



Environmental Defenders Office

22 November 2024

House Select Committee on Nuclear Energy
Parliament of Australia

Submitted via email: nuclear.reps@aph.gov.au

Dear Committee,

Submission to the House Select Committee on Nuclear Energy

Environmental Defenders Office (**EDO**) welcomes the opportunity to make a submission to the House Select Committee on Nuclear Energy.

EDO does not support the establishment of a nuclear power industry in Australia. In EDO's view, energy transition projects must meet the following principles: [EDO's 12 principles for renewable energy transition projects - Environmental Defenders Office](#). Nuclear energy projects do **not** meet these principles, and are a slow, economically unviable, environmentally risky, and socially unpalatable distraction from the genuine and urgently needed renewable energy transition.

EDO therefore **supports existing prohibitions** on nuclear actions under the *Environment Protection & Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) and relevant state or territory legislation, and supports investment and development of genuine renewable energy projects to deliver the imperative energy transition.

1. Existing legislative prohibitions on nuclear energy development should remain in place

The development of nuclear power infrastructure is currently not permitted in Australia at the federal level. The *Australian Radiation Protection and Nuclear Safety Act 1998* (Cth) (**ARPANS Act**) prohibits the 'construction or operation' of a number of nuclear installations: a nuclear fuel fabrication plant; nuclear power plant; enrichment plant; or reprocessing facility.¹

The EPBC Act prohibits the same facilities, preventing the Minister for the Environment from approving their construction or operation.²

At the state and territory level, laws prevent and/or regulate certain nuclear activities including exploration and mining of uranium, and construction of nuclear waste facilities, or in some states directly ban the construction or operation of nuclear reactors.³ Notably in Queensland, a state plebiscite is required to overturn the ban, which will be engaged if the Commonwealth is likely to take steps towards allowing construction of a nuclear facility in the state.⁴

¹ *Australian Radiation Protection and Nuclear Safety Act 1998* (Cth), s 10.

² *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 140A.

³ See, for example *Uranium Mining and Nuclear Facilities (Prohibitions) Act 1986* (NSW). Parliamentary Library Research Paper Series, [Current prohibitions on nuclear activities in Australia: a quick guide](#) (May 2024) 4-5.

⁴ *Nuclear Facilities Prohibition Act 2007* (Qld), s 21.

EDO notes this inquiry follows various similar inquiries at the federal level, including the House of Representatives Standing Committee on the Environment and Energy report into the prerequisites for nuclear energy in Australia in 2019,⁵ and Environment and Communications Legislation Committee inquiry into the Environment and Other Legislation Amendment (Removing Nuclear Energy Prohibitions) Bill 2022.⁶ In both inquiries, recommendations regarding the future of nuclear in Australia were not unanimous.

This lack of bipartisan agreement, as well as considerable questions around the social licence of nuclear in Australia,⁷ serve to reinforce that establishing a safe Australian nuclear industry – which relies on strong regulation, legal frameworks, considerable public funding,⁸ and enforcement agencies for proper management – would take an unacceptably long time. **In the face of the climate crisis and urgent need to decarbonise, this is simply not a feasible energy policy route.**

The rest of this submission considers the timing and urgency of the climate response; the environmental impacts of nuclear energy; and nuclear energy in the context of climate change.

2. Development of a nuclear industry would delay decarbonisation in the face of climate crisis

Australia's climate and oceans have warmed by an average of 1.51 ± 0.23 °C since national records began in 1910, leading to an increase in the frequency of extreme heat events, decreased rainfall in the south-east, increases in extreme fire weather, ocean acidification and rising sea levels.⁹ The urgency of the climate crisis cannot be overstated, and the imperative to reduce emissions grows with every passing day. A failure to increase ambition and start reducing emissions immediately would put the world on course for a temperature increase of 2.6-3.1°C over the course of this century. This would bring debilitating impacts to people, planet and economies.¹⁰

In 2023 the power sector (i.e. electricity production) continued to be the largest global contributor to emissions,¹¹ a statistic mirrored at the domestic level.¹² As such, EDO strongly advocates for laws that **prohibit new fossil fuel projects**, and which facilitate an economy-wide transition to renewable energy.

