



Review of the regulatory framework for
Supply Connection Infrastructure in NSW

Options Paper

March 2026

Energy »



Acknowledgment of Country

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We pay respect to their Elders both past and present, and recognise Aboriginal people's unique and continuing cultural connections, rights and relationships to land, water and Country.



Image taken on Worimi Country (Myall Lakes)

The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from [IPART's website](#).

Tribunal Members

The Tribunal members for this review are:

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Invitation for submissions

IPART invites comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by Wednesday, 8 April 2026

We prefer to receive them electronically via our [online submission form](#).

You can also send comments by mail to:

Supply Connection Infrastructure review
Independent Pricing and Regulatory Tribunal
PO Box K35

Haymarket Post Shop, Sydney NSW 1240. If you require assistance to make a submission (for example, if you would like to make a verbal submission) please contact one of the staff members listed above.

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Contents

1	Seeking your feedback on a fit-for-purpose regulatory framework	1
1.1	Purpose of the review	1
1.2	Our approach to the review	2
1.3	We want to hear from you	3
2	What is the problem we need to solve?	7
2.1	Supply connection infrastructure in NSW	7
2.2	Potential regulatory gaps for supply connection infrastructure	15
2.3	Why is it important to consider emerging risks	19
3	What can we learn from other jurisdictions?	24
4	What are the options to address the problem?	26
4.1	IPART's regulatory tools and powers	26
4.2	Option 1: Require a transmission licence for entities that contestably operate supply connection infrastructure with conditions consistent with those applying to current licensees	28
4.3	Option 2: Require a transmission licence for entities that contestably operate supply connection infrastructure with modified conditions	30
4.4	Option 3: Apply safety regulations to entities that contestably operate supply connection infrastructure	32
4.5	Option 4: Do not regulate entities that contestably operate supply connection infrastructure as network operators	34
4.6	Summary comparison of options	36
4.7	Other matters	39
5	Assessment of the options	40
5.1	Current industry practice	41
5.2	High level assessment of the options against the assessment criteria	42
A	Terms of Reference	45
B	Glossary	48

1 Seeking your feedback on a fit-for-purpose regulatory framework

The current NSW regulatory framework for electricity supply network infrastructure in NSW was established with traditional, large-scale shared distribution and transmission networks in mind. The framework includes the *Electricity Supply Act 1995* (ES Act) and associated regulations made under the ES Act which set out licensing and safety requirements and define the regulatory role of the Independent Pricing and Regulatory Tribunal of NSW (IPART).

Since the introduction of this framework, the electricity system in NSW has undergone significant transformation. There has been a marked increase in renewable generation and storage assets, such as solar, wind, and batteries, connecting to the grid via new lines and substations. This 'supply connection infrastructure' comprises of the connection assets that link renewable projects to existing transmission systems, existing distribution systems, or to new infrastructure developed within Renewable Energy Zones (REZs). Some examples of existing supply connection infrastructure include Dedicated Connection Assets (DCAs), Designated Network Assets (DNAs), Identified User Shared Assets (IUSAs) and Hub to Project (H2P) assets. The types of existing supply connection infrastructure are described further at [Section 2.1.2](#).

Most previously government-owned transmission and distribution businesses have been partly or wholly privatised. This shift has introduced competition in areas previously dominated by regulated monopoly services, allowing competitive businesses to own or operate various types of supply connection infrastructure that were once exclusively provided by Transgrid.

Supply connection infrastructure does not fit neatly within the current regulatory framework under the ES Act. Through our role regulating the licensing and safety of electricity network operators and assets, IPART identified that the existing framework may not adequately address emerging risks. Subsequently, IPART advised the Minister for Energy (Minister) recommending that the NSW Government initiate a review of the current regulatory framework.

The lack of clarity in the current regime creates inconsistent expectations across industry. Furthermore, it limits IPART's ability to apply its regulatory tools consistently and in a risk-based manner, and may increase the risks to safety, cyber security, business continuity, reliability and other risks as this infrastructure expands. As a result, maintaining the status quo may not be viable. At a minimum, reforms may be required to clarify if, and how, supply connection infrastructure should be regulated. The full list of risks is described at [Section 2.3.2](#).

1.1 Purpose of the review

IPART has been commissioned under section 9 of the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act)¹ by the Minister of Energy, with the approval of the Premier, to review the regulatory framework for electricity supply connection infrastructure in NSW. This review forms part of broader energy sector reforms led by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to ensure the framework is fit-for-purpose, designed for the future, and continues to provide appropriate and necessary protections for industry and consumers.

The review will make recommendations to the Minister on how the regulatory framework should apply to supply connection infrastructure in NSW.

The Terms of Reference for the review, issued by the Minister with the approval of the Premier, were received by IPART on 26 September 2025. The full Terms of Reference are set out in [Appendix A](#).

1.2 Our approach to the review

IPART has drawn on technical analysis, evidence and stakeholder insights to investigate regulatory issues affecting supply connection infrastructure in NSW and develop potential options. Our aim is to recommend a fit-for-purpose regulatory framework suitable for the future.

We engaged directly with relevant stakeholders to gather information, including generators, existing network operators, national market bodies, NSW agencies, interstate regulators, and operators of current and planned connection infrastructure in NSW.

This analysis and engagement helped identify and have regard to:

- emerging risks associated with supply connection infrastructure and other network assets, including the nature and scale of these risks both now and in the future
- regulatory regimes operating in other jurisdictions, as well as the requirements set out in the *National Electricity Law* (NEL) and *National Electricity Rules* (NER)
- current industry practices, including how operators of privately owned supply connection infrastructure manage safety and operations
- status of existing and proposed supply connection infrastructure projects within NSW
- regulatory barriers to entry for operators seeking to establish new infrastructure.

This Options Paper outlines the matters we have identified concerning the regulation of supply connection infrastructure in NSW, along with initial options to address any emerging risks.

The four proposed options to address identified risks range from full licensing to no regulation:

Options

01

Require a transmission licence for entities that contestably operate supply connection infrastructure, with conditions similar to those applying to current licensees

02

Require a transmission licence for entities that contestably operate supply connection infrastructure, with modified conditions

03

Apply the safety regulations to entities that contestably operate supply connection infrastructure, without requiring them to have a licence.

04

Do not regulate entities that contestably operate supply connection infrastructure as network operators under the ES Act or Safety Regulation



While these four options represent distinct regulatory approaches, they are not intended to be exhaustive or mutually exclusive. Following consultation, IPART may ultimately recommend a modified or hybrid approach that incorporates elements that fall between the options outlined above. This could involve tailoring regulatory requirements based on relevant characteristics of the supply connection infrastructure assets and operator, such as asset scale, line length, voltage, system impact, ownership or geographic location, to ensure that any framework is proportionate to the risks posed.

1.3 We want to hear from you

We invite you to provide your input on the options and issues outlined in the Options Paper. Your feedback is highly valued and will contribute to shaping the regulatory framework for supply connection infrastructure in NSW.

Submissions can be made in writing during the designated consultation period, which remains open until **8 April 2026**. Details on how to make a submission are set out on IPART's website.

This paper also poses targeted questions on specific topics. We encourage you to share your perspective on these matters, as your insights will help inform our approach.

You do not need to respond to all questions; we welcome submissions that address issues most relevant to you.

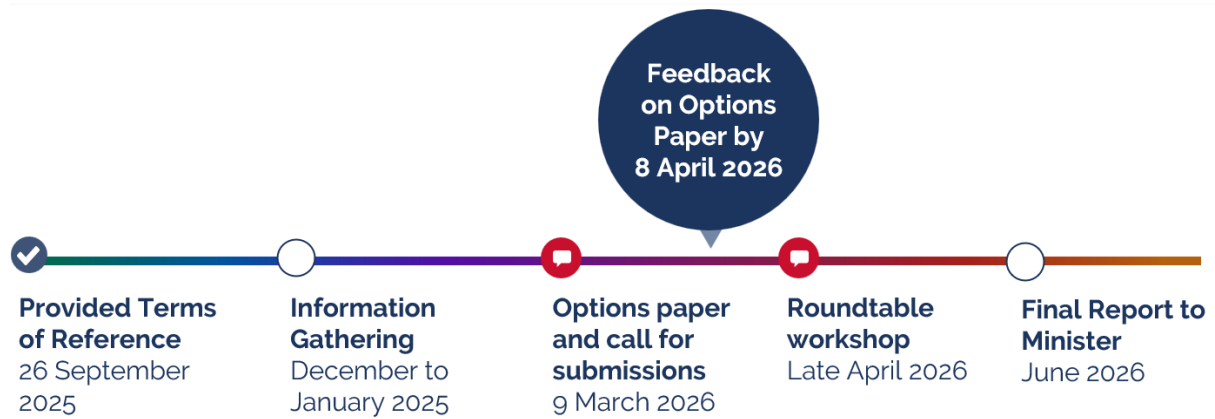
The structure of the Options Paper is designed to guide your feedback and address key areas of regulatory risk. A complete list of questions is also available at the end of this chapter.

- Chapter 2 sets out the context for the review, including how supply connection infrastructure is currently regulated under both the NER and NSW legislation. It explores emerging risks associated with evolving connection models and considers whether regulatory responses may be appropriate to address those risks.
- Chapter 3 summarises how transmission connection assets are regulated in other Australian jurisdictions. It compares licensing requirements across states and territories and highlights insights relevant to the review.
- Chapter 4 outlines the regulatory tools currently available to IPART and presents four potential regulatory options for supply connection infrastructure, ranging from a no intervention approach to full licensing. It provides a high-level comparison of each option, including feasibility and risks addressed.
- Chapter 5 describes the criteria used to assess the options, based on the Terms of Reference and the objectives of the ES Act. It then applies this framework to the four options to identify relative strengths, weaknesses and trade-offs.


