

**Submission
No 126**

INQUIRY INTO DATA CENTRES

Organisation: Nuclear for Australia

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**NUCLEAR_{FOR}
AUSTRALIA**

SUBMISSION TO NSW PARLIAMENT

Public Accountability and Works Committee Inquiry into data centres



Image of the Crane Clean Energy Center (previously Three Mile Island Nuclear Power Plant) being re-powered in partnership with Microsoft to power data centres. *Image Credit: Constellation*

Dear Public Accountability and Works Committee,

Thank you for the opportunity for Nuclear for Australia to make a submission to the Inquiry into data centres.

Nuclear for Australia is the nation’s leading nuclear advocacy organisation with over 117,000 supporters across the country. We advocate for Australia’s nuclear power bans to be lifted and for nuclear power to be added to a balanced energy mix to help deliver a clean energy future.

This submission will focus on item 1C of the terms of reference of the inquiry: “electricity demand, grid impacts and implications on emissions reduction targets”. It will highlight how modern nuclear power solutions could help meet rising demand for reliable electricity from data centres in the state.

Background: Data centre electricity usage

New South Wales’ electricity use is set to nearly double by 2050 according to the Australian Energy Market Operator (AEMO, 2025). This is due to many factors, particularly electrification and large new electricity users such as data centres.

An average data centre requires around 5-10MW of power which would typically power around 10,000 homes (Climate Council, 2025). This is projected to grow for the increase power needs of artificial intelligence. According to the International Energy Agency’s Energy Demand from AI report, roughly 60% of power is used by servers, 6% for storage, 4% for network, 20% for cooling and 10% for other infrastructure (IEA, 2025). Whilst the demand profile for cooling and other infrastructure varies throughout the day, IT load is a constant power requirement.

Data centres are and will continue to be critical infrastructure helping support digital processes needed for government and commerce, which means there isn’t the flexibility to turn them off if the grid is unable to meet demand, creating an impetus for reliable, always-on power.

This challenge is only set to grow. According to the NSW Data Centre Consultation Paper (NSW Government, 2026), there are currently 90 data centres operating in New South Wales, representing roughly 4% of the state’s energy output. By 2050, the proportion of energy output consumed by data centres is set to rise to almost 20%.

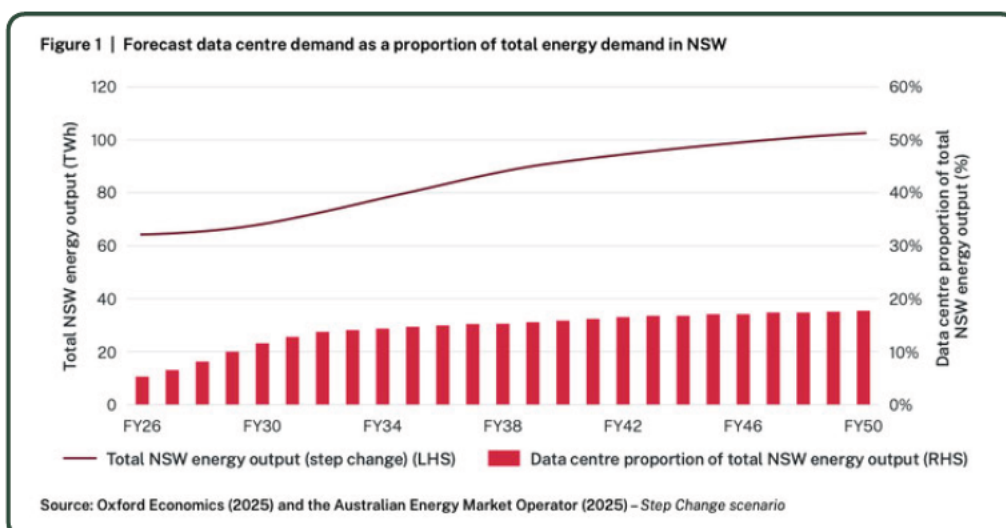


Figure 1: Sourced from the NSW Data Centre Consultation Paper

The state of NSW's energy transition

New South Wales' energy transition is already facing significant pressure. The nation's largest coal fired power plant, Eraring, has had to be extended again through to 2029, and new gas plants are being built as renewables struggle with supply chain and social license concerns. The NSW Energy Security Target Monitor (ESTM) Report discusses pressures on the energy transition and exposes that there are shortfalls in supply from 2033-34 to 2034-35 where the report's projection window closes (NSW Government, 2025).



