AUSTRALIAN WATER ASSOCIATION

Getting it right: Building AI infrastructure that works for Australia

Office of AI Consultation Paper

Australian Water Association (AWA) Submission

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To the Office of AI,

AWA is pleased to provide our submission to Office of AI's consultation paper: Getting it right: Building AI Infrastructure for Australia. AWA welcomes the opportunity to discuss this submission further.

Yours sincerely,

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Our key recommendations

Our recommendations (see Box 1) are most closely aligned with the consultation questions on using innovative, efficient, and sustainable solutions to minimise water use.

Water is a finite resource, and data centres represent a large industrial water use that has largely not been accounted for in water planning instruments, such as the *Greater Sydney Water Strategy*. This submission outlines the minimum requirements that should be incorporated into the national standards referred to in this consultation paper. Our recommendations represent practical pathways to align with the Australian Government's *Expectations of Data Centres and AI Infrastructure Developers* (released 23 March 2026), to ensure that data centre developments will establish clear accountability for supporting sustainable, resilient and efficient water systems, alongside broader environmental and community outcomes.

1) Long term planning for data centre water demands should rely on recycled water use.
2) Specific Water Use Efficiency (WUE) and Power Usage Effectiveness (PUE) must be set and regulated by state governments. Fully transparent water reporting must include volumetric demands.
3) Data centres must quantify urban heat impacts and implement appropriate mitigation measures, contributing to government coordinated implementations of water sensitive urban design (WSUD) features.
4) Data centres must consider the sustainability nexus between water, energy, and carbon to achieve sustainable, long-term targets.

Box 1 – Overall recommendations from AWA for the Office of AI's Consultation Paper: Getting it right: Building AI infrastructure that works for Australia

The Australian Water Association – a collective of water professionals

The Australian Water Association (AWA) welcomes the opportunity to make this submission. AWA is Australia's largest peak body for the water sector – representing over 6,000 members across utilities, government agencies, engineering, urban design and planning, science, research, academia, energy, resources, manufacturing, mining and agriculture.

AWA aims to leverage its broad and diverse membership to advocate for a sustainable water future, where water is recognised as enabling infrastructure that underpins Australia's key priorities, including economic productivity and development, climate resilience, environmental integrity, social wellbeing, intergenerational equity, and progress towards Closing the Gap. AWA acknowledges that First Peoples have sustainably managed water for tens of thousands of years through traditional custodianship, and that genuine recognition of the cultural, social and spiritual values of water is critical to achieving equitable, resilient and enduring water outcomes for all Australians.

Data centre water demands should be met from recycled water sources.

- **Data centre water demand should be met through recycled water to enable circularity and support long-term water security.**
- **A beneficiary-pays approach should underpin all water servicing arrangements, with data centre proponents responsible for funding the infrastructure and long-term supply solutions required to meet their water needs, ensuring costs are not transferred to residential customers.**
- **The Australian Government can improve policy and regulatory settings to accelerate recycled water uptake, including updating the *Australian Guidelines for Water Recycling.***

To avoid real threats to the ongoing security of Australia's drinking water supply, data centre water demands must be supplied by recycled water. Where recycled water is not available; data centre proponents can work with utilities to develop de-centralised solutions or implement recycled water offsets, similar to those specified by the NSW Government in their recently published NSW Data Centre Guidelines (NSW Government, 2026a).

Recycled water is generally less costly and less energy-intensive to produce than desalinated water (Atkinson et al., 2026), and its use for cooling can deliver a range of environmental, economic and social co-benefits through improved water circularity (Chen et al., 2024; Circular Australia, 2026). Historically, the viability of new recycled water schemes has been constrained by challenges in securing sufficient long-term demand, determining equitable funding arrangements, and ensuring ongoing scheme sustainability. Data centres present a unique opportunity to overcome these barriers. As large, predictable water users with both the capacity to pay and a need for reliable water supplies, data centres could provide the anchor demand needed to unlock investment in new recycled water infrastructure.

