

Data Centres, Done Right

EDO Principles for Responsible Data Centre Development

Data centres are rapidly expanding in jurisdictions across the world. Australia is increasingly viewed as a prime location for these centres.¹ While data centres are not new, given the increasing use of artificial intelligence (**AI**) and reliance on and use of online/cloud services, the scale and speed of the proposed development is unprecedented, requiring more space and resources to power them.²

In August 2026, the Australian Energy Market Operator (**AEMO**), recorded 225 data centre projects at ‘various stages of the connection process’ to the national electricity market, more than double the number reported the previous year.³

Governments across Australia are currently making decisions on significant and risky data centre proposals without the regulatory frameworks in place to understand, avoid and mitigate the impacts to Australia’s electricity grid, communities and environment. National regulation is needed to appropriately plan for data centre rollout, to ensure ecologically sustainable and community safe development of this significant industry.

How are data centres a risk to Australia’s environment?

Based on increasing evidence, data centre expansion, especially involving large ‘hyperscale’ or ‘AI factory’ data centres, is resource intensive, and carries significant, multifaceted risks for Australian environments and communities, including in relation to energy consumption, water demands, land consumption, pollution risks, and impacts on biodiversity and cultural heritage.

Energy consumption: At a national level, AEMO forecasts data centre operational consumption will likely triple to around 15 TWh or 7.8% of Australia’s national electricity

¹ See, for example, Department of Industry, Science and Resources (Cth) (**DISR**), *National AI Plan*, 2 December 2025, available at <<https://www.industry.gov.au/publications/national-ai-plan/capture-opportunities>>, ‘Capture the opportunities’; Australian Bureau of Statistics, *Spotlight – Data Centres in Economic Statistics*, 26 February 2026, available at <<https://www.abs.gov.au/articles/spotlight-data-centres-economic-statistics#cite-window2>>; ‘Australia’s data centre boom: a \$150 billion investment opportunity’ *CommBank Newsroom* (6 August 2026), available at <<https://www.commbank.com.au/articles/newsroom/2026/08/australias-data-centre-boom.html>>; Climate Council of Australia Limited, *Clouded Future: Managing the Risks of the Data Centre Boom*, 2026, available at <<https://www.climatecouncil.org.au/wp-content/uploads/2026/06/CC-Report-Data-Centres.pdf>>, p. 5.

² Climate Council, *Seizing the Opportunity to do Data Centres Right*, 3 June 2026, available at <https://www.climatecouncil.org.au/what-does-the-data-centre-boom-mean-for-australias-switch-to-renewables/?utm_source=google&utm_medium=cpc&utm_campaign=DIG-TOF-NSP-AG-CON-DSA&utm_content=All%20Pages&gad_source=1&gad_campaignid=9878318096&gclid=EAlaIqobChMIgej8rtemlgMV3c48Ah2nMDZdEAAYASAAEgK48PD_BwE>.

³ Note: not all of these centres will necessarily proceed; Australian Energy Market Operator, 2026 *Electricity Statement of Opportunities for the National Electricity Market*, August 2026, p 38 (**AEMO, 2026 Statement of Opportunities for the NEM**).

market by 2029-30 and grow nearly seven times this by 2035-36.⁴ This amounts to almost as much electricity presently consumed by every home in NSW and Victoria.⁵ This growing energy demand could slow the transition away from fossil fuels if new demand is met by additional fossil fuel generation rather than accelerating investment in renewable energy.

Water demands: It is estimated that water demand from data centres could increase from 5.5 GL in 2025 to 17GL by 2030 across Australia.⁶ While estimates vary considerably, some predictions forecast data centres in Sydney could require up to 90 billion litres a year by 2035, approximately 15-20% of water supply.⁷ Increased water consumption can place further stress on rivers, groundwater systems, groundwater dependent ecosystems and water supplies, particularly during drought and in a changing climate.

Land consumption: For Sydney's 1GW Mamre Road Data Centre campus alone, heralded as the 'biggest in the Southern Hemisphere', the industrial-zoned site equates to the size of approximately 52 rugby fields.⁸ Changes in land use to accommodate new data centres can contribute to habitat loss and fragmentation through land clearing, impacts to First Nations cultural heritage, and the loss of productive agricultural or other environmentally valuable land.

