge, they could have been met by evidence. Had the Appellant ever suggested that climate change impacts are incapable of being impacts of the development in the locality, or sought to deploy the materials referred to in AS [63]-[64], the First Respondent would have had the opportunity to adduce evidence —

drawing on climate attribution science — demonstrating the scientific conception of the development having impact in the locality. It may, for example, have been able to obtain evidence, consistent with the 2021 study referred to above, that there is an increased risk of bushfires in the area due to anthropogenic climate change that is properly attributable to emissions, including the Scope 3 emissions of the Appellant’s proposed development.

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21. Such evidence would have been admissible on the question of materiality to show that compliance with s 4.15(1)(b) could, “as a matter of reasonable conjecture”, have led the IPC to make a different decision on the merits: *MZAPC v Minister for Immigration and Border Protection* (2021) 273 CLR 506 at [38] (Kiefel CJ, Gageler, Keane and Gleeson JJ); see also *LPDT v Minister for Immigration, Citizenship, Migrant Services and Multicultural Affairs* (2024) 280 CLR 321 at [13], [38]. Such evidence would also have been admissible to refute any submission that relief would be futile.
21. It is true that the primary judge said that “the uncontested evidence before the Commission ... [was] that the impacts associated with combustion emissions cannot be isolated to a particular geographic location” (**PJ [90]**). To similar effect, the primary judge said that “the Commission had evidence that the impacts associated with combustion emissions cannot be isolated to particular geographical locations” (**PJ [131]**). However, the question raised by Ground 3 is not whether the impacts of particular emissions can be “isolated” to a particular geographic location. Rather, the question is whether there is a sufficient **causal link** between emissions from the particular development and impacts in the locality. Climate attribution science can express the causal link by showing that the Scope 3 emissions of the particular development have an incremental effect on global climate change, which is causative of particular impacts in a locality in the sense that those emissions increase the likelihood or intensity of particular events in a particular area.
22. Given the way in which the process before the IPC was conducted, the possibility of establishing a causal link between the emissions of the development and the impact in the locality was not explored. Indeed, the primary judge “accept[ed] MACH’s position that, given the evidence before the Commission, the negative effects of climate change were

acknowledged and *there was no need to articulate those specific impacts* which are largely impacts of climate change generally” (at [110], emphasis added).

23. In the Court of Appeal, Adamson JA specifically noted that the evidence before the IPC “established that the effects of global warming on New South Wales and, in particular, in the locality during the life of the project and beyond, were such as to cause, and increase the incidence of, extreme weather events (flood, bushfire, drought, reduced run-off etc)”, and that there was “increased susceptibility of the locality to extreme weather events as a consequence of global warming” (CA [236]-[237]). Her Honour also observed that the IPC did not seek “to distinguish between the effects of global warming generally and the effects of climate change in the locality of the project” (CA [238]). If the arguments raised as part of Ground 3 were advanced below, the First Respondent might have relied on climate attribution science to argue that the IPC could have been satisfied that there was a causal link between the emissions from this development and particular impacts in the locality, the existence of such impacts already being established in the evidence before the IPC.
24. The Appellant submits that “[c]ourts have repeatedly recognised that attribution science is not generally (or presently) understood to permit such specific linkages”, referring in particular to a 2024 decision of the European Court of Human Rights (as quoted by the Full Federal Court) and a 2009 decision of the United States District Court (Northern District of California) (AS [63]-[64]). Despite the attempt to anchor the submission in judicial decisions, it is really a factual proposition introducing evidence beyond the scope of a strict appeal. As the UCS’s submissions above make clear, it would be unsafe for this Court to proceed on the basis that these decisions of other courts, rendered in different contexts and, in one case, many years ago, are probative of what attribution science could do in 2022 or today.