Figure 2: Sourced from the NSW Energy Security Target Monitor (ESTM) Report

Inherently, renewables such as solar and wind are not able to meet the need of data centres for reliable, always on electricity due to their intermittency. Solar and wind have an average capacity factor of 20-30%, compared to firm sources of energy like nuclear power with capacity factors of 90%+ (Office of Nuclear Energy, 2024).

This creates a burden on firming technology. Unfortunately, conventional batteries are expensive and not yet able to deliver affordable long-duration power. Pumped Hydro is expensive as indicated by Snowy Hydro 2, and gas is polluting.

Ignoring the challenges the current grid will face, our existing energy options of intermittent renewables and polluting fossil fuels, are not sufficient to meet our needs.

The benefits of nuclear power in NSW's mix for data centres

Nuclear power is an affordable, reliable form of clean energy that together with renewables could offer a pathway for New South Wales' to capitalise on the data centre opportunity.

Nuclear energy is a proven source of reliable, affordable, clean energy used around the world. There are over 400 nuclear reactors across 31 countries.

Modern nuclear power technology has advanced safety systems that make nuclear power one of the safest energy technologies available to Australia.

The rest of the world is investing in nuclear power to meet rising electricity demand with clean energy generation. Around 60 countries are exploring adding nuclear to their mix for the first time and 38 countries, representing roughly 70% of global GDP, have signed a global pledge to triple nuclear energy capacity by 2050.

Nuclear power would also offer many other benefits to NSW including but not limited to:

- Jobs and a just transition for regional coal communities
- Development opportunities for other high energy use industries.
- Pathways for desalination and nuclear energy hydrogen production.
- Affordable power.

Advanced reactor opportunity including microreactors

Not all nuclear power plants are large power plants with cooling towers. There are multiple sizes of nuclear reactors ranging from microreactors to large reactors.

Microreactors produce up to 10MW(e), are capable of powering thousands of homes and are being designed to be transported to location on shipping container to help power regional communities and industrial facilities. They could help power data centres with on site power and replace diesel generators. Westinghouse is currently developing the eVinci Microreactor that is set to be operational in Canada by 2029. The United States Administration is planning to have multiple microreactors reach criticality by July 4 this year to mark the country's 250th anniversary.

Small modular reactors produce up to 300MW(e), are capable of powering hundreds of thousands of homes. They are advanced small reactors which are being designed to be mass produced with factory construction to reduce cost and build time. There are currently multiple SMRs being developed around the world. The G7's first commercial small modular reactors are currently being built in Darlington Canada and expected to be in operation by 2030. It is important to recognise that building nuclear reactors at these scales has already been demonstrated in research reactors and naval nuclear applications such as submarines.

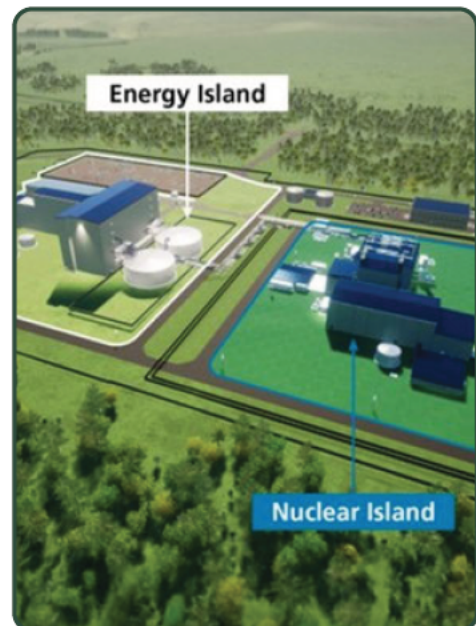
Another emerging developments overseas is the shift away from light water reactors to 'advanced reactors' which have modern technology and sophisticated safety systems. Examples of advanced reactors include Molten Salt Reactors, High Temperature Gas-Cooled Reactors (HTGRs) and Sodium Fast Reactors (SFRs). Currently there are many advanced reactor designs and projects around the world supported by government and private industry. This includes the US Department of Energy's Advanced Reactor Demonstration Program which is supporting the development of 10 designs including the Terrapower Natrium Reactor and the Xe-100 with funding.

CASE STUDY: Terrapower Natrium Reactor

Terrapower is a nuclear startup in the United States chaired by Microsoft Founder Bill Gates.

It is developing a 345MWe reactor called 'Natrium' which uses sodium as a coolant allowing it to operate at higher temperatures safely. The heat can be transferred via liquid metal to a separate 'energy island' to be stored in molten salt tanks. These molten salt tanks in the Energy Island operate like batteries with power output ramping up and down to complement renewables.

