SUBMISSION

Submission to the NSW Department of Climate Change, Energy, the Environment and Water

Submission on NSW data centre reforms

14 September 2026

The Australian Academy of Technological Sciences and Engineering (ATSE) is a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together Australia's leading thinkers in applied science, technology and engineering, ATSE provides impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity.

As data centre industry development accelerates, there is a need for regulatory reforms that support potential economic and technological benefits while ensuring there are not adverse outcomes for the energy grid. New South Wales has the largest number of data centres operating and in development, compared to other states (AEMO, 2026b). NSW also has the highest indicative monthly electricity consumption of data centres in the National Electricity Market (NEM).

NSW is presented with an opportunity to implement reform in a manner that is consistent with the decarbonisation of Australia's energy systems. As called for in ATSE's June 2026 position statement Pathways to Australian decarbonisation, efforts must be made – not only in NSW – but across all NEM jurisdictions, to drive emissions reduction across the economy (ATSE, 2026c). This will become particularly important as NSW progressively transitions away from coal-fired generation to renewable generation. There have been promising steps taken this year in NSW with the release of the NSW Data Centre Guidelines, with the potential for flow-on benefits that informs policy development in other NEM jurisdictions. ATSE is pleased to see the considerations outlined in its Submission to the Inquiry into Data Centres in NSW, including managing impacts on energy and water supplies, reflected in the NSW Data Centre Guidelines (ATSE, 2026b).

Given the projected mismatch in energy demand and available energy infrastructure, there is a need for further reform of electricity network connection arrangements for data centres. This is reinforced by forecasting that NSW will miss its legislated Energy Security Target from 2033-34 (NSW DCCEEW, 2026). Additional reform in cost recovery arrangements is also warranted, and has the potential to build social licence within the community. As outlined in ATSE's February 2026 Submission to the Draft Integrated System Plan, social licence is also an important element for new energy infrastructure development (ATSE, 2026a).

Building on ATSE's Submission to the Inquiry into Data Centres in NSW, and in alignment with ATSE's areas of expertise, ATSE provides the following recommendations on the proposed reforms to electricity network connection and cost recovery arrangements:

Recommendation 1: Ensure connection agreement flexibility obligations are tailored to the workload characteristics of each data centre.

Recommendation 2: Periodically review and adjust the Major Network Upgrade Fee to maintain alignment with the marginal network augmentation costs attributable to data centres.

Recommendation 3: Apply forfeiture of the entry bond if steps toward construction do not commence within two years.

Managing demand flexibility

Australian electricity consumption[1] and demand[2] has increased significantly as electrification of households and industry accelerates (AEMO, 2026b). Since 2018, when figures were first reported, NSW has been the leading jurisdiction for data centre electricity consumption and demand. Monthly data centre electricity consumption has increased from 90 GWh to over 300 GWh (AEMO, 2026c). Demand has increased from approximately 120 MW to 400 MW (AEMO, 2026c).

There is future potential for data centres to pursue demand flexibility.[3] This can be achieved through power management – shifting non-time-critical computing to off-peak times. Flexibility will depend on the type of computing workload. For example, batch processing and some AI training differ significantly from latency-sensitive, critical services. Further demand flexibility can be sustained by undertaking geographical workload shifting (Ali et al., 2021). Data centres can readjust their non-interactive workloads, shifting them between locations or delaying workload to coincide during time periods in which there is lower-cost or renewable electricity that is able to be used. A United States study in 2010 by the Lawrence Berkeley National Laboratory, successfully resulted in data centres flexibly undertaking a 5% demand reduction after 5 minutes, and an additional 10% demand reduction in 15 minutes (Ghatikar et al., 2010). The Proposal 10 requirements obligating data centres to reduce load by 25% for up to a two-hour period could be refined by clarifying which data centres are subject to this requirement. Greater consideration is needed when considering the demand flexibility requirement, as each data centre varies in the type of workload it undertakes.

Recommendation 1: Ensure connection agreement flexibility obligations are tailored to the workload characteristics of each data centre.

[1] [Total] power used over a period of time, reported as megawatt hours (MWh) or gigawatt hours (GWh) (AEMO, 2026a).
[2] Amount of power consumed, measured as megawatts (MW), averaged over a 30-minute period (AEMO, 2026a).
[3] At present, data centre operators do not provide material demand flexibility in normal operating conditions, with operational and commercial constraints cited as barriers (AEMO, 2026b).

Level 2, 28 National Circuit
Forrest ACT 2603
Australia

PO Box 4776
Kingston ACT 2604
Australia

+61 2 6185 3240
info@atse.org.au
atse.org.au

ABN 58 008 520 394
ACN 008 520 394

Australian Academy of Technological Sciences & Engineering

Fairly allocating network upgrade costs

The Major Network Upgrade Fee (Proposal 7) is intended to recover the incremental costs of bringing forward network augmentation and is calculated by comparing the timing of investment with and without the additional data centre demand. This is warranted, as network prices should reflect the capacity costs a customer creates, particularly at system peaks, and long-run marginal network costs should include the costs of bringing forward augmentation (Brown & McNair, 2020). There is also an important distinction to consider between energy consumption in kWh and the network capacity in kW that drives much infrastructure expenditure (Passey et al., 2017). This should be taken into consideration, particularly given the concerns of how data centres can reserve a very large connection whilst in fact using much less of it in the longer term. Steps should be taken to ensure that the methodology for the Fee is (1) periodically recalibrated, reflecting the actual marginal augmentation costs attributable to a connection, (2) recognised to reflect flexible capacity and (3) properly account for uncertainty in whether forecast loads materialise.

Recommendation 2: Periodically review and adjust the Major Network Upgrade Fee to maintain alignment with the marginal network augmentation costs attributable to data centres.

Supporting electricity infrastructure planning

Recent figures from the AEMO's 2026 ESOO release have found that over 40% of data centre projects proposed in the NEM since 2025 have either been cancelled, or regressed in connection status (AEMO, 2026b). Speculative data centre connection applicants have the potential to interfere with energy demand forecasting. If there continues to be cancellations of planned data centre projects, future, longer-term energy infrastructure projects that follow from Transgrid's Sydney Ring South Project and Hunter Transmission Project, could be built in areas that ultimately do not require it.

Network service providers would benefit from having an informed understanding of the total amount of intended data centre connection applicants that apply to connect, and intend to maintain their connection to the grid. The proposal for an entry bond is a welcome first step in alleviating the challenges presented with a high number of prospective data centre connection applicants.[4] To encourage certainty for network service providers, while supporting economic opportunities for NSW, the proposal for forfeiture of the entry bond is appropriate. A two-year period in which reasonable steps to begin construction must commence would strike the right balance. Data centre connection applicants who have a forfeited entry bond would then need to reapply for the entry bond. Ensuring compliance of the forfeiture and management in reapplying for the entry bond would be enforced by the Scheme Financial Vehicle.

Recommendation 3: Apply forfeiture of the entry bond if steps toward construction do not commence within two years.

ATSE thanks the NSW Department of Climate Change, Energy, the Environment and Water for the opportunity to respond to the NSW Data Centre reforms public consultation. For further information, please contact academypolicyteam@atse.org.au.

[4] See p.38 of AEMO's 2026 ESOO release (AEMO, 2026b).

Level 2, 28 National Circuit
Forrest ACT 2603
Australia

PO Box 4776
Kingston ACT 2604
Australia

+61 2 6185 3240
info@atse.org.au
atse.org.au

ABN 58 008 520 394
ACN 008 520 394

Australian Academy of Technological Sciences & Engineering

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