AWA therefore emphasises that any national framework should adopt a beneficiary-pays principle, requiring proponents to fund the infrastructure and operational costs associated with securing alternative water supplies. To give effect to the beneficiary-pays principle, governments must ensure that the costs associated with servicing data centre demand are not transferred to existing or future water customers. For example, where recycled water supplies allocated to data centres would otherwise have been available to meet forecasted future demand from existing customers, proponents should be required to fund alternative long-term water sources, such as additional recycled water or desalination supplies, to maintain water security and avoid increased costs being borne by residential consumers. This approach ensures that growth in data centre capacity strengthens, rather than constrains, long-term community access to reliable water services. Greater use of recycled water can also strengthen the social licence of data centre developments by demonstrating responsible stewardship of local water resources and addressing community concerns about growing water demand (Mandala, 2022).

There is already evidence that data centre operators are willing to support major investments in recycled water infrastructure (Mandala, 2025). When coordinated with water utilities and government agencies, investment in recycled water schemes can also improve regional water security by increasing the availability of climate-resilient water supplies. Furthermore, excess capacity created through network upgrades can be repurposed for household and community use whenever possible (Mandala, 2025). Increased development of recycled water infrastructure can deliver volumes of excess supply for public open space irrigation, urban greening, industrial use, and other non-potable applications to reduce overall demand for drinking water supplies. In this way, investment driven by data centres can help catalyse broader water security outcomes beyond the needs of a single development.

Investment opportunities will require early, transparent and collaborative planning between data centre proponents, utilities and government agencies. Given the rapid development timelines often associated with data centre projects, the Australian Government may also consider mechanisms that enable greater private sector participation in the delivery of supporting water infrastructure, while maintaining close coordination with water utilities and long-term strategic planning objectives.

The Australian Government also has an important role to play in improving the policy and regulatory settings required to accelerate recycled water uptake. Recent initiatives, including the NSW Government's Recycled Water Roadmap and the development of a Recycled Water Concierge Service to streamline project approvals, provide useful models that could be adopted nationally. As part of this work, AWA recommends a review and update of the *Australian Guidelines for Water Recycling* to ensure they reflect contemporary technologies, regulatory approaches, and opportunities to support the expansion of recycled water across Australia. The Guidelines were developed and published over a three-year period between 2006 and 2009, with strong political backing during the Millennium Drought. Their development was appropriately resourced through the National Water Commission and partially funded by the water sector, reflecting a collaborative approach between governments, regulators and industry. A similar model could offer significant benefits in the current conversation on recycled water, helping to build consensus, leverage sector expertise and accelerate the development of nationally consistent guidance.

We need specific water efficiency targets and transparent water reporting

- **Power Usage Effectiveness (PUE) and Water Usage Efficiency (WUE) must be developed with the water sector and align with international best practice.**
- **Tighter efficiency standards should be enforced in drought-prone areas.**
- **Volumetric water reporting must be mandatory.**

Australia is the driest inhabited country on this planet, and any user of water needs to use it efficiently. AWA calls for the clear definition and enforcement of mandatory Power Usage Effectiveness (PUE) and Water Usage Efficiency (WUE) targets in the National Standards that are being developed. Specific targets must be designed in collaboration with the water

sector and align with international best practice. AWA welcomes the opportunity to facilitate connection to, and leveraging of, the expertise of the water sector.

National data centre operating standards must be supported by a clearly defined regulatory and compliance framework. Without a designated body responsible for monitoring, reporting and enforcement, there is a risk that the standards will lack practical effect and fail to achieve their intended objectives. AWA recommends that in addition to baseline efficiency standards, tighter efficiency standards should be mandated in drought prone, water-scarce areas. Furthermore, AWA is insistent that water efficiency metrics alone are not sufficient to report on data centre water demands, and mandatory reporting of volumetric quantities are required. Accurate volumetric reporting will be essential for utilities and water planners to understand, and correctly account for, data centre water demand.

Data centres planning needs to align with integrated water management principles

- **Integrated water management planning principles (including the use of stormwater harvesting schemes, Water Sensitive Urban Design (WSUD) features and nature-based solutions (NbS)) are required to build community resilience to data centre impacts**
- **Policy and planning settings should incentivise integrated water management to accelerate the deployment of WSUD at the scale required.**
- **New data centre developments should be required to undertake quantitative modelling to assess and disclose the impacts of their construction and operation on local urban heat conditions.**

Emerging evidence suggests that AI and data centre developments can contribute to localised increases in land surface temperatures, a phenomenon increasingly referred to as the "data heat island effect". Studies have estimated that average land surface temperatures may increase by up to 2°C following the commencement of data centre operations (Marinoni et al., 2026). This is a significant consideration in the Australian context, where heatwaves have historically caused more fatalities than any other natural hazard, including bushfires and floods (Argüeso et al., 2015). The issue is particularly relevant in Western Sydney, where several State Significant Development (SSD) data centres are currently proposed and where the cost of household cooling is projected to increase by 370% by 2079 under current climate trajectories (Committee for Sydney, 2022).