Pollution: The potential reliance on fossil fuel power supplies for data centres, including diesel backup generators, risks significantly increasing climate pollution. For instance, the proposed Southern Highlands Data Campus proposes relying on a 673MW gas-fired power station, which reports estimate would alone emit an additional two million tonnes of carbon emissions per year, approximately the annual emissions from 800,000 cars.⁹ The running of

⁴ AEMO, 2026 Statement of Opportunities for the NEM, p 38; Oxford Economics Australia prepared for AEMO, *Data Centre Energy Demand: 2026 Forecast Update*, June 2026, available at <<https://www.oxfordeconomics.com/wp-content/uploads/2026/08/OEA-AEMO-Data-Centre-Report.pdf>>, Executive Summary.

⁵ Jake Evans, 'Data centres to consume nearly as much power as every home in NSW and Victoria by 2036' *ABC News*, 25 August 2026, available at <<https://www.abc.net.au/news/2026-08-25/data-centre-power-hungry-demand-2036/107070852>>.

⁶ Mandala, *Data Centres as Enabling Infrastructure*, November 2025, available at <<https://mandalapartners.com/uploads/Data-Centres-as-Enabling-Infrastructure.pdf>>, p 9.

⁷ Water Services Association of Australia, *Data Centres and Water in Australia: A resource for sustainable data centre development*, December 2025, available at <<https://wsaa.asn.au/Common/Uploaded%20files/library/report/WSAA%20Data%20Centres%20and%20water%20in%20Australia%20-%20December%202025.pdf?version=33348DA2>>, p. 8, referring to estimates from Sydney Water.

⁸ NSW Treasurer, Minister for Innovation, Science and Technology, Minister for Planning and Public Spaces, *Southern Hemisphere's biggest data centre gets the green light*, Ministerial media release, 28 November 2025, available at <<https://www.nsw.gov.au/ministerial-releases/southern-hemispheres-biggest-data-centre-gets-green-light>>; B Cumbo and The Conversation Digital Storytelling Team, 'Can Australia Build on of the world's largest data centres?', *The Conversation*, 10 February 2026, available at <<https://stories.theconversation.com/can-australia-build-one-of-the-worlds-largest-data-centres/>>.

⁹ NSW Department of Planning, Housing and Infrastructure, 'Planning Secretary's Environmental Assessment Requirements: Application No. SSD-102795459, Southern Highlands Data Campus Power Station', 22 December 2025, available at

data centres also discharges heat, light, noise, and chemicals which can cause significant disruption and harm to communities, environments, and ecological processes.

Collectively, these demands risk intensifying existing environmental impacts and increasing competition for scarce resources, rather than supporting a more sustainable, climate-resilient future for Australia.

Under a current application in the Northern Territory, the Project Ares hyperscale data centre project proposes to have 1 GW capacity, requiring:

- gas fired power generation capable of generating up to 1,038 MW (making it the largest gas fired power station in Australia) which will be the primary energy source during solar and battery construction and later firming up total project energy use;¹⁰
- a 7,000-hectare solar farm capable of generating up to 3,000-megawatt peak and battery storage of 16 gigawatt hours;¹¹
- 4GL of groundwater per year;¹²
- a total area of 186,000 hectares, including at least 19,150 hectares of vegetation clearing (more than the size of the City of Darwin), affecting habitat for the Greater Bilby and other threatened species along with clearing of potential significant vegetation;¹³ and
- extensive supporting infrastructure, including access roads, worker accommodation, workshops, waste management facilities and an airstrip.¹⁴

What can be done to mitigate environmental risks?

At this pivotal stage, there is opportunity for Australia to be a global leader in the conscious and responsible design, construction, and operation of data centres, enabling mitigation of the serious risks they pose, and harnessing key technological and economic advantages. At present, there are multiple proposals for significant data centre developments being pushed through without adequate laws in place to ensure the potential impacts are understood, and centres are sustainably developed for communities and the environment.

The rapid rollout of data centres and eagerness to secure economic benefits must not be to the detriment of First Nations communities, urban, regional or remote communities,

<<https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-102795459%2120251222T014859.011+GMT>>, p 1; Climate Council, *Clouded Future: Managing Risks of the Data Centre Boom*, June 2026, available at <<https://www.climatecouncil.org.au/wp-content/uploads/2026/06/CC-Report-Data-Centres.pdf>>, p 21.

