

Reforming electricity network connection and cost recovery arrangements for data centres in NSW

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About the Justice and Equity Centre

The Justice and Equity Centre stands for a society that is fair and free from discrimination and disadvantage. Established in 1982 as the Public Interest Advocacy Centre (PIAC), we use the law and policy advocacy to challenge injustice and inequality. We do this through:

- legal advice and representation, specialising in test cases and strategic casework;
- research, analysis and policy development; and
- advocacy for systems change to deliver social justice.

Energy and Water Justice

Our Energy and Water Justice work improves regulation and policy so all people can access the sustainable, dependable and affordable energy and water they need. We ensure consumer protections improve equity and limit disadvantage and support communities to play a meaningful role in decision-making. We help to accelerate a transition away from fossil fuels that also improves outcomes for people. We work collaboratively with community and consumer groups across the country, and our work receives input from a community-based reference group whose members include:

- Affiliated Residential Park Residents Association NSW;
- Anglicare;
- Combined Pensioners and Superannuants Association of NSW;
- Energy and Water Ombudsman NSW;
- Ethnic Communities Council NSW;
- Financial Counsellors Association of NSW;
- NSW Council of Social Service;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Salvation Army;
- Tenants Union NSW; and
- The Sydney Alliance.

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1. Introduction

The Justice and Equity Centre (JEC) welcomes the opportunity to respond to the NSW Department of Climate Change, Energy, the Environment and Water's (DCCEEW) consultation paper on Reforming electricity network connection and cost recovery arrangements for data centres in NSW (the consultation paper).

The JEC strongly supports the proposal to implement a bespoke access framework for data centres in NSW. We broadly support this framework being as comprehensive and robust as possible. The pace and scale of the growth of data centres connecting to the NSW grid poses new and unique risks to consumers and the community, and a robust framework is required to both manage these risks while embracing important opportunities for community benefit.

As a minimum requirement and first priority, the frameworks must ensure data centres pay their way in relation to additional demands on the energy system. This includes – but is not limited to:

- covering the full network connection cost, including deep and shallow infrastructure;
- matching their load with at least equivalent renewable generation;
- providing their own reliability; and
- ensuring system security, system strength and power quality are at least no worse than if they had not connected.

These minimum requirements should be set by the regulatory framework rather than determined at the sole discretion of a network service provider (NSP). They should not be negotiable or have core elements which can be traded away. For example, all data centres connecting to the grid and with a rated connection capacity of greater than 15MW should be required to pay bonds which are not mitigated or lowered for any reason.

Merely ensuring energy consumers are not harmed is not sufficient. We recommend a framework which also ensures maximum positive value is returned to NSW consumers from the connection of new data centres. Unlike the measures designed to shelter NSW consumers from downside risks and costs of data centre connections, mechanisms that allow data centres optionality and to maximise shared benefits are required to reap greater value. Particular opportunities to accrue positive value to NSW consumers include:

- enabling demand flexibility, supporting lower wholesale energy costs and lower costs for reliability and security services; and
- contributing to network businesses' existing regulated asset bases (RAB), as opposed to merely covering additional infrastructure costs they cause – that is, offsetting costs already being carried by consumers.

We support the ongoing work of the NSW Government to ensure data regulation protects consumers and enables positive benefits to the NSW community.

2. Cost recovery

Principles

7A. What principles and cost and benefit categories should the Consumer Trustee consider in setting the Major Network Upgrade Fee?

Principles should be developed for the cost recovery framework as a whole, rather than apply only to the Major Network Upgrade Fee (MNUF).

We propose four - which are not exhaustive - principles needed to guide the framework.