⁵ House of Representatives Standing Committee on the Environment and Energy, [Not without your approval: a way forward for nuclear technology in Australia Report of the inquiry into the prerequisites for nuclear energy in Australia](#) (December 2019).

⁶ Senate Environment and Communications Legislation Committee, [Report on Environment and Other Legislation Amendment \(Removing Nuclear Energy Prohibitions\) Bill 2022](#) (August 2023).

⁷ Australia Institute, 'Two-thirds of Australians refuse to pay more for nuclear: new research' (Media release, June 21, 2024) <https://australiainstitute.org.au/post/two-thirds-of-australians-refuse-to-pay-more-for-nuclear/>.

⁸ Clean Energy Council, New independent research: [Nuclear six times the cost of renewables](#) (May 2024); see also Eash-Gates, P., Klemun, M. M., Kavlak, G., McNerney, J., Buongiorno, J. and Trancik, J. E., , 2020. *Sources of Cost Overrun in Nuclear Power Plant Construction Call for a New Approach to Engineering Design* Joule, Volume 4, Issue 11, Pages 2348-2373, <https://doi.org/10.1016/j.joule.2020.10.001>.

⁹ Bureau of Meteorology, State of the Climate 2024, available at <http://www.bom.gov.au/state-of-the-climate/>. Although some experts now say “[w]orld’s 1.5C climate target ‘deader than a doornail’” which only emphasises the need for urgent action.

¹⁰ United Nations Environment Program, [Emissions Gap Report 2024](#).

¹¹ Ibid, IV.

¹² [DCCEEW, Quarterly Emissions Report, March 2024](#).

On the supply side, we must transition energy systems as quickly as possible to renewable sources. Taking into account planning and approvals, construction, and the energy payback time,¹³ nuclear power is too slow of a response to climate change. Introducing nuclear power to Australia would necessitate around 20 years for pre-construction tasks, planning and approvals, as well as construction time¹⁴ – taking into account serious delays and cost overruns that have plagued development elsewhere. These long development times mean nuclear won't be able to make a significant contribution to achieving net zero emissions by 2050.¹⁵

The introduction of nuclear power now would instead delay and undermine the development of credible and cost-effective energy and climate policies based on renewable energy sources and energy efficiency. With the earliest possible deployment of large scale nuclear from 2040, it is clear that calls to move from coal to nuclear (bypassing renewables) are effectively calls to “delay the decarbonisation of our electricity system by 20 years.”¹⁶ Significant inroads would already need to *have been made* in terms of emissions reductions by this point for Australia to fulfil its climate obligations under this scenario. This is simply not the case.

The climate, and our environment and economy which rely on it, require urgent and effective decarbonisation and transition to renewable energy. There is no need to waste yet more time on unviable options when renewable energy sources (noting that nuclear is **not** a renewable energy source) like solar and wind are far cheaper, easier and faster to deploy.¹⁷

3. Environmental and social risks of nuclear have not been adequately addressed

In EDO's view, development of any energy transition project must be undertaken in accordance with principles of ecologically sustainable development. The principles include the precautionary principle, conservation of biological diversity and the principle of intergenerational equity. Decision-making must be based on the best available science and apply the precautionary principle where there is a lack of scientific certainty. Nuclear proposals do not fit these criteria.

For example, issues regarding long-term management of low, intermediate and high-level nuclear waste remain unresolved. No permanent and safe storage for high-level nuclear waste is yet in operation, and Australia is yet to find viable sites for the low level waste we currently produce.¹⁸

¹³ I.e., the period of time it takes to recoup the energy and carbon debts from construction. This is estimated to be upwards of 6.5 years for nuclear in Australia. University of Sydney, Integrated Sustainability Analysis: [Life-Cycle Energy Balance and Greenhouse Gas Emissions of Nuclear Energy in Australia](#) (November 2006).

¹⁴ Graham, P., Hayward, J. and Foster J. 2024, GenCost 2023-24: Final report, CSIRO, Australia. Pp. 33-36. **(GenCost Report)**

¹⁵ CSIRO, 'The question of nuclear in Australia's energy sector' (December 2023) <https://www.csiro.au/en/news/All/Articles/2023/December/Nuclear-explainer>.