¹⁰ Energy North, 'Project Ares: Referral under the *Environment Protection Act 2019 (NT)*', June 2026, available at <https://ntepa.nt.gov.au/__data/assets/pdf_file/0015/1622103/referral-report.pdf>, pp 12-13 (**Energy North, Project Ares Referral under EP Act (NT)**).

¹¹ Energy North, Project Ares Referral under EP Act (NT), pp 20, 37.

¹² Energy North, Project Ares Referral under EP Act (NT), p 20.

¹³ Energy North, 'Project Ares: Draft Statement of Reasons', June 2026, available at <https://ntepa.nt.gov.au/__data/assets/pdf_file/0019/1622107/project-ares-draft-sor.pdf>, p 4.

¹⁴ Ibid, p 1.

ecological sustainability and environmental integrity, or Australia's climate change, biodiversity, and human rights protections. Nor should it derail Australia's efforts to tackle the climate and biodiversity crises, or the renewable energy transition. Australia will benefit from taking the time to get appropriate laws in place, to do data centre development right.

EDO Data Centre Principles

EDO has developed the following 14 Data Centre Principles (the **Principles**) to provide a clear pathway for planning, assessment and approval of ecologically sustainable and community safe data centres and associated infrastructure and use of resources.

Establishing a comprehensive regulatory framework for data centres, which could take the form of national, mandatory and enforceable ecologically sustainable minimum standards, is essential to ensure data centres are appropriately located, sited, designed, operated, and ultimately decommissioned. Any such regulatory framework must ensure data centres avoid, minimise and mitigate adverse impacts on the natural environment and associated ecological processes, air quality, water resources, energy supply and the renewable energy transition, First Nations rights, cultural heritage and Country. There must also be clear, mandatory requirements for Free, Prior and Informed Consent (**FPIC**) and be co-designed with impacted First Nations communities.

For the purpose of this document, **data centres** include: any facility that houses IT equipment, including servers, network and storage equipment, for the purposes of providing services and applications, including training of or hosting AI models, as well as all associated and supporting infrastructure.¹⁵

While acknowledging the increasing use of AI and cloud services are contributing factors to the data centre expansion, these Principles do not consider or address regulation of AI. We recognise that there is a role however for community education on the environmental impacts associated with the demand for AI and that AI usage should be undertaken responsibly with this in mind.

Ensuring ecologically sustainable data centre development nationally

1. A moratorium is established until ecologically sustainable and community safe regulations are in place across Australia

A moratorium must be established across all states and territories on the assessment or approval of data centres, until an appropriate regulatory framework is in place to properly avoid and mitigate harm. Until then, in the absence of a moratorium, data centre development may progress largely unchecked: carrying risks of significant

¹⁵ Including, for example, electricity/power supply and back-up power supply systems and connections, fibre networks, battery storage, physical security measures, internal and access roads, rail infrastructure, workforce accommodation, renewable and other energy infrastructure, and water supply infrastructure.

environmental and community impacts, inconsistent requirements across jurisdictions, and regulatory fragmentation.

2. A national, legislated, enforceable and ecologically sustainable regulatory framework be developed and apply to all data centres in Australia

Given the appeal of Australia to data centre developers and investors, including stability, security, space and abundant renewable energy potential, ensuring a nationally consistent approach to regulation, planning and approvals, would reduce the risks of inappropriate, ad hoc development and provide clear, coherent expectations and requirements for all data centres.

A national regulatory framework, such as mandatory and enforceable minimum standards, must entrench a requirement for development to be in accordance with principles of ecologically sustainable development. These principles include the precautionary principle, conservation of biological diversity and the principle of intergenerational equity. Adopting such an approach would be consistent with Australia's international obligations.

Such a regulatory framework and decision-making must be based on the best available science, including First Nations Traditional Knowledge Systems, and must apply the precautionary principle where there is a lack of scientific certainty.