1. **Data centres should do no harm:** no aspect of the NSW energy system or market should be any 'worse off' as a result of any data centre.
2. **Connection cost neutrality is a minimum not a target.** Each data centre incurring all the extra costs related to its connection must be regarded as a minimum for the cost recovery framework, not a target.
3. **That the Impacts of data centres should be considered holistically.** Government should reserve the right to refuse data centres or impose bespoke connection agreements in cases where prospective connections pose unique and material risks to NSW consumer, community or environment. That is, in cases where a cost or risk arises outside of the energy network impacting the NSP's interests, such as water access for the community, skilled labour availability for other critical infrastructure projects, the NSW Government should reserve the right to impose conditions that ameliorate these costs or risks.
4. **The consumer interest, not the NSP interest, should be paramount.** This requires recognise that NSP and consumer interests are not always aligned. Accordingly, maximising the consumer interest should determine outcomes. For example, NSP interests are served by data centres connecting in a way that requires network augmentation, as this enables them to expand their RAB and increase revenue. By contrast, consumer interests may be served by data centres using some existing capacity, and where data centres materially pay down of the existing RAB, lowering costs to consumers.

We propose in later sections that the structure of fees should be as a large initial contribution to the RAB and then smaller TUOS fees in a net present value neutral charges to the data centre. This would be in consumers interests, but not NSPs'.

2.1 Bonds

1B. Which connection applicants should be required to provide an entry bond?

Bonds should be paid by all data centres covered by the access and cost recovery frameworks, meaning all those with a rated connection capacity greater than 15MW.

Bonds assist to minimise the risk of speculative connection enquiries and underutilised connection capacity, thereby contributing to more reliable forecasts and ensuring NSW consumers do not wear any costs associated with data centre connections.

They should not be adjusted downward from the levels stipulated in the cost recovery framework for any reason.

A two bond framework

The JEC propose an alternative structure for the entry bond comprising of an initial 'process bond' followed by a 'connection bond'. We argue that this will more effectively disincentivise prospective connectors from holding connection places inefficiently without dissuading investment.

1A. When should entry bonds lapse or be forfeit?

We provide an answer in the form of an explanation of our proposed dual bond framework.

A prospectively connecting data would lodge an initial 'process bond,' paid upon application for a connection. This would come with a commitment from the data centre to connect if approved. Forfeiture of the application bond would be the penalty for failing to do so within a strictly limited timeframe. We propose that the size of the process bond remains the same as the entry bond proposed in the consultation paper: \$30,000 per MW of requested capacity.

When a decision to approve the connection is made, the data centre will have a specified period of time (for example, 28 days) to decide to connect or not.

If the proponent decides to connect, the process bond will be returned, and the proponent will lodge the 'connection bond'. We propose that the connection bond is defined using the formula for the Major Network Upgrade Fee proposed in the consultation paper: \$100,000 or \$200,000 per MW of requested capacity depending on location.

We note that the bond levels proposed in the consultation paper are low relative to international comparators and, using the consultation papers analysis elsewhere on the scale of financial outlay involved in establishing a data centre, that the size of the bonds proposed in the consultation paper could be increased by an order of magnitude and still be unlikely to impact ultimate investment decisions.

Once the connection is completed, the connection bond would be returned to the proponent or possibly recycled as a contribution towards other connection costs (such as the Major Network Upgrade Fee). Alternatively a portion could be retained, attached to other conditions of the data centres ongoing connection and operation.

2.2 Fees

The JEC supports the aim of requiring data centres to guarantee they will pay for the costs of capacity made available to them, regardless of whether they use it. We understand this as protecting consumers from a stranding asset risk that they are not able to manage and so should not bear the cost.

The JEC supports the use of fees to enable data centres to contribute to the costs of jurisdictional schemes. We agree with the position in the consultation paper that this must be done on the grounds of fairness and note that this should be extended to all transmission-connected and exempt customers on the same basis.

The JEC supports the proposal to introduce the MNUF and agree with the analysis of the paper that at the level proposed the MNUF cannot be expected to materially impact investment decisions.

We understand the proposal regarding fees to have two components: a one-off up-front payment (the MNUF), and a series of ongoing payments paid regularly for the period the data centre is connected to the grid. It is not clear which of these is used to contribute to the cost of jurisdictional schemes, or how the contribution is structured.