The first Natrium reactor in Wyoming is expected to be operational by 2031. Meta recently signed a deal for up to 8 units for delivery as soon as 2032 to power their data centres.



Credit: Terrapower

Interest in nuclear power from the data centre industry

Rising electricity demand from data centres is driving investment around the world including from major tech companies - and data centre investors - such as Meta, Google, Amazon and OpenAI.

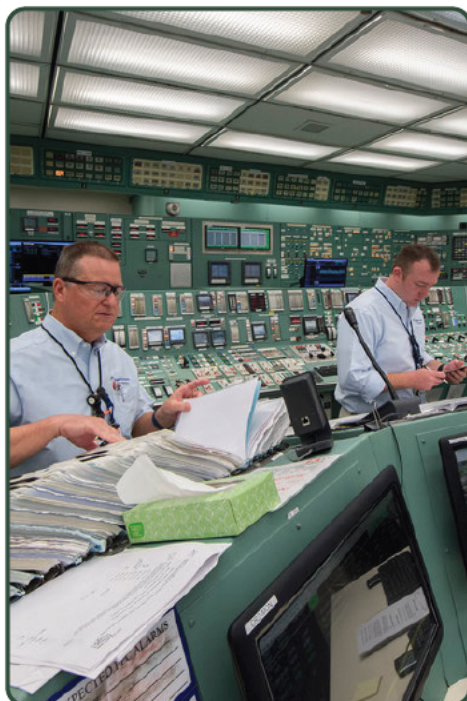
Recently, Meta announced a deal for up to 6.6GW of nuclear power by 2035 to power their AI infrastructure. Their plan included up to 8 Sodium Small Modular Reactor units from Terrapower (backed by Bill Gates) with the first dual unit set for delivery as soon as 2032 and up to 1.2GW from advanced reactor designer Oklo which could come online as early as 2030.

Microsoft announced a deal to reopen Three Mile Island Unit 1 and Google have announced plans to reopen the Duane Arnold nuclear power plant in Iowa, alongside supporting investments in advanced reactor technologies.

In some cases, the scale of data centres being constructed in countries in the United States is seeing proposals for nuclear power plants for the primary purpose of powering data centres. In Australia, the demand profile is lower, and nuclear power plants constructed would be able to offer additional benefits to the grid.

Locally, the CEO of NEXTDC, Craig Scroggie, has expressed his support for nuclear power being included in the mix.

Equinix, which own 18 data centres across Australia, in 2025 announced agreements with nuclear companies including Oklo, Radiant and others to help power their data centres internationally.



CASE STUDY: Three Mile Island restart with Microsoft

In 2024, Constellation announced a 20-year power purchase agreement with Microsoft to restart Three Mile Island Unit 1 to help power their data centres.

Three Mile Island was the location of an accident in 1979, which despite not having any detectable health effects on plant workers or the public (according to the United States Nuclear Regulatory Commission), led to a major decline in new nuclear in the United States and contributed to community fears.

The reactor was shut down in 2019 and the restart is currently ahead of schedule with power is expected as soon as 2027 under the new name, the Crane Clean Energy Centre.

Primary Recommendation: Lift New South Wales' Nuclear Power Prohibition

In order for data centres to be benefit from clean nuclear power in New South Wales, the legislative barriers to nuclear power must first be lifted.

In addition to the federal prohibitions in the Commonwealth Australian Radiation Protection and Nuclear Safety Act 1998 and Environment Protection and Biodiversity Conservation Act 1999, the Uranium Mining and Nuclear Facilities (Prohibitions) Act 1986 prohibits the construction or operation of nuclear power plants at a state level. New South Wales and Australia are one of the only jurisdictions in the world with bans on nuclear power.

Recently, John Ruddick MLC introduced the Uranium Mining and Nuclear Facilities (Prohibitions) Repeal Bill 2025 in the Legislative Council, which would remove these prohibitions. We recommend that the inquiry supports that this bill be passed into law.

There is significantly more support for nuclear power than opposition in the public. Polling Nuclear for Australia has commissioned with YouGov in October 2025 found that just one third of Australians (34%) currently oppose building nuclear power plants for electricity, with 47% already in support and 19% unsure either way.

Once the prohibitions are lifted, experts predict, in line with the estimate from the International Atomic Energy Agency for new to nuclear countries it would take Australia 10-15 years to have its first nuclear reactor, less if it was a small or micro reactor (IAEA, 2024).