1.3.1 We will consider feedback to inform our Final Report

This review is being conducted in stages so we can consult and seek feedback at key points in the process. Stakeholder submissions will play an important role in shaping IPART's final recommendations to the Minister. **Figure 1.1** shows the timeline for our review.

Figure 1.1 Timeline for our review



We invite input from all interested parties, including generators, network operators, customers, operators of existing and proposed supply connection infrastructure, regulators, government agencies, community, industry, workers and environmental groups.

 **Have your say**

Your input is critical to our review process. [Submit feedback »](#)

You can get involved by making a submission or submitting feedback.

Tell us what you think

Understanding the problem		
1.	IPART has identified there may be potential gaps in the current regulatory framework for supply connection infrastructure. Please describe any other additional gaps we should consider.	22
2.	To what extent do you think regulatory oversight is necessary for supply connection infrastructure in terms of risks such as safety and bushfire, cyber security or business continuity?	23
3.	Please describe any other risks or issues you have observed in practice in relation to supply connection infrastructure (for example, inadequate design, safety, reliability, accountability or coordination with networks)?	23

4. Do you think there are regulatory barriers to entry for operators establishing new supply connection infrastructure? If so, what have you experienced or observed? 23

Insights from other jurisdictions

5. What insights can be drawn from other jurisdictions' approaches to regulating supply connection infrastructure? 25
6. How might national harmonisation of supply connection infrastructure regulation impact operators, and what are the potential benefits and challenges associated with implementing such a unified approach? 25

Options to address the risks

7. What do you see as the key strengths and weaknesses of Option 1? How could this be improved? 29
8. To what extent do the regulatory requirements under Option 1 appropriately reflect the risks associated with contestably operated supply connection infrastructure? Do you consider them proportionate? What changes, if any, could better align regulatory obligations with these risks? 30
9. What factors should be considered when deciding if other currently unlicensed network operators should be included in a licensing framework if contestably operated supply connection infrastructure is licensed under Option 1? 30
10. What do you see as the key strengths and weaknesses of Option 2? How could this be improved? 32
11. Which existing transmission licence conditions should apply, and which should be tailored or excluded under Option 2? 32
12. What do you see as the key strengths and weaknesses of Option 3? How could this be improved? 34
13. What factors should be taken into account in determining the extent to which Safety Regulation requirements should apply to contestably operated supply connection infrastructure under Option 3? 34
14. What do you see as the key strengths and weaknesses of Option 4? How could this be improved? 36
15. Are there additional risk mitigation strategies or approaches, including non-legislative or contractual mechanisms such as Connection Agreements, that could be considered to address risks associated with supply connection infrastructure? Please provide examples of practical measures that you think may be effective in managing SCI risks 38
16. What implementation challenges or unintended consequences may arise under each of the options? How could these be mitigated? 38
17. Are there any assets currently regulated under the ES Act that you consider would be more appropriately regulated under a new framework for supply connection infrastructure? 38
18. Are there any other matters relevant to the regulation of supply connection infrastructure that IPART should consider as part of this review? 39

Assessment and Criteria

19.	How appropriate and complete is the assessment criteria we have used to evaluate the options? What additional factors should be taken into account?	43
20.	What options do you consider most appropriate for addressing the emerging risks for supply connection infrastructure in NSW and why?	43
21.	Are there any other options you consider would be more appropriate?	43

2 What is the problem we need to solve?

2.1 Supply connection infrastructure in NSW

2.1.1 How supply connection infrastructure is currently regulated

Supply connection infrastructure operated by licensed network operators in NSW is governed by two overlapping regulatory frameworks – the national framework under the NEL and NER, and the NSW framework under the ES Act and its associated regulations and the *Electricity Infrastructure Investment Act 2020* (EII Act). However, there is lack of clarity as to whether entities that contestably operate supply connection infrastructure are considered network operators and their connection assets are covered by the NSW framework.

National framework under the NER

The NER establishes the baseline requirements for all connections in the National Electricity Market (NEM), including supply connection infrastructure. Connection processes vary based on the size and registration status of the connecting party, and whether the connection is to a transmission or distribution network. Chapter 5 of the NER applies to Registered Participants (for example, generators 5 MW or larger and large loads)², while Chapter 5A of the NER provides streamlined arrangements for the connection of retail customers and smaller embedded generators.³

The connection process involves several key stages including connection enquiry and application; connection offer from the network service provider (NSP) including technical requirements and costs; Connection Agreement negotiation; commissioning and registration; and ongoing compliance with performance standards.

The Connection Agreement creates the formal contractual relationship between the connecting party (for example, a generator or customer) and the NSP. Critically, the connecting party remains accountable to the NSP and Australian Energy Market Operator (AEMO) for all obligations under the Connection Agreement, regardless of whether that party owns the supply connection infrastructure or relies on third-party owners or operators.

The NER requires any entity who owns, operates or controls a transmission or distribution network to register with AEMO as an NSP. NSPs have extensive regulatory obligations under the NER in relation to the safe, reliable and secure planning and operation of their networks, which are overseen by AEMO and the Australian Energy Regulator (AER).

NSW framework under the ES Act

The ES Act and the *Electricity Supply (Safety and Network Management) Regulation 2014* (Safety Regulation) apply to transmission or distribution systems and their operators in NSW alongside the national framework. Under the ES Act, certain network operators require a transmission or distribution licence:

- Transmission licences are required for:

- any person who operates a 'transacted transmission system' (currently only Transgrid)⁴
- any network operator who operates a 'transmission system' (as defined under the ES Act) that is authorised, directed or appointed for a REZ Network Infrastructure Project (RNIP) or Priority Network Infrastructure Project (PNIP) under the EII Act (currently only ACERZ).⁵
- Distribution licences are required for any person who operates a distribution system listed in Schedule 3 of the ES Act (Ausgrid, Essential Energy and Endeavour Energy),⁶ and
- any person who operates a distribution system which they do not own or control

The Minister may also declare specified electricity power lines to be a transmission system. If this occurs, the operator may apply for a transmission licence; however, there is no obligation to do so unless required under the EII Act.

The Minister, taking into account IPART's recommendations, issues and varies transmission and distribution licences under the ES Act. IPART administers the licensing regime, including administration of licence fees and overseeing compliance. These licences impose requirements on network safety, technical standards, reliability and consumer protections.

Information on current holders of NSW network operator licences is set out in **Box 2.1** below.

Box 2.1 Current NSW Electricity Network Licence Holders

NSW electricity network licences are held by five operators. Transgrid and ACERZ hold transmission licences, while Ausgrid, Essential Energy and Endeavour Energy hold distribution licences.⁷

Two operators present special cases regarding transmission licensing:

- Ausgrid operates some dual function assets and is registered as both a Transmission Network Service Provider (TNSP) and a Distribution Network Service Provider (DNSP) under the NER and holds a distribution licence under the ES Act.
- Directlink Transmission Company (part of the APA Group) operates the Directlink interconnector, a 63 km transmission interconnector between NSW and Queensland located entirely in NSW. APA does not hold a licence for Directlink.

Separate to the licensing requirements set out above, all network operators, including those without a licence, are subject to obligations under the Safety Regulation. These obligations apply to any person who operates a transmission system or a distribution system as defined in the ES Act.

Under the Safety Regulation, all network operators must:

- take all reasonable steps to ensure that the design, construction, commissioning, operation and decommissioning of its network is safe

- implement an Electricity Network Safety Management System (ENSMS) in accordance with AS 5577 and the requirements of the NSW regulatory framework. This ENSMS must address network safety, safety risks arising from reliability issues, public hazard warnings, and bushfire risk management
- unless exempted by IPART, publish an annual report on its performance against its ENSMS and have the ENSMS audited.⁸

The Safety Regulation currently applies to 11 network operators operating electricity networks in NSW without a licence, including rail operators, Directlink, Lord Howe Island Board, and interstate DNSPs with small asset footprints in NSW.

Currently, the Safety Regulation applies to supply connection infrastructure only if it is classified as a 'transmission system' or 'distribution system'.⁹ Supply connection infrastructure does not meet the definition of a transmission system, and the existing legislative framework does not provide clear guidance regarding its status.

Consequently, entities operating supply connection infrastructure have not been required to publish an ENSMS or a performance report under the Safety Regulation.

NSW framework under the EII Act

The EII Act was introduced to implement the NSW Electricity Infrastructure Roadmap. It overlays the national framework, enabling NSW to adopt alternative transmission planning, access and connection models for REZs where these better meet state objectives.

Under the EII Act, EnergyCo has been appointed as Infrastructure Planner for the 5 declared REZs. EnergyCo is responsible for recommending and appointing network operators to build and operate REZ network infrastructure projects. A network operator of a transmission system that is an RNIP must hold a transmission licence from IPART under the ES Act and register as a TNSP under the NER.

To integrate REZ arrangements into the national framework, Chapter 9A of the NER was introduced in NSW. It modifies how transmission assets are treated when connecting to infrastructure subject to a REZ access scheme, ensuring that REZ infrastructure operates within the NER framework while accommodating the coordination enabled by the EII Act.