We make two contributions regarding the design of the fee structure before answering question 6B directly.

- Consumers' interests will be best served by allowing the fees to be negotiated with the objective of maximising shared interest between consumers and data centres and allowing optionality for data centres to account for the diversity in their size, operations, and other defined factors. For example, it may be in consumers' interests for a given data centre to accept a lower or higher ongoing fee level in exchange for lower or higher obligations regarding demand flexibility or the provision of security services. To be clear, the overall effect must be positive for consumers.
- Guaranteed, ongoing payments, as proposed in the consultation paper may not enable best outcomes for consumers. Consumers may be better served by structuring these payments as:
 - a large, once-off contribution to the transmission RAB at the start of the connection, and then
 - lower transmission use of service (TUOS) fees over the following 10 years, or the duration of the period in which the data centre remains connected.

This could be arranged to be net present value identical for the data centre but return greater value to consumers over the period due to their not paying interest on the portion of the RAB reduced at commencement. It would also limit the exposure of consumers to the risk of bearing costs remaining when a data centre leaves a connection or otherwise alters its circumstances.

6B. Is 10 years a sufficient and appropriate period for minimum guaranteed contributions to ongoing network costs?

10 years may be sufficient, depending on the structure of the contribution. In our proposed alternative 10 years could be sufficient provided cost recovery is front loaded to ensure connection assets stranded or underutilised after ten years are paid down for connection assets that cannot easily be repurposed.

3. Information sharing

3.1 Obligations for network service providers

The JEC supports the proposal to strengthen requirements for network service providers to collect and share information about prospective and existing data centre connections.'

The JEC supports the proposal to strengthen requirements for network service providers to develop and share information about load forecasts and transfer capacity, and to conduct joint planning for data centres.

3.2 Obligations for data centres

The JEC supports the proposal to require connection agreements with data centres to incorporate demand profiles.

4. Data centre capacity for demand flexibility

Data centre demand flexibility and export capability is derived from three main elements:

- Flexibility of compute load, which varies by task data centre, time and other factors.
- BESS support, which can respond almost instantaneously, ramp readily and provide a range of existing and emerging services, but might only be available for a few minutes with limited by State of Charge
- Backup generators – typically diesel – aren't favoured for demand-side participation due to potential health impact but could be obligated to be made available in defined rare and extreme emergency situations like system restart services in event of a statewide outage.

4.1 Settings for demand flexibility (Q10A)

10A. Which events should trigger demand flexibility requirements?

Defined events should be related to the pathways used for mandating demand flexibility. For example, data centres could be required by default to provide X MW (eg, as a portion of connection capacity or measured max demand) of demand reduction, when:

- the wholesale spot price exceeds Y (eg, \$5,000 or \$20,000/MWh),
- for a minimum of Z hours (or dispatch intervals) per year (or other time interval), or
- during other defined critical system events/when directed.

Those parameters could all be set with:

- A range of price and time bands to reflect different system needs and opportunities,
- Scope for additional voluntary participation,
- Obligations and/or optionality to provide other system strength services, and
- Differentiation by technology (demand reduction, BESS)

Any wider benefits delivered to consumers will depend heavily on these settings and obligations.

4.2 Pathways for wholesale and reliability flex

Different pathways present different opportunities and risks. In JEC's view the Wholesale Demand Response Mechanism (WDRM) is the most effective pathway for datacentre energy demand flexibility. The Integrating Price Responsive Resources reforms may provide a (less optimal but still viable) additional pathway after 2030.

The NSW Jurisdictional System Security Coordinator (JSSC) arrangements are likely to be the best suited pathway for enabling reliability-based demand flexibility. Reliability and Emergency Reserve Trader (RERT) arrangements would be a viable alternative if the rules preventing RERT participation of wholesale demand response load are addressed

- Whatever pathway is used it is critical to recognise:
- Voluntary actions alone cannot be relied on to deliver demand flexibility, and
- monitoring and compliance activities by a suitable regulator will be necessary. The AER is likely to be the best placed regulator to fill these roles. In any case NSP's are least well suited to conduct this role in consumers interests.