Data centre design, technical aspects and sustainability considerations

3. Data centres must be powered by their own, additional, renewable energy sources only, and must further the energy transition, not undermine it

Data centre expansion will require significant use of electricity and back-up power generation (often provided by diesel powered generators). This demand threatens to increase electricity costs, strain national electricity grids and upset Australia's energy transition if it is not powered by new additional renewable energy sources.¹⁶

No new or expanded data centres should be permitted to rely on fossil fuels as a power source, or for back-up power generation. Australia has committed to reducing its greenhouse gas emissions consistent with a carbon budget based on science and international commitments to pursue a limit of 1.5°C global warming above pre-industrial levels.¹⁷

¹⁶ New renewable energy sources must also be developed in a way that is ecologically sustainable, see EDO, *12 Principles for Renewable Energy Transition Projects*, available at <<https://www.edo.org.au/edos-12-principles-for-renewable-energy-transition-projects/>>.

¹⁷ International Court of Justice, *Obligations of States in Respect of Climate Change* [2025] ICJ Rep 187, available at <<https://www.icj-cij.org/sites/default/files/case-related/187/187-20250723-adv-01-00-en.pdf>>, [224], [230]-[231].

A regulatory framework must include:

- proponent funded additional renewable energy requirements;
- energy efficiency requirements (for example, a maximum power usage effectiveness (**PUE**) value);
- load shifting abilities (including the ability to reduce grid demands during peak periods);
- specifications for back-up generator emissions standards, and battery requirements, including requirements for investment in research and development of alternatives to fossil-fuel powered back-up generators; and
- requirements to ensure that there is no diversion of power away from consumers, and there are no additional costs to consumers for data centre connection or use of grid infrastructure or energy.

4. Data centres must be designed to have minimal impacts on water resources

Data centres can have significant impacts to water and must be located and designed to have minimal impacts on Australia's water resources and the ecosystems, communities, and food systems that depend on them. This includes:

- utilising sites where water requirements can be met through municipal grey water or other water re-use options, with strict limits on potable water and environmental water use (which includes rainwater, groundwater, and surface water);
- identifying and excluding sites where no sustainable water supply exists, or the water system is inadequately understood or regulated. No special licenses should be granted for data centres to use water from already fully allocated water supplies;
- utilising the most water efficient technology for all water use requirements, including cooling;
- accounting for energy generation water requirements in data centre assessment;
- avoiding impacts of discharging wastewater or other fluids to receiving environments, including chemical or thermal water pollution;
- accounting for changes to water availability that may occur under climate change in assessment and decision-making; and
- avoiding any impact to the cultural flows and First Nations rights and interests in water and water allocations.

Connection of data centres to water utilities and use of water resources should carry no additional costs to consumers. Data centres must be required to fund their own infrastructure and energy source required to transfer water and/or treat wastewater (with least environmentally harmful treatment options required to be used).

Contingency plans must be established for periods of drought, ensuring household and environmental water needs are prioritised.

First Nations communities hold a deep cultural, customary, and spiritual connection to water (both surface water and groundwater). This includes the cultural flows of water that informs First Nations cultural landscapes and connection to their traditional country. Data centres and their significant water use risk infringing First Nations rights related to water and cultural heritage where First Nations communities hold a deep cultural, customary, and spiritual connection to water (both surface water and groundwater). A regulatory framework must recognise First Nations right to self-determination and FPIC in all decision-making processes related to water and water resources by centring and resourcing First Nations voices, knowledge, and expertise.

5. Pre-planning and strategic environmental assessments must be undertaken nationally to ensure appropriate siting of data centres to mitigate risk of impacts

Pre-planning should be undertaken across Australia to select appropriate sites for data centres to have least impacts. This will also facilitate speedier development while mitigating risks.

This pre-planning of data centre siting, including of supporting infrastructure, should be consulted upon early and should provide for a coherent strategic framework designed to meet national, state and territory energy and emissions reduction targets. Regional pre-planning and robust strategic environmental assessments should be used to:

- identify and prioritise community safe and ecologically sustainable data centre development on land which:
 - has previously been developed, impacted or degraded, including existing infrastructure corridors;
 - will minimise impacts on ecosystems and biodiversity;
 - will minimise impacts on water resources and where water requirements for data centres can be sustainably met;
 - will ensure impacts of air pollution, sensory (including light and noise) pollution, chemical pollution, and heat discharge from data centres will have minimal impacts on communities and biodiversity;
 - consistent with Principle 9 below, as determined and led by relevant First Nations, will avoid and protect cultural heritage, including culturally

significant sites, objects, and landscapes, and both tangible and intangible heritage, informed by First Nations knowledges, where affected First Nations determine what is a significant site, or what is cultural heritage, whether and how to identify significant sites, and how such sites should be protected, including any location of data centres and associated infrastructure;