2.1.2 Types of supply connection infrastructure

Transmission connection assets under the NER

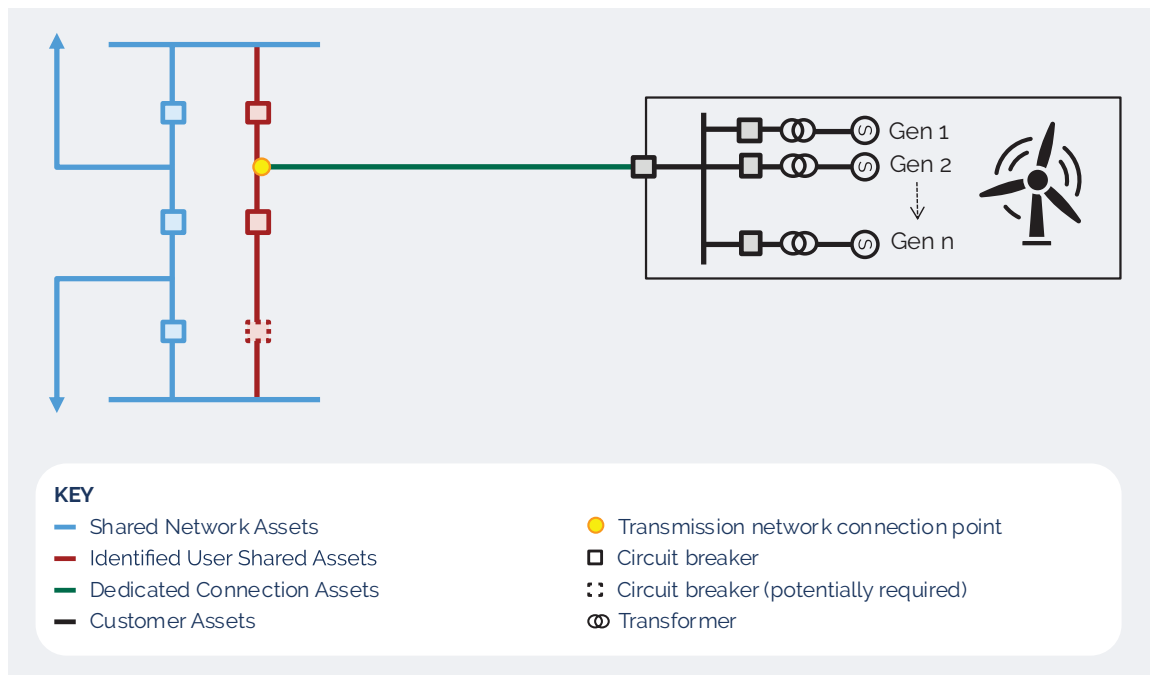
The transmission system in NSW includes both 'transmission networks' (the shared high-voltage network) and the broader 'transmission system'. The NER under the national framework defines three categories of transmission connection assets:¹⁰

- **Dedicated Connection Assets (DCAs)** are components that connect an identified user group to the shared transmission network at a single connection point. These assets do not form part of the shared transmission network because they can be isolated from electricity flows on the shared network without affecting the means of delivery of bulk electricity. All services associated with DCAs – functional specification, detailed design, construction, ownership, operation, and maintenance – are fully contestable and classified as non-regulated transmission services. Terms and pricing are negotiated commercially between the connecting party and the contestable service provider.
- **Identified User Shared Assets (IUSAs)** connect one or more parties to the transmission network but, once commissioned, form part of the shared transmission network because electricity flows cannot be isolated without affecting the means of delivery of bulk electricity. For IUSAs over \$10 million, detailed design, construction, and ownership can be contestable if the components are new or complete replacements and are separable from the existing network. The Primary TNSP (Transgrid in NSW) must always provide functional specification, cut-in works, operation and maintenance as negotiated transmission services.
- **Designated Network Assets (DNAs)** are connection assets over 30km in length, or other connection assets where the owner opts into the DNA framework. The AEMC introduced this framework in 2020 for connection assets sufficiently large to require additional regulation. DNAs can only be operated by the Primary TNSP but can be owned by any person. The DNA owner must provide third-party access under an access policy approved by the AER. In NSW, there are currently two registered DNAs, both owned by Lumea and operated by Transgrid.

A combination of both a DCA and an IUSA is generally necessary to connect a generator (or large load) to the transmission network. However, the relative size of these different asset types can vary widely depending on the configuration of a connecting party's particular connection.

Figure 2.1 below shows a typical DCA used to connect a generator to the transmission network.

Figure 2.1 Generic dedicated connection asset



Example of a large DCA in NSW is shown in **Box 2.2** below.

Box 2.2 Example of a large DCA in NSW

A large scale wind generation project located in regional NSW is connected to an existing transmission network. The project comprises of multiple wind turbines with a substantial installed capacity, capable of supplying electricity to hundreds of thousands of homes.

The supply connection infrastructure includes:

- DCA: 330 kV overhead transmission line (approximately 28km)
- IUSA: Connection substation (330/33 kV) located adjacent to the TNSP's existing 330 kV transmission line, with isolators, circuit breakers and switchgear
- Generator assets: Internal 330 kV line within wind farm; 33 kV underground cabling; collector substations.

Ownership, operation and maintenance:

- DCA is delivered through a long-term BOOM (build, own, operate and maintain) model, with a third-party entity responsible for the full lifecycle of the connection asset.
- IUSA is designed and constructed to meet the TNSP's functional specification. Operational responsibilities for the IUSA and the shared transmission network sit with the TNSP.

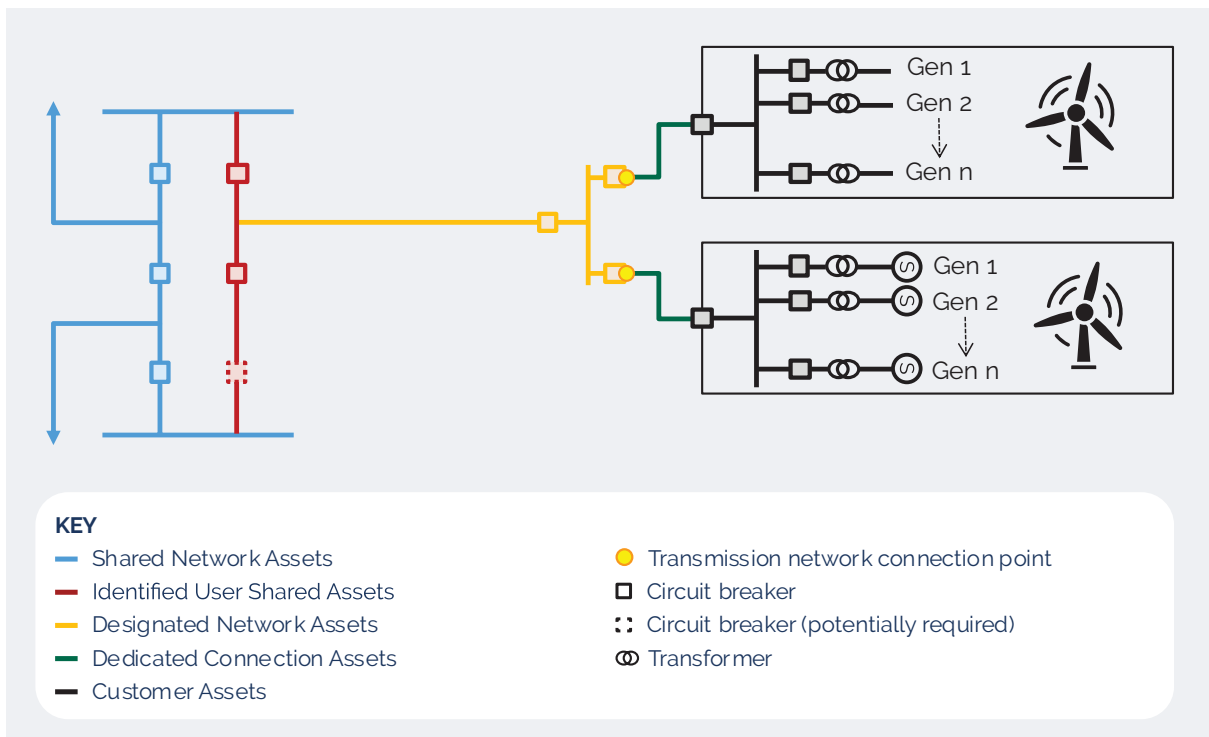
Box 2.2 Example of a large DCA in NSW

The network connection point is at the 330 kV transmission line, which is the defined boundary point where the IUSA connects to the shared transmission network.

Note: The example is based on Rye Park Wind Farm, located to the north of Yass and east of Boorowa, New South Wales, on the edge of the Southern Tablelands and the South-West Slopes near the township of Rye Park, 11km north-east of Yass. The project comprises 66 wind turbines with a total capacity of 396 MW, capable of powering 210,000 homes.¹¹
Source: Zenviron, Yass Valley Council, Tilt renewables and Lumea

As explained above, the DNA framework is a targeted framework that seeks to facilitate third party investment in transmission infrastructure, limited to radial network assets that are longer than 30km.^a **Figure 2.2** below shows a typical DNA used to connect a group of generators to the transmission network.

Figure 2.2 Generic designated network asset



Example of a short DNA in NSW is shown in **Box 2.3** below.

^a Radial assets that are shorter than 30km can also be treated as part of a transmission network if the owner chooses to opt-in to the DNA framework.

Box 2.3 Example of a short DNA in NSW

A cluster of battery storage projects located in regional NSW is connected to the shared transmission network. The project comprises of three battery energy storage systems (BESS) that allow significant additional capacity to the grid.

