



Australian
Institute of
Architects

INQUIRY INTO ARTIFICIAL INTELLIGENCE AND DATA CENTRES



Senate Environment and Communications References
Committee

ROYAL AUSTRALIAN INSTITUTE OF ARCHITECTS

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ABOUT THE INSTITUTE

The Royal Australian Institute of Architects (Institute) is the peak body for the architectural profession in Australia. It is an independent, national member organisation with more than 13,500 members across Australia and overseas.

The Institute exists to advance the interests of members, support professional standards and contemporary practice, and advocate the value of architects and architecture to the sustainable growth of our communities, economy, and culture.

The Institute actively works to maintain and improve the quality of our built environment by promoting better, responsible, and environmental design.

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The Royal Australian Institute of Architects recognises the unceded sovereign lands and rights of Aboriginal and Torres Strait Islander peoples as the First Peoples of these lands and waters.

This recognition generates acknowledgement and respect for Aboriginal and Torres Strait Islander Countries, Cultures and Communities, and their ways of being, knowing and doing.

Caring for Country practices including architecture and place shaping have existed on this continent since time immemorial.

The Institute recognises a professional commitment to engage and act meaningfully through reciprocal partnership and relationships with Aboriginal and Torres Strait Islander peoples. Together we will support and develop the emergence of new possibilities for our shared future.

INQUIRY INTO ARTIFICIAL INTELLIGENCE AND DATA CENTRES – SENATE ENVIRONMENT AND COMMUNICATIONS REFERENCES COMMITTEE

1. Introduction

The Royal Australian Institute of Architects (the Institute) welcomes the opportunity to provide feedback to the Senate Environment and Communications References Committee regarding its inquiry into artificial intelligence and data centres.

The Institute is the peak body for the architectural profession in Australia, representing around 13,500 members across practice, government, education, and industry. The Institute advocates for the role of good design in delivering public benefit, including improved liveability, sustainability, resilience, and long-term economic value.

As design professionals, architects are uniquely positioned to coordinate complex infrastructure systems, integrating engineering, planning, environmental performance, and community outcomes across the full lifecycle of development.

The Institute has a strong interest in the terms of reference for this inquiry, particularly the impacts of data centres on Australian communities, infrastructure systems and the environment, including energy, water, and carbon.

We recognise that data centres are an emerging and rapidly growing form of infrastructure with significant implications for the built environment. This submission focuses on how planning, design and performance outcomes can ensure that data centre development aligns with national objectives for sustainability, infrastructure efficiency, and community benefit.

2. Data centres require a strategic, regulated infrastructure approach

Data centres are essential to Australia’s digital economy. They are also large physical developments with significant and long-term impacts on energy systems, land use, water resources, and surrounding communities.

These facilities should be understood not just as buildings, but as integrated infrastructure systems requiring coordinated planning across energy, water, and land use.

They should therefore be recognised and planned as a strategic form of infrastructure within the built environment, rather than assessed solely through standard industrial planning pathways.¹

¹ Planning Institute of Australia, *Planning for Data Centres – Guidance Note*, June 2026; and Planning Institute of Australia, *PIA supports coordinated planning for data centres*, available at: https://www.planning.org.au/pia/pia/news-resources/articles/latest-updates/NATIONAL/PIA_supports_coordinated_planning_for_Data_Centres.asp

Currently there is no single integrated sustainability or performance standard for data centres in Australia, despite growing demand.

While existing planning systems can accommodate data centres, current approaches do not consistently address their full system impacts. This creates a risk of inefficient siting, increased infrastructure costs and missed opportunities to deliver broader public benefit, now and in the future.

The Australian Government's *Expectations of Data Centres and AI Infrastructure Developers* paper provides an important starting point, particularly in relation to energy transition, water use and community outcomes.² However, these expectations are not sufficient on their own to guide consistent development outcomes. Their effectiveness depends on how they are translated into planning processes, infrastructure coordination, and performance standards across jurisdictions.

Recent state-level initiatives, including proposals in South Australia to introduce dedicated legislation and link performance standards to streamlined approvals, demonstrate the direction of policy development.³ However, differing approaches across jurisdictions reinforce the need for nationally consistent guidance, supported by clear planning and performance frameworks.

While we welcome the capital pipeline supporting Australia's digital infrastructure, the growing reliance on data centres requires a more strategic and coordinated approach to how this sector is planned, regulated, and integrated into the broader policy environment.

These facilities share some characteristics with other resource-intensive industries, including their significant demand on energy, land, and water systems. In this respect, data centres can be understood as comparable to extractive industries like mining in how they draw on shared infrastructure and resources, even though their economic and employment profiles differ.

The Institute does not support measures that discourage investment. However, policy settings at both national and jurisdictional levels should align incentives, appropriately price access to scarce public resources and ensure long-term national benefit and deliver clear public value. This includes consideration of how the economic contribution of large-scale digital infrastructure is captured and reinvested to support infrastructure delivery, energy transition, and community outcomes.