- mitigates cumulative impacts on habitats, biodiversity, and ecosystem services, including with consideration of current and future climate impacts;
- ensure robust environmental data is obtained to identify areas for potential data centres and related developments, including on biodiversity, ecology and ecosystem services, hydrology – groundwater, surface water, wetlands, and natural cultural heritage and any other relevant matter; and
- identify areas that are off-limits for data centre development, such as national parks, World Heritage areas and values, high conservation value land, critical habitats, wetlands and other sensitive or vulnerable ecological areas, with appropriate buffers provided.

6. Data centre design must include air, sensory, and chemical pollution and heat discharge mitigation measures

Data centre design and planning (including back-up power generation) must identify sites where air, sensory, and chemical pollution, and heat discharge from data centres will have minimal impacts and disturbances on communities and biodiversity. Design specifications must also minimise all of these impacts and include measures to ensure containment of unplanned contamination, such as PFAS and coolant leakage. Species-specific assessments should be conducted for data centres to ensure light, noise, chemical discharge, and heat do not exceed thresholds that may adversely impact species, especially threatened species. Assessments must also avoid the impacts of air, sensory, and chemical pollution and heat discharge on communities.

7. Data centre design must include whole-of-life impacts and cost assessments, including measures to minimise waste and e-waste, and recycling or responsible disposal and decommissioning

Data centre planning and assessment processes must include consideration of the entire lifecycle of a data centre and a requirement to avoid and mitigate impacts at all stages. This includes fully funded rehabilitation, restoration, and recycling plans for end-of-project works, informed by best available science and aligning with best practice.

Rehabilitation obligations must be guaranteed by adequate and enforceable bond conditions on any relevant authority. Recycling and re-use of equipment and appropriate disposal of e-waste should be prioritised and factored into planning and assessment processes.

8. Data centre design must consider future climate change impacts on the environment and communities

Climate change must be a relevant consideration in all data centre design, planning, and decision-making, including the extraction and use of water. Any regulatory framework must ensure that future climate change impacts are addressed for all data centres, including that such impacts are avoided or mitigated in data centre design and development. Such considerations must include:

- water use adaptation, including flexibility to adjust to drought conditions and water restrictions to ensure ecosystem and critical human water needs are met;
- heat discharge and rising temperatures;
- land use change and vegetation clearing, and avoiding important carbon sinks and potential future climate ex-situ refugia; and
- bushfire risks.

9. Data centre regulation and development must provide for effective and meaningful First Nations engagement, participation and consent in the design, delivery, and benefits of data centres

All decisions regarding data centres must reflect FPIC of First Nations and the inherent rights of First Nations people reflected in the United Nations Declaration on the Rights of Indigenous Peoples (**UNDRIP**). FPIC involves the inherent collective right of First Nations to participate in decision-making about issues and laws that affect their lives, lands, waters, skies, and resources, and to grant or withhold consent as they see fit.

Any regulatory framework for data centre developments, approvals and decommissioning, including national standards, must be co-designed with affected First Nations communities and their representative organisations.

Any regulatory framework must also specifically require data centre proponents to undertake early, iterative, culturally appropriate engagement and participation of First Nations people and their representative organisations. Among other things, this engagement is required to ensure, as determined and led by relevant First Nations and informed by First Nations knowledges and rights to FPIC and self-determination, that data centre design, delivery and decommissioning identifies and protects cultural heritage, including culturally significant sites, objects and landscapes, and

both tangible and intangible heritage. First Nations must be resourced to effectively engage in the design, delivery and benefits of data centres, policies, and decision-making processes relating to data centres, as they see fit.

10. Certain areas and impacts must be identified as unacceptable and off-limits for data centres

Areas where data centre proposals will be clearly unacceptable must be identified and protected upfront. This should include, for example:

- culturally significant sites and landscapes (as identified by relevant First Nations communities);
- national parks;
- World Heritage areas and values;
- national heritage areas;
- the marine estate;
- high conservation value land;
- critical habitats;
- wetlands;
- areas that contain irreplaceable habitats/features or features that cannot be offset within a reasonable ecological timeframe that will benefit a species; and
- areas where water extraction will have unacceptable impacts on dependent ecosystems, including under climate change induced future changes to rainfall.