The supply connection infrastructure includes:

- DNA: 132 kV underground transmission line (approximately 220m), 132/33 kV substation, 132/33 kV 180 MVA transformer, one switchgear building.
- IUSA: 132 kV feeder bay at TNSP substation, associated busbar section and protection/control systems
- Other connection assets: only site specific internal cabling and auxiliary systems within each BESS site

Ownership, operation and maintenance:

- DNA is owned by a third-party entity; operated and maintained by TNSP under the NER
- IUSA: owned and operated by the TNSP

Each BESS has its own transmission network connection point located at the interface between the DNA and the site-specific connection assets.

Note: The example is based on Riverina and Darlington Point Energy Storage Systems, located adjacent to TransGrid's Darlington Point Substation in the Murrumbidgee Shire, South West NSW. The project comprises of 3 battery storage projects with a total capacity of 150 MW/ 300 MWh.¹²

Source: Transgrid, Lumea and Edify Energy.

Unlike other NEM DNAs which typically involve radial transmission lines above the 30km minimum, the two NSW DNAs (Limondale¹³ and Riverina) are short connections where the owner, Lumea (Transgrid's ring-fenced commercial arm), has opted into the framework. Both involve multiple generating units at a single site: Limondale connects a solar farm with battery, while Riverina connects three co-located batteries.

Distribution connection assets under the NER

Distribution connection assets link generators and customers at distribution voltages to the shared distribution network. These typically include line and cable infrastructure (poles, wires, underground cables) and interface equipment (switchgear, metering, protection systems).

In NSW, the Accredited Service Provider Scheme under the ES Act allows contestable design and construction of distribution connection assets. DNSPs retain responsibility for functional specification, inspection and acceptance, and commissioning.¹⁴ Once commissioned and accepted, connection assets are gifted to the DNSP, which assumes responsibility for ongoing operation, maintenance, and compliance under its distribution licence and the NER.

Example of a distribution connection in NSW is shown in **Box 2.4** below.

Box 2.4 Example of a distribution connection in NSW

A large scale wind generation project located in regional NSW is connected to an existing distribution network operated by a DNSP. The project comprises of multiple wind turbines with a substantial installed capacity, capable of supplying electricity to tens of thousands of homes.

The supply connection infrastructure includes a high-voltage power line and associated switching station, linking the generation facility to an existing distribution network line. The construction of the distribution connection assets, including the switching station, was constructed by the project's contractor.

Once constructed, the connection assets were gifted to the DNSP, which now owns and operates the infrastructure as part of its regulated network. This arrangement brings the assets under the DNSP's network, operational standards, and regulatory oversight which supports long-term reliability and safety outcomes.

Note: The example is based on Flyers Creek Wind Farm, located approximately 20km south of Orange in the Central West region of NSW. The project comprises 38 wind turbines with a total capacity of 145 MW, capable of powering 80,000 homes.¹⁵

Source: Iberdrola Australia

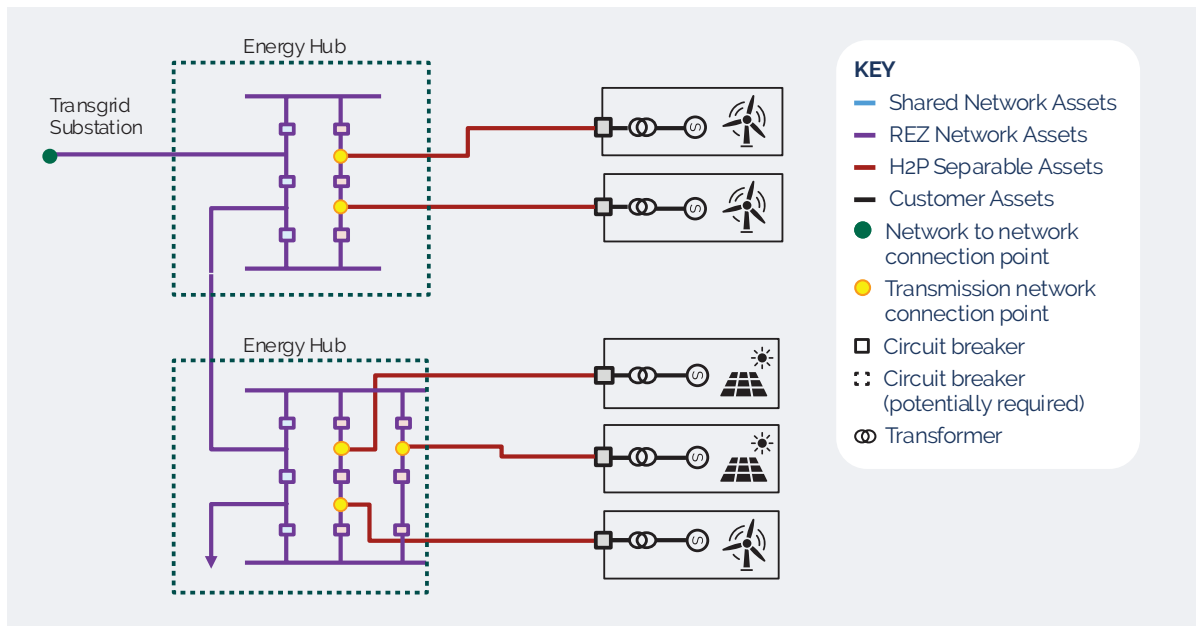
REZ connection models under the EII Act

The EII Act provides EnergyCo with discretion over how REZ connection assets are designed and delivered. Three models have been adopted or proposed:

- **Centralised Hub to Project (H2P) model (Central West Orana REZ):** EnergyCo coordinates route design, planning approvals and easement acquisition. ACERREZ constructs, owns and operates the hub-to-project connection assets. The H2P assets are covered by ACERREZ's transmission licence as they form part of the authorised RNIP. Ten projects have been granted access rights totalling 7.15 GW.
- **Generator-led model (Hunter-Central Coast and South West REZs):** Connecting parties negotiate directly with Transgrid or Ausgrid under standard NER arrangements. Connection assets are delivered under the standard NER arrangements, outside the EII Act framework. Four projects in the South West REZ have been granted access rights totalling 3.56 GW.
- **Hybrid model (proposed for New England REZ):** EnergyCo has proposed a model where it would coordinate planning and approvals, then developers would arrange for the construction and operation of connection assets under the standard NER DCA arrangements.

A summary of our understanding of the Central West Orana (CWO) H2P model is summarised in **Figure 2.3** below.

Figure 2.3 Example of the H2P connection model



2.2 Potential regulatory gaps for supply connection infrastructure

While the national and NSW frameworks cover connection scenarios and risks for the assets controlled by licensed TNSPs and DNSPs, there may be a gap under the NSW framework for certain supply connection infrastructure. These gaps may create uncertainty about which regulatory obligations apply, particularly for DCAs and other privately-owned transmission connection assets.

Under the NER, DCAs are classified as non-regulated transmission services and are fully contestable. Any party can design, construct, own, operate and maintain these assets on commercial terms. This classification has important implications. Third-party owners and operators of DCAs are not registered participants under the NER. They fall outside AEMO and the AER's oversight and the compliance obligations that apply to NSPs under the NER. While generators remain subject to the NER and their Connection Agreement obligations, including technical performance standards, emergency coordination and dispatch instructions, the companies that operate their supply connection infrastructure do not. As a result, DCA operators are not subject to the regulatory obligations that apply to NSPs for safe, secure and reliable planning and operation of networks, and they are not required to meet maintenance standards or emergency response requirements.

Under the NSW framework, a transmission licence is required by an operator of:

- a transacted transmission system,¹⁶ or
- a declared transmission system that is a RNIP or PNIP under the EII Act.¹⁷

Under the NSW framework, a distribution licence is required by an operator of:

- one of the three distribution systems listed in Schedule 3 of the ES Act, or
- a distribution system that is not owned or controlled by the operator.

Operators of DCAs are neither required nor able to obtain a transmission licence, unless the Minister declares those assets to be a transmission system. It is also unclear whether a distribution licence is required, and the process for voluntary application for a distribution licence is not explicitly dealt with within the ES Act. This means that DCA operators are not subject to obligations to address the risks that are covered in standard transmission licence conditions. This includes requirements relating to technical and prudential criteria, reliability and performance standards, insurance requirements, and measures to address critical infrastructure and business continuity risks.

In NSW, the Safety Regulation applies to all operators of 'distribution systems' or 'transmission systems', regardless of whether they are licensed. DCAs are not a transmission system for these purposes, unless declared by the Minister. DCAs may arguably fall within the definition of a distribution system. This would require their operators to implement an ENSMS and comply with the other safety obligations under the Safety Regulation, including publishing ENSMS performance reports and undertaking ENSMS audits (unless exempted by IPART from the performance report and/or audit requirements). However, the application of these safety obligations to DCAs is not clear. To date, no DCA operators have been required to publish an ENSMS or a performance report.

This creates legal uncertainty and may give rise to emerging risks. DCA operators have no clear obligations for safe, secure and reliable planning and operation of their networks. They are not required to meet maintenance or reliability standards, and it is unclear whether they are required to meet safety standards. There is no oversight of their suitability or how they manage key risks to the assets or to business continuity.

Table 2.1 below sets out a summary of how relevant electricity network connections are regulated under the NER and NSW licensing arrangements and the identified potential regulatory gaps.