There is an opportunity to move beyond treating data centres solely as land use developments and instead frame them as part of broader economic and infrastructure systems. This could

² Australian Government, *Expectations of Data Centres and AI Infrastructure Developers*, Department of Industry, Science and Resources, March 2026, available at: <https://www.industry.gov.au/publications/expectations-data-centres-and-ai-infrastructure-developers>

³ ABC News, *SA government moves to regulate AI data centres as water, energy concerns mount*, 23 June 2026, available at: <https://www.abc.net.au/news/2026-06-23/sa-push-for-ai-data-centres-in-sa-in-new-strategy/106830536>

include strengthening expectations around infrastructure contributions, integration with renewable energy and storage, and alignment with productivity and decarbonisation objectives, while ensuring meaningful engagement with Traditional Owners and local communities.

Treating data centres through this broader lens would support their role as active contributors to Australia's economic and infrastructure systems, rather than passive infrastructure hosts. It also creates opportunities to capture downstream value and ensure that growth in the sector delivers clear national and community benefit, particularly as these facilities increasingly shape and interact with broader infrastructure systems.

3. Siting decisions will determine long-term outcomes

The location of data centres is not just a technical or commercial decision. It determines how effectively they integrate with local energy networks, water systems, digital infrastructure, and surrounding land uses.

Australia is experiencing rapid growth in data centre development driven by a convergence of global demand, local market advantages, and policy settings. While Australia offers regulatory stability and data sovereignty advantages, these gains risk being undermined by weak planning and environmental protections.

Emerging evidence highlights the importance of considering long-term environmental and climate risks in siting decisions, including exposure to heat, flooding, and water stress.⁴ Community responses to recent proposals demonstrate both the economic opportunities associated with data centres and concerns about water use and local impacts. This reinforces the importance of site-specific planning decisions and early engagement.

Without stronger coordination, there is a risk that development proceeds faster than planning systems can respond. National frameworks should support:

- alignment with infrastructure capacity
- consideration of climate risks and long-term resilience
- integration with surrounding land uses
- identification of opportunities for co-location and shared infrastructure

This is not about restricting development but ensuring it occurs in appropriate locations and delivers sustainable outcomes over time, and that impacts and benefits are communicated transparently to support community confidence.

⁴ ABC News, *Data centre boom sparks warning to consider global location climate risks*, 18 June 2026, available at: <https://www.abc.net.au/news/2026-06-18/data-centre-boom-sparks-warning-to-consider-climate-change/106799658>

Specifically, the Institute considers that water use policy should establish clear, nationally consistent standards and stronger integration within planning frameworks. There is currently a lack of consistent benchmarks for water use, which limits infrastructure planning and community confidence. This should include national water efficiency and disclosure standards, and a preference for recycled and non-potable water sources where feasible.

While many data centres will transition to closed-loop systems as operations mature, short-term impacts on local water systems can be significant and require careful planning. A consistent national approach would support both sustainable resource management and more efficient long-term infrastructure planning.

This may also include consideration of suitable legacy industrial or infrastructure sites, where existing energy, land and network capacity can support more efficient development outcomes.

The Institute also emphasises the importance of early and meaningful engagement with First Nations communities in the planning and siting of data centres. As developments with long-term impacts on land, water and infrastructure systems, data centres should be informed by Traditional Owner knowledge of Country. This can support better site selection, strengthen community confidence and social licence to operate, and create opportunities for long-term economic participation and community benefit.

4. Embed design quality and place-based outcomes

Data centres are often considered primarily in terms of energy use or digital capacity. However, they are long-term components of the built environment.

Their siting, scale and interface with surrounding areas can affect:

- local amenity and landscape
- employment precincts and land supply
- infrastructure demand and urban form
- community acceptance and social licence

Design quality is therefore not a secondary issue. Good design can improve integration, reduce impacts and support better long-term outcomes for communities.

There is a clear role for national frameworks to support:

- integration across urban, peri-urban, and regional contexts
- clear expectations for design and site planning

- identification of co-benefits alongside infrastructure delivery, including biodiversity and landscape outcomes.⁵

5. Deliver net-zero outcomes through design and performance

The Institute's *Architecture Industry Decarbonisation Plan* sets a clear trajectory for all new buildings to be all-electric, highly efficient and aligned with net-zero operational emissions.⁶ It also calls for the measurement and reduction of embodied carbon using nationally consistent tools such as NABERS.⁷

This is directly applicable to data centres.

Current performance frameworks, including NABERS, are primarily focused on operational energy efficiency. While this is critical, they do not fully reflect the growing importance of climate resilience and whole-of-system performance.

Policy settings should consider whether existing benchmarks are sufficient in the context of future climate conditions. As Australia experiences higher temperatures and more frequent extreme heat events, data centres will place increasing demand on cooling systems and energy infrastructure.