Australia is well ahead of other nations. We have a research reactor 40km from the Sydney CBD at Lucas Heights, OPAL, that produces lifesaving nuclear medicines. We have world-leading nuclear regulators, ARPANSA and ASNO as well as a new regulator ANNPSR for the nuclear submarines. We have the most uranium in the world, roughly a third of global reserves including reserves in New South Wales. Finally, Australia about to acquire 8 nuclear powered submarines under the AUKUS program.

New South Wales is already a nuclear state whether through ANSTO, the state's uranium reserves and potential to host AUKUS submarines in the future.

New South Wales is in a good position to partner with other countries to learn lessons from first of a kind reactors, and integrate nuclear energy to support always-on energy sources to power data centres in the state.

Conclusion

Nuclear for Australia welcomes questions and would is available to appear before the committee for more information.

The immediate next step for New South Wales is to lift the state nuclear power prohibition.

Contact Information

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For more information about Nuclear for Australia and nuclear more broadly, visit <https://www.nuclearforaustralia.com/facts>

About Nuclear for Australia

In late 2022 Nuclear for Australia was launched by Will Shackel to increase nuclear literacy in Australia, combat disinformation about nuclear science and technology and advance the role for the peaceful applications of nuclear technology. Since then, Nuclear for Australia has become the largest grassroots advocacy organisation for nuclear in the country with over 114,000 supporters. We've reached millions of Australians with the facts about nuclear power through digital platforms, events, written materials and our expert advisory group which has played a critical role shaping the public debate. Nuclear for Australia is a charity registered with the ACNC. We're generously supported by thousands of donors across the country who contribute to our work.

References

AEMO. (2025). 2025 Inputs, Assumptions and Scenarios Report.

https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2024/2025-iasr-scenarios/final-docs/2025-inputs-assumptions-and-scenarios-report.pdf

Council, C. (2025, November 25). What does the data centre boom mean for Australia's switch to renewables? | Climate Council. Climate Council.

<https://www.climatecouncil.org.au/what-does-the-data-centre-boom-mean-for-australias-switch-to-renewables/>

IAEA. (2024). Milestones in the Development of a National Infrastructure for Nuclear Power. In International Atomic Energy Agency eBooks. IAEA.

<https://doi.org/10.61092/iaea.zjau-e8cs>

IEA. (2025). Energy and AI. IEA. <https://www.iea.org/reports/energy-and-ai,%20Licence:%20CC%20BY%204.0>

NSW Government. (2025). Energy Security Target Monitor report 2025 Energy Security Target Monitor report 2025 ii Acknowledgement of Country.

<https://www.energy.nsw.gov.au/sites/default/files/2025-12/2025-ESTM-report-final.pdf>

NSW Government . (2026). NSW Data Centre Consultation Paper.

https://www.infrastructure.nsw.gov.au/media/qwwpt03m/nsw-data-centre-consultation-paper_wcag.pdf

Office of Nuclear Energy. (2024, May 1). What is Generation Capacity? Energy.gov; U.S. Department of Energy. <https://www.energy.gov/ne/articles/what-generation-capacity>



Appendix: Examples of International Data Centre related Nuclear Power Investments

<p>Microsoft</p>	<ul style="list-style-type: none"> • In 2024, Microsoft signed a 20 year power purchase agreement with Constellation to restart Three Mile Island Unit 1 in 2027 to provide 835MW of carbon free energy to power their data centres • The founder of Microsoft, Bill Gates, is the founder of advanced nuclear startup, TerraPower
<p>Meta</p>	<ul style="list-style-type: none"> • In January 2026, Meta announced a deal for up to 6.6GW of nuclear power by 2035. It includes funding for up to 8 Natrium Small Modular Reactor units from Terrapower with the first dual unit set for delivery as soon as 2032. In addition, they announced up to 1.2GW from advanced nuclear startup Oklo which could come online as early as 2030 and power purchase agreements for more than 2.1GW from existing Vistra nuclear power plants.
<p>Google</p>	<ul style="list-style-type: none"> • In October 2024, Google signed the world’s first corporate agreement to purchase nuclear energy from Kairos Power small modular reactors. The deal enables up to 500MW of nuclear power with the first small modular by 2030 followed by additional deployments through to 2035. • In May 2025, Google announced early-stage capital for Elementl to support three nuclear power plant sites representing up to 600MW in capacity.
<p>Amazon Web Services</p>	<ul style="list-style-type: none"> • In May 2024, Amazon purchased a 960MW data centre campus next to the Susquehanna nuclear plant. • In October 2024, Amazon announced three nuclear deals to power their data centres. It includes four small modular reactors with Energy Northwest with over 320MW of capacity, an investment in X-energy and an agreement with Dominion energy to explore construction of small modular reactor in Virginia.