Table 2.1 Overview of how electricity network supply connection infrastructure is regulated under the NER and NSW licensing arrangements and identified potential regulatory gaps

Connection assets	Is operation contestable in NSW?	Approximate number of networks and operators	Covered by existing NSW transmission or distribution licences?	Covered by NER obligations?	Requires a licence in other NEM jurisdictions?	Potential regulatory gap?
Identified User Shared Asset (IUSA)	No: Design, construction and ownership are contestable if certain criteria are met, but must be operated by the Primary TNSP (i.e. Transgrid)	Number of assets unknown. All are operated by Transgrid. Unknown if any IUSAs are owned by someone other than Transgrid	Yes: Transgrid has control over and operates IUSAs. IUSAs form part of the 'transacted transmission system' covered by Transgrid's transmission licence.	Yes: Covered by Transgrid's NER chapter 5 ¹⁸ and 6A ¹⁹ obligations (e.g. access, pricing, planning, system security)	Yes: Requires a transmission licence	No: Appears to be appropriately covered by NER and Transgrid's transmission licence even if they are owned by a third party
Designated Network Asset (DNA)	No: Design, construction and ownership are contestable, but must be operated by the Primary TNSP	NSW has 2 DNAs. Both are relatively small and are owned by Lumea but operated by Transgrid	Yes: Transgrid has control over and operates DNAs. DNAs form part of the 'transacted transmission system' covered by Transgrid's transmission licence.	Yes: Covered by Transgrid's NER chapter 5 and 6A obligations, and a specific DNA access framework in NER chapter 5	Yes: Likely to require a transmission licence	No: Appears to be appropriately covered by NER and Transgrid's transmission licence despite being owned by a third party
Dedicated Connection Asset (DCA)	Yes: Ownership and operation are contestable. NER ring-fencing rules prohibit TNSPs that provide prescribed or negotiated transmission services ²⁰ from operating DCAs. As a result, DCAs will always be operated by a third party	Appears to be more than 50 DCAs in NSW but there is limited public information. Almost all are operated by Lumea, but appears to be at least one other current DCA operator and interest from other potential operators	No: Current operators do not hold a NSW transmission or distribution licence. Not required to hold a transmission licence and unlikely to require a distribution licence	No: DCAs are a contestable unregulated service under the NER	Yes: Likely to require a transmission licence (or exemption) and are examples in VIC, SA and ACT	Yes: Does not appear to be regulated under NER or NSW transmission or distribution licences, and it is legally uncertain whether the Safety Regulation applies.
REZ Hub to Project connection asset (H2P)	No: Owned and operated by the authorised network operator of RNIP	Only current example is CWO REZ – H2P assets are owned and operated by ACEREZ	Yes: Covered by ACEREZ's transmission licence (the H2P assets form part of the authorised RNIP)	Yes: Covered by NER chapter 5 (with some modifications for RNIPs), plus EII Act and EnergyCo contractual obligations	Yes: This is a NSW-specific model, but VIC equivalent model requires a transmission licence	No: Appears to be appropriately covered by NER, EII Act, EnergyCo contracts and existing transmission licences

Connection assets	Is operation contestable in NSW?	Approximate number of networks and operators	Covered by existing NSW transmission or distribution licences?	Covered by NER obligations?	Requires a licence in other NEM jurisdictions?	Potential regulatory gap?
Distribution network connections	No: Design and construction are contestable, but assets are gifted to the relevant registered DNSP to own and operate	Number of assets unknown. All are owned and operated by the 3 NSW DNSPs: Ausgrid, Essential and Endeavour	Yes: Covered by Ausgrid, Essential and Endeavour's distribution licences	Yes: Covered by DNSPs' NER chapter 5, 5A and 6 ²¹ obligations	Yes: Requires a distribution licence	No: Appears appropriately covered by NER and existing distribution licences

2.3 Why is it important to consider emerging risks

Supply connection infrastructure is essential for linking new generators and large customers to the electricity network. However, the delivery, ownership and operation of these assets have undergone significant changes in recent years. As NSW's energy generation mix shifts towards renewable energy and storage, and as more projects connect through contestable arrangements, the importance and risk profile of supply connection infrastructure has increased. This evolving landscape highlights the need for appropriate and consistent protections to be in place for the community.

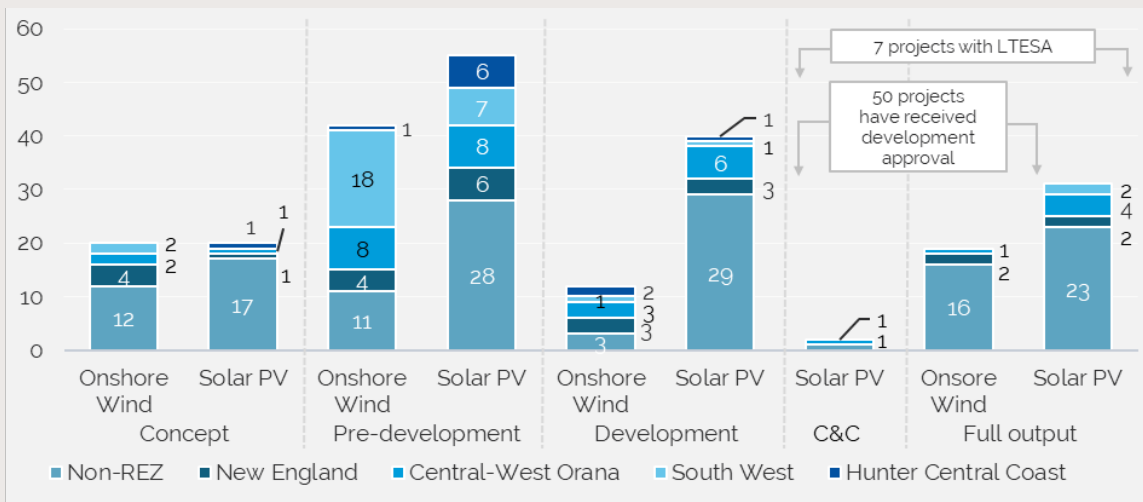
2.3.1 NSW hosts a growing volume and diversity of connection assets

As illustrated in **Box 2.5**, NSW is experiencing a rapid increase in the number and diversity of generator and storage projects. These projects require supply connection infrastructure that varies widely in scale, design and proximity to the shared network. DCAs now range from very short 132 kV lines to long 330 kV transmission lines approaching 30 km, often accompanied by switching stations, underground cables, protection systems and control equipment.

Box 2.5 NSW's Generation Investment Pipeline

Figure 2.4 below provides a snapshot of the generation investment pipeline in NSW, by technology type and project size. It shows not only where projects are located, but also what types of generation are being proposed and at what scale.

Figure 2.4 Snapshot of generation in the investment pipeline as of May 2025



Note: Long-Term Energy Service Agreement (LTESA) is a financial instrument designed to finance renewable generation and battery storage projects which typically have high upfront costs and low ongoing operational costs.
 Source: ASL Generator Investment Outlook 2025

Box 2.5 NSW's Generation Investment Pipeline

NSW has a substantial pipeline of renewable energy projects, with investment momentum continuing to build. In addition to the large wind and solar generation projects in operation:

- Planning approved: More than 50 projects (13 GW combined capacity)
- In planning assessment: 100 projects (43 GW combined capacity)
- Publicly announced: 40 projects yet to commence formal assessment.

This expanding pipeline has direct implications for generator connection activity. As more projects move from planning to delivery, there will be increasing demand for timely, coordinated and scalable supply connection infrastructure — not only in REZs but also in areas of open access. The volume and diversity of proposed projects highlight the need for clear regulatory frameworks governing supply connection infrastructure ownership, operation and technical standards, especially where third-party providers are involved.

These assets are increasingly delivered through contestable models by specialist commercial operators rather than by licensed NSPs. Lumea, the contestable infrastructure arm of Transgrid Group, plays a significant role in connecting renewable generators to the transmission network in NSW. Lumea's website states that it has a portfolio of over 55 projects (totalling 12 GW) connected to the NEM.²² As at October 2024, this portfolio includes approximately 43 generation and battery connections in NSW.

As project scale, volume and complexity continue to grow, so does the importance of ensuring that operators of supply connection infrastructure are subject to appropriate safety, governance and technical obligations.

2.3.2 Supply connection infrastructure can pose significant risks

Supply connection infrastructure, regardless of their length or configuration, can create significant risks if not designed, operated and maintained appropriately. These risks include the following:

- safety risks, such as electrocution hazards from conductor failure, insulator breakdown or structural collapse
- bushfire risks, including ignition from conductors
- cyber and data security risks, where privately operated high-voltage assets interface directly with the transmission network
- operational and reliability risks, such as inadequate protection settings, communication failures or delayed fault clearance
- environmental and land-use risks, including vegetation, biosecurity, erosion and access constraints

- business continuity risks, particularly where a single entity operates multiple assets.

These risks may occur on both long high-voltage lines for large generators and short connections at transmission-level voltages and key network interfaces with the shared network. This is explained further below.

Safety and bushfire risks – Physical asset failures such as conductor or joint failures, insulator breakdown, or tower and pole collapse can result in live conductors falling to the ground or coming into contact with structures. This may create a risk of electrocution to workers and the public. The same failures can also ignite bushfires, particularly given that many of these assets are located in rural areas. Protection system design or failure is of particular concern: if a protection relay fails to correctly detect and isolate a fault, live conductors may remain energised for a prolonged period, increasing both the safety and bushfire risk. Earthing and insulation coordination deficiencies can also lead to electrocution risks remote from the asset.

Cyber security risks – DCA control equipment can interface directly with the shared transmission network. A security breach on a privately operated asset could potentially create vulnerabilities that extend beyond that asset to the broader network. Poor design or failure may lead to losing control of network equipment, disruption to communications, and potential impacts on network operations.

Business continuity risks – Where a single party operates multiple DCAs, as is the case in NSW, an insolvency or other business continuity event may result in multiple connections being affected simultaneously. This may have adverse implications for the generators and the network.