Basis for revocation of special leave in relation to Ground 3

25. Having regard to the existence of climate attribution science, and event attribution science in particular, it is possible that there is evidence upon which the First Respondent could have relied to meet Ground 3, but did not, as a result of the way in which the Appellant responded to the application for judicial review at first instance. The inability to meet the

Appellant’s argument on Ground 3 with such evidence means that the Appellant should not be permitted to rely on Ground 3 and that this case is otherwise an inappropriate vehicle for the determination of the issue sought to be raised by Ground 3. That is a well-recognised basis to refuse special leave; it is equally a basis to revoke special leave in the present case, which the Court apprised of relevant facts could do of its own motion.

10 26. Of course, the factual material addressed above cannot be adduced *in the appeal*: see, eg, *Mickelberg v The Queen* (1989) 167 CLR 259 at 266, 271. However, the material can be considered in relation to any question of revocation of special leave. In *Barnett v Secretary, Department of Communities and Justice* (2023) 97 ALJR 207, the Court admitted evidence that was not before the courts below on a revocation application. The evidence in that case meant that “the foundation for the grant of special leave ha[d] been removed”: at [10]. The Court said that a submission that the evidence was inadmissible on the substantive appeal “misses the point”: at [11]. Their Honours said that “[i]t would have been contrary to the interests of the administration of justice to permit the appeal to proceed on a false premise”: at [12]. In addition, in *Minister for Immigration and Multicultural Affairs v Wang* [2002] HCATrans 365, both Gleeson CJ and Gummow J seemed prepared to accept that new evidence could be received by the Court on an application for revocation of special leave: see T 7.244-245, 249-250, 267-268.

20 27. Consistent with the UCS’s intention only to provide the Court with such material and submissions that the Court will definitely find of assistance, and to do so conformably with r 42.08A of the *High Court Rules 2004* (Cth) requiring an application for leave to be heard as *amicus curiae* to be made by filing written submissions, it has not sought to put before the Court the scientific publications referenced in these submissions. UCS submits that they are described sufficiently in the submissions themselves for the purpose of any question whether special leave should be revoked in relation to Ground 3. Any of the publications can, however, be supplied if the Court would be assisted. Two of the three sources are publicly available on the Internet in any event. The publications are as follows:

- Oldenborgh et al, “Attribution of the Australian Bushfire Risk to Anthropogenic Climate Change” (2021) 21(3) *Natural Hazards and Earth System Sciences* 941 (20pp).

- IPCC, *Climate Change 2023: Synthesis Report* (https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf) (81pp).
- Phillips, Merner and Otto, “Attribution Science: Insights into Climate Change and Its Consequences” in Wewerinke-Singh and Mead (eds), *The Cambridge Handbook on Climate Litigation* (Cambridge University Press, 2025) (<https://www.cambridge.org/core/books/cambridge-handbook-on-climate-litigation/4970332A24405A651D2E68821E24C558>) (24pp).

28. The UCS does not seek an order for costs and submits that none should be made against it.

10 **PART V: Estimate of time required for oral argument**

29. If the Court is minded, whether of its own motion or in light of **RS [45] fn 38**, to consider revocation of special leave in relation to Ground 3, the UCS would seek up to 10 minutes to present oral argument on that issue.

Dated: 19 March 2026

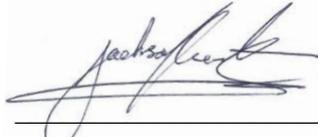


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IN THE HIGH COURT OF AUSTRALIA
 SYDNEY REGISTRY

BETWEEN:

MACH ENERGY AUSTRALIA PTY LTD

ABN 34608495441

Appellant

DENMAN ABERDEEN MUSWELLBROOK SCONE

HEALTHY ENVIRONMENT GROUP INC

First Respondent

and

INDEPENDENT PLANNING COMMISSION OF NSW

Second Respondent

**ANNEXURE TO THE PROPOSED SUBMISSIONS OF THE UNION OF CONCERNED
 SCIENTISTS**

No	Description	Version	Provision(s)	Reason for providing this version	Applicable date
1.	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>	29 Jul 2022 to 27 Nov 2022	s 4.15	Version in force at time of IPC's decision	6 Sep 2022

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