¹⁶ The Guardian, 'Dr Alan Finkel: Here's why there is no nuclear option for Australia to reach net zero' (22 March 2024) <https://www.theguardian.com/commentisfree/2024/mar/22/heres-why-there-is-no-nuclear-option-for-australia-to-reach-net-zero>.

¹⁷ GenCost Report (n 14), p.xii.

¹⁸ See, Ian Lowe, The Conversation, 'Australia hasn't figured out low-level nuclear waste storage yet – let alone high-level waste from submarines' (March 15 2023) <https://theconversation.com/nuclear-energy-creates-the-most-dangerous-form-of-radioactive-waste-where-does-peter-dutton-plan-to-put-it-233213>, The Guardian, 'Australia's nuclear waste is scattered in 'cupboards and filing cabinets' – and the pile is growing' (29 July 2023) <https://www.theguardian.com/environment/2023/jul/29/nuclear-waste-australia-how-much-why-kimba-lucas-heights>.

Moreover, the environmental risks associated with nuclear energy more broadly – including uranium mining – have not been adequately addressed by nuclear proponents.¹⁹ Best practice would require fully funded rehabilitation, restoration, and recycling plans required for end of project works (i.e., ensuring full lifecycle impacts are addressed), while factors such as mining method, material and waste storage, and decommissioning will all determine the ultimate impact of a nuclear facility.²⁰

Clearly, examples from the recent past do not provide certainty that management of nuclear facilities is safe for our environment, or communities.²¹

4. Nuclear energy is not a viable option in a changing climate

Nuclear reactors are increasingly vulnerable to climatic changes and extreme weather conditions. Potential vulnerabilities of nuclear power plants in relation to climate change include warmer, less abundant, water with consequent impacts to cooling capability and biofouling, rising sea levels, and heatwaves and storms.²² With significant levels of global heating already locked in, and the world experiencing more frequent and severe weather (and Australia being especially vulnerable),²³ nuclear energy does not present as a safe and viable option.

Any development of a nuclear industry in Australia would have to account for the regional climate impacts likely to be experienced, and interaction of natural disaster (including drought and water scarcity) with the proposed infrastructure. For example, nuclear facilities run the risk of much higher water requirement in emergencies.²⁴

Given the development of nuclear energy would in fact delay decarbonisation in this country – thus leading to greater global heating, and increased likelihood of climate impacts – it is truly an illogical proposition to abandon the renewable energy transition in favour of development of a domestic nuclear power industry.

EDO **recommends** the existing prohibition on nuclear facilities which is currently legislated at the federal level is retained.

For further information, please contact frances.medlock@edo.org.au or (02) 9262 6989.

¹⁹ See, Ramana, M. V., 2018. Technical and social problems of nuclear waste. *WIREs Energy and Environment* 7:e289. <https://doi.org/10.1002/wene.289>.

²⁰ See generally, Nakagawa, N., Kosai, S., and Yamasue, E., 2022. Life cycle resource use of nuclear power generation considering total material requirement, *Journal of Cleaner Production*, Volume 363. <https://www.sciencedirect.com/science/article/pii/S095965262202131X>.

²¹ See e.g., [Chernobyl Accident 1986 - World Nuclear Association](#), [Fukushima Daiichi Accident - World Nuclear Association](#).

²² Portugal-Pereira, J., Esteban, M., and Araújo, K., 2024. Exposure of future nuclear energy infrastructure to climate change hazards: A review assessment. *Energy Strategy Reviews* 53, 101365 <https://doi.org/10.1016/j.esr.2024.101365>

²³ Ove Hoegh-Guldberg and Lesley Hughes, *The Conversation*, ‘Seriously ugly: here’s how Australia will look if the world heats by 3°C this century’ (March 31, 2021), based on [The risks to Australia of a 3°C warmer world](#).

²⁴ As seen in Fukushima, where [over 1.3 million cubic metres of seawater were required to cool the reactors](#).

Yours sincerely,

Environmental Defenders Office

A handwritten signature in black ink, appearing to read 'R Walmsley', written in a cursive style.

Rachel Walmsley

Deputy Director, Policy and Law Reform