Reliability risks – Reliability may be a concern where a DCA connects a large generator to the network, or where multiple assets operated by the same party are affected at the same time. In these circumstances, an extended outage could affect generation capacity and, in some cases, reliability for customers. The design of DCAs, which enables issues with individual assets to be isolated from the shared network, may help reduce some of these risks.

Other risks – Other risks can include biosecurity, erosion, land access and environmental risks, which are relevant to the ongoing management of these assets but may be less likely to result in widespread, severe consequences than the risks identified above. However, localised impacts are potentially severe.

Licensed transmission and distribution network operators manage similar risks under enforceable requirements under their licence conditions and the Safety Regulation relating to safety, asset management, vegetation management, emergency response, data security and reliability. Operators of privately owned supply connection infrastructure are not subject to the same licensing obligations, and the application of the Safety Regulation is uncertain.

Supply connection infrastructure operators remain subject to regulatory obligations under legislation outside the ES Act and Safety Regulation. These include work health and safety obligations under the *Work Health and Safety Act 2011*,²³ which impose duties on persons conducting a business or undertaking to ensure the health and safety of workers and others who may be affected by the work. For assets that meet relevant thresholds, critical infrastructure protection obligations may arise under the *Security of Critical Infrastructure Act 2018* (Cth),²⁴ including requirements relating to risk management programs and cyber security. Environmental obligations may arise under the *Protection of the Environment Operations Act 1997*,²⁵ planning obligations under the *Environmental Planning and Assessment Act 1979*,²⁶ and biosecurity obligations under the *Biosecurity Act 2015*.²⁷

While these general obligations apply regardless of whether the infrastructure is subject to an electricity network licence or the Safety Regulation, they do not address all of the electricity-specific risks identified above. This includes safety management systems for high-voltage assets, bushfire risk management specific to electricity infrastructure, or electricity system reliability and operational coordination requirements. **Table 4.5** sets out the risks identified and the extent to which each option addresses those risks.

2.3.3 Why these changes matter now

The types of supply connection infrastructure being built today differ from those contemplated when current frameworks were designed. Some dedicated connection assets are now longer, higher-voltage and more operationally significant than anticipated, and responsibility for their operation increasingly rests with third party providers.

As more renewable and storage projects connect and as REZ development continues, supply connection infrastructure will become more prevalent and more central to the functioning of the NSW electricity system. Without clear and consistent obligations for all operators of high-voltage supply connection infrastructure, NSW may face increasing risks of:

- inconsistent safety and reliability practices
- unclear responsibilities for managing incidents or failures
- uneven application of critical infrastructure protections
- reduced visibility for system operators and regulators
- asset failures that could affect generator performance or, in some cases, broader system conditions.

Tell us what you think



1. IPART has identified there may be potential gaps in the current regulatory framework for supply connection infrastructure. Please describe any other additional gaps we should consider.

-  2. To what extent do you think regulatory oversight is necessary for supply connection infrastructure in terms of risks such as safety and bushfire, cyber security or business continuity?
-  3. Please describe any other risks or issues you have observed in practice in relation to supply connection infrastructure (for example, inadequate design, safety, reliability, accountability or coordination with networks)?
-  4. Do you think there are regulatory barriers to entry for operators establishing new supply connection infrastructure? If so, what have you experienced or observed?

3 What can we learn from other jurisdictions?

The licensing treatment of transmission connection assets varies significantly across Australia. In NSW, a transmission licence is currently required for a small number of transmission systems declared by the Minister, and licensing requirements for contestably operated supply connection infrastructure are unclear. Other NEM jurisdictions have adopted approaches that reflect their own regulatory settings, which may provide useful insights for potential reform.

Other NEM jurisdictions regulate transmission assets through licensing or formal exemption frameworks that incorporate safety obligations. In NSW, the safety obligations are considered under the Safety Regulation which is separate from licensing. As a result, the regulatory settings are not directly comparable across jurisdictions.

Table 3.1 summarises the licensing frameworks in the Australian Capital Territory, Victoria, Queensland, South Australia and Tasmania. For each jurisdiction, it addresses three key questions:

- whether a licence is required to operate a transmission network
- whether connection assets fall within transmission licensing requirements
- whether distribution licences could apply to assets connecting generators to transmission networks.

As in NSW, supply connection infrastructure is not expressly addressed in licensing legislation in most other NEM jurisdictions. However, transmission licences or exemptions have been issued in several jurisdictions, which provides guidance on how these obligations have been applied in practice.

This reveals patterns across jurisdictions that may differ from NSW's current framework, demonstrating alternative models for regulatory oversight of supply connection infrastructure.

Table 3.1 Jurisdictional licencing requirements for supply connection infrastructure

Jurisdiction	Is a licence required to operate a transmission network?	Are connection assets covered by transmission licensing requirements?
ACT	Yes: A licence from the Independent Competition and Regulatory Commission (or exemption from the Minister) under the <i>Utilities Act 2000</i> (ACT) is required for the transmission of electricity through an electricity network. Licences are held by Evoenergy, Transgrid and Lumea ²⁸	Yes: Connection assets are not expressly addressed in the Act, but it contains a broad definition of 'electricity transmission network' and has been applied to connection assets. Lumea was granted a transmission licence to provide contestable connection services for large batteries connected to Transgrid's transmission network
Victoria	Yes: A licence from the Essential Services Commission under <i>Electricity Industry Act 2000</i> (VIC) is required to transmit electricity. Note that VIC applies a modified version of the NEL/NER with greater contestability of augmentations to the transmission network. Transmission licences are held by 12 parties ²⁹	Yes: Not expressly addressed in the Act – 'transmit' and 'distribute' are not defined. Licences have been issued to multiple parties to operate connection assets (what would be IUSAs and DCAs under the NER as it applies in NSW) including Transgrid, Lumea and Transmission Operations. Powercor (a Victorian DNSP) was also issued a transmission licence to provide transmission connection services to generators and large customers. AusNet's transmission licence was also varied to add connection assets related to a wind farm

Jurisdiction	Is a licence required to operate a transmission network?	Are connection assets covered by transmission licensing requirements?
Queensland	Yes: A 'transmission authority' from Queensland Treasury under the <i>Electricity Act 1994</i> (QLD) is required for 'operating a transmission grid' ³⁰	Yes: Connections appear to be covered in the Act's definition of 'transmission grid', which includes 'associated equipment providing connection between generation facilities and supply networks'. It is not known if any transmission authorities have been issued for connections as transmission authorities are not published.
South Australia	Yes: A licence or exemption from the Essential Services Commission under the <i>Electricity Act 1996</i> (SA) is required for operating an electricity transmission network. ³¹ Licences are held by 4 organisations and 1 organisation holds an exemption	Yes: Connections are not expressly addressed in the Act but licences and an exemption have been granted for connection assets. Essential Services Commission granted Goyder Wind Farm Common Asset Pty Ltd (part of the generator Neoen) an exemption to the requirement to hold a transmission licence for the connection assets for the Goyder Wind Farm. Two mining companies have been issued transmission licences for connection assets between the mine and the connection point with ElectraNet's transmission network.
Tasmania	Yes: A licence from the Office of the Tasmanian Economic Regulator is required under the <i>Electricity Supply Act 1995</i> (TAS) for transmission of electricity. Licences are held by TasNetworks, Marinus Link and Basslink ³²	Yes: The Act defines 'transmission' as the carrying of electricity between different points using a transmission system, and defines 'transmission system' as having the same meaning as under the NER. Therefore, transmission systems include connection assets

Tell us what you think



5. What insights can be drawn from other jurisdictions' approaches to regulating supply connection infrastructure?



6. How might national harmonisation of supply connection infrastructure regulation impact operators, and what are the potential benefits and challenges associated with implementing such a unified approach?

4 What are the options to address the problem?

4.1 IPART's regulatory tools and powers

IPART has a range of regulatory tools available under the ES Act and Safety Regulation that can be applied to both licensed entities and transmission system or distribution system network operators without a transmission or distribution licence.

For licensed entities, IPART can:

- recommend to the Minister to tailor licence conditions covering matters such as safety, reliability, bushfire mitigation, cybersecurity and critical infrastructure protection
- require regular reporting (quarterly, annual and event-based) under Reporting Manuals
- conduct or commission independent audits of safety management systems, reliability performance and compliance with licence conditions
- issue penalties, directions and recommend licence modifications for non-compliance
- revoke licences in serious cases.

For unlicensed network operators, our tools are more limited but allow IPART to:

- enforce safety obligations under the Safety Regulation that apply to all network operators regardless of licensing status, including the obligations to implement an Electricity Network Safety Management System and take all reasonable steps to ensure that the design, construction, commissioning, operation and decommissioning of its network is safe.
- require safety management system audits and compliance performance reporting as mandated by the Safety Regulation, or provide targeted exemptions to those obligations
- investigate 'serious electricity works accidents'
- coordinate with SafeWork NSW, AER and AEMO where unlicensed activities create risks
- recommend to the Minister that assets be declared as transmission systems as defined under the ES Act, bringing them under licensing requirements.

In applying these tools, IPART adopts a proportionate, risk-based and outcomes-focused approach that corresponds to our best practice policies for regulation.³³ This approach influences how licence conditions, reporting requirements, and audit priorities are recommended or set, and how IPART exercises its powers to issue exemptions under the Safety Regulation.

As explained in [Chapter 2](#), DCAs and other similar contestably operated supply connection infrastructure in the future, appears to fall outside the current licensing regime. The application of the Safety Regulation may be uncertain, yet they can introduce emerging risks, particularly as their number and complexity grow.