11. Data centres must avoid and minimise impacts, and only use carbon and biodiversity offsets for unavoidable impacts as a last resort

Data centres must avoid and minimise impacts on land, water, biodiversity, as well as emissions from energy use and back-up generators. Offsets should only be relied on as a last resort to minimise the residual, unavoidable impacts of data centres, after first genuinely avoiding, mitigating or abating impacts.

Any design of offset projects involving First Nations should be based on FPIC.

Decision-making, integrity, and social licence

12. Data centre proposals must be subject to community engagement and consultation, to ensure data centres have social licence

Proposals for data centres should be supported by best practice community engagement and consultation. This includes, for example, early, ongoing, and meaningful engagement with the public. Consultation should be culturally appropriate, genuine, respectful, purposeful, and proportionate, where community

views are considered, inform the final decision, and are responded to (including whether community views have been incorporated and if not, why not). There are significant benefits of early and open engagement with communities about data centre siting, design, impacts, and benefits. This can reduce land-use and other resource-related conflicts, including, for example, regarding water use and resources, and power use and sources, delays, and costs.

13. All data centres must comply with human rights obligations and environmental justice principles, and be subject to mandatory due diligence requirements

All decisions and activities relating to data centres must comply with Australia's international and domestic human rights obligations, and in particular, the substantive and procedural elements of the right to a healthy environment, and environmental justice principles. Particular attention should be given to the rights and needs of all individuals and communities, including communities who are already overburdened such as those living in remote areas.

Government departments and Australian corporations must also act consistently with their responsibilities under International Covenant on Civil and Political Rights (**ICCPR**), International Covenant on Economic, Social and Cultural Rights (**ICESCR**) and the UNDRIP, as well as the United Nations Guiding Principles on Business and Human Rights (**UNGPs**). This includes the corporate responsibility of Australian corporations to respect human rights, and Australia's responsibility to protect against human rights abuses from third parties including Australian corporations.

Any regulatory framework must impose mandatory due diligence requirements on data centre proponents, that require the identification of risks of environmental harm and human rights breaches across domestic and extraterritorial activities and supply and value chains.

14. Data centres must be subject to robust reporting and transparency requirements, and planning and assessment processes must ensure transparent and accountable decision-making

Assessment and decision-making in relation to all data centres must be transparent and comprehensive. Merits review rights must be available to provide for better scrutiny of decisions, and to ensure decision-maker accountability. Strong third-party enforcement rights similarly empower citizens to hold decision-makers and data centre proponents to account, and these measures must be backed up by easily accessible and timely information on all data centre proposals, decisions, and conditions.

Data centres must also be subject to regular monitoring and reporting requirements in relation to environmental and community impacts, including with respect to:

- energy use;
- impacts on energy grids;
- water use/demand;
- wastewater production;
- planned treatment methodologies;
- the effectiveness or otherwise of mitigation measures for ongoing pollutants; and
- fulfillment of biodiversity offset obligations.

Such information must be made publicly available in a timely way and is critical for transparency, as well as planning and management of the energy system, water resources and biodiversity impacts.

The National EPA, state and territory regulators, or other appropriate entities, must be adequately resourced to assist data centre proponents to understand their obligations under any regulatory framework and locate and design data centres that will minimise environmental and community impacts.

There must be inspection/audit requirements to ensure ongoing oversight of data centres, including the establishment or appointment of a federal body, to ensure public accountability and to monitor deployment and effectiveness of rapidly developing technology in data centres. This could be the National EPA if adequately resourced with expertise and staff.

Any new or appointed oversight body should be federally funded and include First Nations representation.

Australia has an opportunity to get data centre development right from the outset of the current boom. Data centres can deliver economic and technological benefits, but those benefits should not come at the expense of Australia's climate, water, biodiversity, cultural heritage, or communities.

Getting the rules right now will provide greater certainty for communities, governments and industry, avoid costly environmental and infrastructure problems later, and ensure Australia's digital future strengthens — rather than undermines — a sustainable and climate-resilient future.