AWA emphasises that the National Framework must adopt a holistic approach to managing urban heat by recognising all significant contributors to heat risk, including data centres. Consistent with the approach proposed in NSW's Draft Urban Heat Policy under the Climate Change and Natural Hazards SEPP, data centre developments should be required to undertake quantitative modelling to assess the impact of data centres upon local temperature conditions. This evidence should inform planning and approval processes, ensuring that urban heat impacts are identified, transparently considered and appropriately managed.

Mitigating urban heat will require stronger integration between land use planning, water management and infrastructure delivery. Greater collaboration between data centre proponents, water utilities and government agencies will be necessary to coordinate water sensitive urban design (WSUD) measures, including increased urban canopy cover, green infrastructure and blue-green corridors that help cool surrounding communities while delivering broader environmental benefits.

Data centres also present an opportunity to support urban cooling outcomes through strategic investment in recycled water infrastructure. Stormwater harvesting schemes and recycled water can enable the expansion of greening initiatives, irrigation networks and other WSUD measures that reduce urban temperatures while strengthening community resilience to extreme heat. To realise these co-benefits, AWA recommends the introduction of specific planning triggers for developments located in areas already vulnerable to urban heat. Where quantitative modelling demonstrates that a proposed data centre will contribute to local temperature increases, proponents should be required to offset those impacts through investment in urban cooling measures within the surrounding area. This would create a clear pathway for data centre developments to contribute positively to climate resilience and sustainable city design, particularly in high-growth regions.

Managing water-energy-carbon trade-offs

- **Product stewardship regulatory protocols should be embedded to data centre operation**
- **Decision-making frameworks for data centres should ensure that trade-offs between water security, energy demand and emissions reduction are explicitly assessed and balanced to achieve the most sustainable long-term outcomes.**

Water and energy consumption are key determinants of the embodied carbon and lifecycle impacts of data centres (RICS, 2024). There are broader environmental considerations associated with data centre growth, including embodied carbon, electronic waste (e-waste) generation, and opportunities to advance circular economy outcomes through greater industry collaboration.

In particular, AWA supports the introduction of mandatory data centre e-waste management plans. The risk of significant e-waste generation is substantial given the regular replacement of mechanical, electrical and plumbing (MEP) components and other digital infrastructure, many of which have an operational lifespan of only 10 to 30 years (RICS, 2024). Data centres can also act as catalysts for expanded e-waste recovery and recycling capacity. Federal and state governments must explore the use of product stewardship schemes and other regulatory mechanisms to ensure that valuable materials are recovered and retained within the circular economy wherever possible.

Data centre operators must also navigate important trade-offs between water use, energy consumption and carbon emissions. Energy-intensive cooling technologies are generally associated with higher greenhouse gas emissions than water-based cooling systems (Manganelli et al., 2021). Water cooling can improve overall operational efficiency by reducing energy requirements and maximising the proportion of available electricity that can

be directed towards compute capacity, thereby improving the productivity of data centre operations.

Meeting these water demands through recycled water sources can help reduce pressure on both potable water supplies and the energy system. This is particularly important given concerns from energy market participants regarding the capacity of Australia's electricity network to accommodate projected growth in data centre demand. As AGL Chief Executive Damien Nicks noted, "We don't have enough assets built in this market to get anywhere near that sort of data centre growth" (Australian Financial Review, 2026). By supporting water-efficient cooling through recycled water schemes, governments can help alleviate pressure on constrained energy markets while strengthening long-term water security.

Conclusions

The rapid growth of AI and data centres presents both significant challenges and opportunities for Australia’s water, energy and environmental systems. To ensure this growth occurs sustainably, governments must establish clear and enforceable requirements that prioritise recycled water use, mandate transparent performance standards and reporting, address urban heat impacts, and recognise the interdependencies between water, energy and carbon outcomes. By embedding these principles within national and state regulatory frameworks, Australia can support digital infrastructure growth while strengthening water security, climate resilience and long-term community outcomes.

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