Maintaining the status quo may not be a viable option. The current regulatory framework does not clearly classify supply connection infrastructure or set out the obligations that apply to its developers and operators. This lack of clarity creates inconsistent expectations across industry, limits IPART's ability to apply its regulatory tools in a consistent and risk-based manner, and may increase the likelihood of emerging risks such as safety, reliability and consumer protection as the scale of this infrastructure grows.

In this context, 'doing nothing' may perpetuate uncertainty for proponents, investors and regulators, and may not meet community expectations for clear and enforceable safety and performance standards. Legislative amendment of some form may be necessary to clarify how these assets should be regulated.

Drawing on IPART's toolkit, four regulatory options emerge to address the potential regulatory issues identified above, ranging from no regulation to full licensing:

Options

01

Require a transmission licence for entities that contestably operate supply connection infrastructure, with conditions similar to those applying to current licensees

02

Require a transmission licence for entities that contestably operate supply connection infrastructure, with modified conditions

03

Apply safety regulations to entities that contestably operate supply connection infrastructure, without requiring them to have a licence

04

Do not regulate entities that contestably operate supply connection infrastructure as network operators under the ES Act or Safety Regulation



While these four options represent distinct regulatory approaches, they are not intended to be exhaustive or mutually exclusive. Following consultation, IPART may ultimately recommend a modified or hybrid approach that incorporates elements that fall between the options outlined above. This could involve tailoring regulatory requirements based on relevant characteristics of the supply connection infrastructure assets and operator, such as asset scale, line length, voltage, system impact, ownership or geographic location, to ensure that any framework is proportionate to the risks posed.

Sections 4.2-4.5 describe each option at a high level and provide a summary of their pros, cons and feasibility. [Chapter 5](#) then provides a high-level assessment and comparison of the options against the assessment criteria.

4.2 Option 1: Require a transmission licence for entities that contestably operate supply connection infrastructure with conditions consistent with those applying to current licensees

Under this option, supply connection infrastructure operators that are not currently required to hold a licence (for example, operators of DCAs as it is not clear whether the infrastructure forms part of a 'distribution system', or any other similar future types of contestably operated supply connection infrastructure) would be required to obtain a transmission licence under the ES Act. The licence would contain conditions that are similar to those that currently apply to licensed transmission network operators. This would place these operators within a similar regulatory framework as Transgrid and ACERZ.

This option would require amending the ES Act to provide that DCAs and any other similar future types of contestably operated supply connection infrastructure are transmission systems and that a person must not operate a transmission system that consists of or includes these assets without a transmission licence. This would also clarify that an entity that contestably operates supply connection infrastructure is a 'network operator' that is subject to the Safety Regulation.

This option would apply to supply connection infrastructure operators that are not currently required to hold a licence, that is, operators of DCAs connecting generators or batteries to a transmission network. It would not affect operators that are already licensed. For example, existing licensed distributors would not be required to obtain a transmission licence for any supply connection infrastructure they operate that is covered by their existing distribution licence.

This approach provides the maximum level of regulatory oversight and would ensure that all safety, reliability, governance and reporting requirements applicable to licensed transmission operators would also apply to entities that contestably operate supply connection infrastructure.

Under this option, operators would be subject to:

- comprehensive safety and network management obligations, including compliance with the Safety Regulation and associated risk management frameworks
- reliability and performance requirements, including adherence to reliability standards, performance reporting and audit obligations under licence conditions
- critical infrastructure, cybersecurity, business continuity and information security requirements applicable to network operators under licence conditions
- financial and administrative requirements, including licence fees and participation in IPART's compliance and reporting regime, and
- IPART's full compliance and enforcement framework, including monitoring, directions, penalties and cancellation powers.

This option addresses all risks identified in [Chapter 2](#). All operators would be subject to the Safety Regulation, which addresses safety risks from physical asset failures, bushfire risks, and environmental risks including vegetation management. The comprehensive licensing framework would additionally cover operational and reliability risks through performance standards, cyber and data security risks through critical infrastructure obligations, and business continuity risks through financial and prudential requirements.

This option may also improve transparency by creating a publicly accessible register of supply connection infrastructure operators given that licences are published on IPART’s website. This would address the current challenge that the information on how many supply connection infrastructure assets exist in NSW and who operates them is unknown.

Applying the full licence framework would ensure the highest degree of oversight and consistency with current licensed network operators. However, it may also impose substantial obligations on entities that operate contestable supply connection infrastructure, including many requirements designed for large, customer-serving networks rather than limited-purpose connection assets.

The pros, cons and feasibility of option 1 are set out in **Table 4.1** below.

Table 4.1 Pros, cons and feasibility of Option 1

Aspect	Matter
Pros	<ul style="list-style-type: none"> • Maximum regulatory oversight and accountability • Comprehensive safety, reliability and consumer protections • Full alignment with existing licensed network operators • Clear, established framework with well-understood obligations • Strong enforcement powers and penalties for non-compliance • Minimum regulatory design – can refer to existing framework • Addresses all potential risks comprehensively
Cons	<ul style="list-style-type: none"> • Potentially disproportionate regulatory burden for supply connection infrastructure scope • High compliance costs may deter investment and competition • Some obligations may be less relevant to connection assets • May be inconsistent with the treatment of other current unlicensed network operators of small networks, for example, Directlink, rail networks and interstate DNSPs with some assets in NSW • Annual fees and compliance costs could be material relative to connection service revenue • Administrative burden for IPART managing licences for potentially numerous small operators • Could slow connection delivery due to licensing requirements for new entrant operators
Feasibility	<ul style="list-style-type: none"> • Implementation effort: Low to Medium – existing framework can be applied however effort would depend on the number of licences required. • Process: Standard licence application and assessment processes apply; would need transitional arrangements for existing operators • Challenges: Proportionality and compliance cost concerns • Risk: May deter competition or conflict with government’s energy transition objectives by creating barriers to new supply connection infrastructure
Risks addressed	<p>All operators subject to Safety Regulation covering:</p> <ul style="list-style-type: none"> • Safety risks (electrocution hazards from conductor failure, insulator breakdown, structural collapse, etc.) • Bushfire risks (ignition from conductor or protection system failures) • Environmental and land-use risks (vegetation management) <p>Additional risks may be addressed through licence conditions:</p> <ul style="list-style-type: none"> • Operational and reliability risks (protection settings, communication failures, fault clearance) • Cyber and data security risks • Business continuity risks • Other environmental and land-use risks (biosecurity, access)

Tell us what you think



7. What do you see as the key strengths and weaknesses of Option 1? How could this be improved?

8. To what extent do the regulatory requirements under Option 1 appropriately reflect and address the risks associated with contestably operated supply connection infrastructure? Do you consider these requirements to be proportionate to the nature and scale of those risks? What changes, if any, could better align regulatory obligations with these risks?
9. What factors should be considered to inform whether other currently unlicensed network operators should be included in a licensing framework if contestably operated supply connection infrastructure is licensed under Option 1?

4.3 Option 2: Require a transmission licence for entities that contestably operate supply connection infrastructure with modified conditions

Under this option, supply connection infrastructure operators that currently do not hold a licence (for example, operators of DCAs, or any other similar future types of contestably operated supply connection infrastructure) would be required to obtain a transmission licence under the ES Act. They would also be subject to the Safety Regulation as network operators.

However, unlike option 1, licence conditions would be based on the nature of the asset and identified risks, and could be more limited than the current conditions that apply to existing transmission and distribution licences. The conditions could vary significantly depending on factors such as the size and complexity of the assets, the number of connections operated, and the operational arrangements in place – for example, more extensive conditions may apply to an operator of multiple large DCAs compared with an operator of a single small DCA.

IPART's licensing of water industry infrastructure under the *Water Industry Competition Act 2006* (WICA) is an example of this type of graduated licensing of operators of different sized networks with proportionate obligations to reflect the risks involved. Under WICA, IPART has issued licences to 18 smaller operators to construct and operate alternative water infrastructure.³⁴ These licences are different to the more comprehensive operating licences that apply to the 3 main public water utilities in NSW.

As in option 1, this approach would require amending the ES Act to provide that contestably operated supply connection infrastructure are transmission systems and that a person must not operate a transmission system that consists of or includes these assets without a transmission licence.

It would also use the Minister's existing power to impose, vary or remove conditions on a licence. Each modified licence would retain only the essential obligations needed to manage the risks posed by that specific operator's infrastructure and operations, and would not include broader requirements intended for transmission networks.

The detailed licence conditions would be recommended by IPART following consultation. This would include consideration of whether conditions should be tailored at the operator level (based on the operator’s overall portfolio and capabilities) or at the asset level (based on the characteristics of individual supply connection infrastructure), or a combination of both approaches and may change over time.

This option would address all applicable risks identified in Chapter 2 through a combination of the Safety Regulation (which all operators would be subject to) and tailored licence conditions. The Safety Regulation addresses safety risks from physical asset failures, bushfire risks, and environmental risks including vegetation management. The modified licence could address additional risks through conditions specific to each operator, with the extent and detail of these obligations proportionate to the risks posed by that operator’s infrastructure and operations.

This option may also improve transparency by creating a publicly accessible register of supply connection infrastructure operators given that licences are published on IPART’s website.

Option 2 may provide a proportionate middle-ground: operators are formally licensed, giving IPART clear oversight and enforcement tools, but the licence may be scoped down to avoid imposing the full suite of TNSP obligations on assets with a much narrower function.

The pros, cons and feasibility of option 2 are set out in Table 4.2 below.