We would welcome the opportunity to discuss these options, including the various strengths and weaknesses of each pathway, in further detail.

4.3 Pathways for supporting system security and strength

The JEC recommends the focus on optimised value for consumers inform the development of the framework and mix of pathways utilised. For example, It's conceivable that the best combination for a given data centre could be:

- Demand flex provided through the WDRM, ancillary services markets, and JSSC load shedding (or similar).
- Utilising a BESS inverter for ancillary services and system strength support, and
- Making a backup generator available for System Restart Ancillary Services

4.4 Pathways for network support

Consumers substantially benefit from non-network alternatives such as demand response and batteries deferring or avoiding expensive network infrastructure augmentation. However, due to a demonstrated strong Capex bias TNSPs have a poor track record of delivering non network solutions.

As electrification drives up demand in coming years, there is potentially material consumer benefit in deferring network replacement projects - even by a few years – through flexible demand.

Accordingly the JEC recommends complementary rules or legislation to compel TNSPs to:

- Deploy data centre flexibility to avoid network augmentation and constraints wherever possible.
- Fully evaluate options including mandated flexibility services from data centres as a default option alongside network options in RIT-Ts.

5. Roles and responsibilities of network service providers

There is a risk that the positive benefits associated with data centres connecting to the grid do not accrue to NSW consumers due to misalignment between the incentives of actors. Specifically, NSPs are not incentivised to maximise the amount of existing capacity data centres use; on the contrary, they are incentivised to maximise the network augmentation that occurs as a result of data centre connections. Likewise, as noted above, network service providers are not well placed to enforce demand flexibility requirements, or provide market-based demand flexibility services.

Consumers interests may often be best served by new connections occurring at places where new deep assets are not required. Contributions made by connecting parties in these circumstances will pay down the existing RAB – reducing consumers existing costs - rather than merely offsetting the increase in the RAB that would occur in the network augmentation scenario.

Given that responsibility for negotiating connection agreements will remain with network service providers, we note that there is no mechanism requiring NSPs to promote consumers interests, rather than their own.

6. Other matters

6.1 The term ‘inverter-based loads’ is inappropriate

We note that the AEMC has issued a draft rule determination to define large inverter-based loads. This nomenclature is problematic and we urge the Department not to adopt it. Specifically:

- Inverter means a device that turns DC into AC. Data centres rely on conversion of AC to DC; that’s done by a rectifier.
- Inverter Based Resources has a meaning that is lost or diluted by conflation with other power electronics
- Inverters can and will provide some services that data centres can’t.

- Data centres have characteristics that inverter-based resources don't.

Incorrect, ambiguous and over-generalised names demonstrably result in misunderstanding and inefficiencies. Alternative terms, which should be used instead, are converter-based resources/loads, power electronic resources/loads, or digital loads

6.2 Access framework backstop

Government should reserve the right to impose bespoke connection agreements in cases where prospective connections pose unique and material risks to NSW consumer, community or environment. That is, in cases where a cost or risk arises outside of the energy network impacting the NSP's interests, such as water access for the community, skilled labour availability for other critical infrastructure projects, the NSW Government should reserve the right to impose conditions that ameliorate these costs or risks.

6.3 Use of Purchase Power Agreements and firming agreements

The JEC strongly supports the use of capacity limiting – and other direct impacts on service - as an enforcement tool. We note, however, that its use does not exclude penalty payments being deployed in addition. That is, it is possible for enforcement to include both penalty payments and direct action.

7. Continued engagement

We welcome the opportunity to meet with the Department and other stakeholders to discuss these issues in more depth. Please contact Michael Lynch at mlynch@jec.org.au regarding any further follow up.