High-performing facilities will require design approaches that improve resilience to heat, energy system stress, and climate-related risks. This includes integrated design of energy, water and building systems, alongside consideration of long-term operational conditions rather than average performance assumptions. Evidence from industry practice demonstrates that well-integrated low-carbon design can deliver improved performance outcomes without increasing overall project costs.

Data centres are large, material-intensive developments, and the carbon embedded in their construction can represent a substantial share of total lifecycle emissions.

Policy settings should therefore embed whole-of-life carbon performance as a core requirement of development, not a secondary consideration, including:

⁵ Green Building Council of Australia, *Nature Positive Roadmap*, available at: <https://new.gbca.org.au/news/gbca-media-releases/gbca-releases-nature-roadmap-to-guide-future-developments/>

⁶ Australian Institute of Architects, *Architecture Industry Decarbonisation Plan 2025–2050*, May 2025, available at: <https://www.architecture.com.au/advocacy-news/policy/architecture-industry-decarbonisation-plan-2025-2050>

⁷ NABERS, *Data Centres Rating Tools*, available at: <https://www.nabers.gov.au/ratings/spaces-we-rate/data-centres>

- operational energy use
- embodied carbon in building materials and systems
- ongoing replacement and upgrade cycles

Design and planning decisions, particularly those made early in project development, are critical to achieving these outcomes and avoiding the need for later-stage mitigation. Site selection, building performance and infrastructure integration determine whether data centre projects can meet national expectations in practice.

6. Integrate energy and water systems from the outset

Data centres place significant demand on both electricity and water. These facilities can function as part of broader infrastructure systems, rather than as standalone developments.

There is growing international interest in energy and water synergies, particularly the reuse of excess heat from data centres. While Australia does not have established district heating infrastructure, there may be opportunities in specific locations to co-locate data centres with compatible uses, and these should be considered as part of planning and assessment processes where feasible, such as:

- community and public facilities (such as hospitals and public swimming pools/aquatic centres)
- agriculture or aquaculture
- industrial or materials processing uses.

These opportunities will not exist everywhere, but they can improve overall system efficiency where local conditions allow.

At the same time, water availability will be a critical constraint in many regions. Cooling strategies must respond to local conditions, recognising that water-intensive systems may not be appropriate in many parts of Australia, given increasing water scarcity, and long-term pressures on water resources.

7. Recommendations

Based on the issues outlined above, the Institute recommends that the Committee consider the following actions:

- 1. Recognise data centres as strategic infrastructure within the built environment**
Ensure national policy, planning and economic frameworks reflect their impacts on energy systems, water resources, land use, and communities, rather than relying solely on standard industrial planning pathways.
- 2. Develop nationally consistent siting and integration frameworks**
Work with states and territories to establish clear, nationally consistent guidance, including nationally consistent design principles, in planning systems, covering

infrastructure alignment, climate risk, land use integration, co-location opportunities and precinct-scale planning approaches where appropriate.

3. Strengthen place-based and community outcomes in data centre development

Ensure planning and policy frameworks support high-quality design, community integration, and meaningful engagement with First Nations communities, including opportunities for long-term local benefit.

4. Embed embodied carbon measurement and reduction

Establish national requirements to measure and reduce embodied carbon in data centres, supported by the NABERS Embodied Carbon tool.

5. Set a clear trajectory for high-performance operational energy

Support higher performance NABERS Energy benchmarks aligned with a pathway to net-zero operational emissions.

6. Expand NABERS and complementary tools to cover whole-of-life performance

Support the development and consistent application of NABERS Water alongside NABERS Energy and NABERS Embodied Carbon to ensure consistent assessment of energy, water, and carbon outcomes.

8. Conclusion

Australia can set global best practice in how data centre infrastructure is planned, designed, and integrated.

Data centres are critical infrastructure for Australia's economic and technological future. The way they are delivered will shape energy systems, infrastructure investment, and community outcomes for decades, and early decisions will lock in long-term patterns of development.

Policy frameworks are still emerging and remain largely non-binding. This inquiry provides an important opportunity to ensure that national expectations are translated into consistent planning, design, and performance outcomes across jurisdictions. Without this alignment, there is a risk that rapid growth outpaces the systems needed to manage it effectively.

Data centres underpin essential services, including health, finance, defence, transport, and digital systems. They should be recognised and planned accordingly within infrastructure and planning frameworks, with clear expectations for their contribution to energy transition, infrastructure delivery, and community outcomes.

The Institute would welcome the opportunity to support the Committee's work and contribute to future policy and reform processes. This includes drawing on the Institute's Decarbonisation Plan, which provides a nationally aligned, evidence-based framework for reducing emissions across the built environment, and working with government to develop practical, system-level recommendations that improve sustainability, infrastructure integration, and long-term productivity outcomes in Australia.

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