Table 4.2 Pros, cons and feasibility of Option 2

Aspect	Matter
Pros	<ul style="list-style-type: none"> Provides regulatory visibility and accountability with reduced burden Enables targeted conditions to address specific risks or operator circumstances Creates clear regulatory status and obligations for operators Generates licence fees to partially offset regulatory costs Allows graduated enforcement options (warnings, penalties, suspension, cancellation) Can be tailored through consultation to address actual risks and industry needs Facilitates systematic monitoring through established reporting relationships
Cons	<ul style="list-style-type: none"> Creates new administrative burden for IPART to design and manage new licence class Extensive consultation needed to design appropriate framework Adds compliance costs for operators (fees, reporting, audits) though less than full licence Risk of regulatory creep – simplified requirements may expand over time May still be disproportionate for smaller operators or simple connection assets and inconsistent with the treatment of other unlicensed operators of small networks Uncertainty for industry until detailed design of the regulatory framework is complete
Feasibility	<ul style="list-style-type: none"> Implementation effort: Moderate – requires detailed design work Process: Would require changes to the Act to recognise contestably operated supply connection infrastructure as a transmission system requiring licensing; comprehensive consultation process to determine appropriate conditions, fees, and assessment criteria; likely 18-24 month implementation timeframe including consultation Next steps: If progressed, IPART would need to undertake detailed consultation on licence design including scope, conditions, fees, and transitional arrangements Risk: Determining the appropriate level of regulation; ensuring framework remains proportionate over time
Risks addressed	<p>All operators subject to Safety Regulation covering:</p> <ul style="list-style-type: none"> Safety risks (electrocution hazards from conductor failure, insulator breakdown, structural collapse, etc.) Bushfire risks (ignition from conductor or protection system failures, etc.) Environmental and land-use risks (vegetation management, etc.) <p>Additional risks may be addressed through tailored licence conditions (scaled to asset and/or operator characteristics):</p> <ul style="list-style-type: none"> Governance, business continuity and capability

Aspect	Matter
	<ul style="list-style-type: none"> • Technical and interface requirements • Reporting and assurance • Operational and reliability risks • Cyber and data security risks • Other environmental and land-use risks (biosecurity, access)

Tell us what you think



10. What do you see as the key strengths and weaknesses of Option 2? How could this be improved?



11. Which existing transmission licence conditions should apply, and which should be tailored or excluded under Option 2?

4.4 Option 3: Apply safety regulations to entities that contestably operate supply connection infrastructure

This option would clarify that entities that contestably operate supply connection infrastructure must comply with the safety and network management obligations that apply to network operators under the Safety Regulation. However, it would not require a transmission or distribution licence. Operators of supply connection infrastructure would also be required to register with IPART and IPART would publish a register of operators.

Implementation of this option would involve amendments to the ES Act and Safety Regulation clarifying that operators of supply connection infrastructure are network operators subject to the Safety Regulation.

Following those clarifications, IPART could:

- issue guidance to ensure impacted operators understand their obligations
- continue to provide targeted exemptions to specific obligations under the Safety Regulation and issue guidance on those exemption powers
- establish processes to identify and monitor compliance of supply connection infrastructure operators.

Under this option, operators would be subject to:

- an obligation to take all reasonable steps to ensure that the design, construction, commissioning, operation and decommissioning of its network is safe
- obligations to develop, implement and regularly review an ENSMS compliant with AS 5577
- requirements to address network safety, reliability, public electrical hazard warnings, and bushfire risk management
- annual safety performance reporting and publication requirements (unless exempted by IPART)
- independent ENSMS audits as directed by IPART

- IPART's investigation powers and penalties for safety regulation.

Operators would not be subject to transmission or distribution licence requirements under the ES Act.

Currently under the Safety Regulation, there is no obligation on unlicensed network operators to register with IPART. Operators are required to either publish an annual safety performance report or obtain an exemption to that reporting obligation from IPART, which is the primary means by which IPART gains visibility regarding these operators.

Option 3 could include an amendment to the Safety Regulation to require operators of supply connection infrastructure to register with IPART and provide information regarding their infrastructure. The register would provide IPART and other relevant bodies with visibility of entities that contestably operate supply connection infrastructure in NSW, the assets they operate, and their locations. This obligation could also require operators to report serious electricity works accidents involving their assets to IPART. These measures would address the current lack of visibility over privately owned connection assets without imposing the full obligations associated with licensing.

If a registration obligation was implemented for supply connection infrastructure, consideration could also be given to whether it should apply to all NSW network operators without a transmission or distribution licence.

The Safety Regulation obligations set out above may address safety risks from physical asset failures, bushfire risks, and environmental risks including vegetation management. However, the Safety Regulation does not cover cyber and data security risks, business continuity risks, financial and prudential capacity, or operational and reliability risks beyond those required for safe operation. The register and incident reporting requirements would provide IPART with visibility of operators and their assets, partially addressing accountability and governance concerns, but would not substitute for the financial, prudential, and business continuity requirements that apply under licensing options.

This approach ensures safety oversight consistent with other unlicensed network operators while avoiding the full regulatory burden of licensing. However, enforcement and compliance monitoring may be more challenging without the established frameworks and visibility that licensing provides.

The pros, cons and feasibility of option 3 are set out in **Table 4.3** below.

Table 4.3 Pros, cons and feasibility of Option 3

Aspect	Matter
Pros	<ul style="list-style-type: none"> • Addresses key safety risks without full licensing burden • Ensures consistent treatment with other unlicensed network operators (Directlink, rail operators, interstate DNSPs) • Leverages existing Safety Regulation framework • Provides IPART with enforcement powers for safety matters • Lower compliance costs than licensing while maintaining safety standards • Addresses bushfire and public safety risks from high-voltage infrastructure
Cons	<ul style="list-style-type: none"> • Enforcement may be more challenging without licensing framework's visibility and regular touchpoints and applicable penalties for non-compliance are generally lower than options 1 and 2 • Requires IPART to identify and engage operators without licence application process • Limited to safety matters – no licence obligations or IPART oversight of other risks that are covered by standard licence conditions • Operators may be unaware of obligations without proactive engagement

Aspect	Matter
	<ul style="list-style-type: none"> No licence fees to offset regulatory costs Operators would not be entitled to apply for a licence if they wished to be licensed Inconsistent with regulatory approaches in other NEM jurisdictions
Feasibility	<ul style="list-style-type: none"> Implementation effort: Low – uses existing regulatory framework (higher if asset register required) Process: Requires formal clarification that supply connection infrastructure operators are network operators subject to the Safety Regulation; IPART would need to develop guidance and compliance procedures Challenges: Identifying all operators and ensuring awareness; establishing effective compliance monitoring without licensing structure; resourcing ongoing oversight Risk: Some existing operators may be non-compliant, requiring transitional arrangements
Risks addressed	<p>All operators subject to Safety Regulation covering:</p> <ul style="list-style-type: none"> Safety risks (electrocution hazards from conductor failure, insulator breakdown, structural collapse, etc.) Bushfire risks (ignition from conductor or protection system failures, etc.) <p>Environmental and land-use risks (vegetation management) Additional measures:</p> <ul style="list-style-type: none"> Partial visibility and accountability through register and incident reporting

Tell us what you think



12. What do you see as the key strengths and weaknesses of Option 3? How could this be improved?



13. What factors should be taken into account in determining the extent to which Safety Regulation requirements should apply to contestably operated supply connection infrastructure under Option 3?

4.5 Option 4: Do not regulate entities that contestably operate supply connection infrastructure as network operators

This option would exclude operators of supply connection infrastructure that currently do not hold a licence (for example operators of DCAs, or any other similar future types of contestably operated supply connection infrastructure) from the obligations on network operators under the ES Act and Safety Regulation. This would mean that those operators are not subject to the Safety Regulation in relation to those assets. This may represent a departure from the current position, where there is uncertainty about whether entities that contestably operate supply connection infrastructure are subject to the Safety Regulation.

This option would require amendments to the ES Act and/or Safety Regulation. IPART has some powers to provide limited exemptions to specific obligations under the Safety Regulation but not full exemptions of this nature.

We may consider establishing a separate publicly accessible register under Option 4 to promote transparency and visibility across the sector. The register would provide IPART and other relevant bodies with visibility of entities that contestably operate supply connection infrastructure in NSW, the assets they operate, and their locations.

Under this option, operators would not be subject to:

- licence application requirements or ongoing licence fees under the ES Act
- any electricity-specific safety obligations
- requirements to implement an ENSMS under the Safety Regulations
- annual safety performance reporting and independent ENSMS audits
- IPART's compliance monitoring, enforcement powers, or penalties
- licence obligations in relation to matters such as network reliability standards or performance reporting obligations, technical and prudential criteria, critical infrastructure, insurance or business continuity risks.

This option may not address any of the risks identified in [Chapter 2](#) through state-level electricity-specific regulation. Contestably operated supply connection infrastructure would continue to be subject to contractual arrangements with connecting parties and general laws such as Work Health and Safety requirements, but there may be no electricity-specific oversight of safety management systems, bushfire risk management, cyber and data security, business continuity, operational and reliability standards, financial and prudential capacity, or environmental and land-use risks for high-voltage supply connection infrastructure.

This approach may provide the lowest regulatory burden and resolve the uncertainty regarding the application of the Safety Regulation to supply connection infrastructure. However, it could potentially create inconsistency with how other unlicensed network operators (such as Directlink and rail operators) are treated under the Safety Regulation.

The pros, cons and feasibility of option 4 are set out in **Table 4.4** below.

Table 4.4 Pros, cons and feasibility of Option 4

Aspect	Matter
Pros	<ul style="list-style-type: none"> • Lowest regulatory burden and compliance costs for operators • Minimal administrative resources required from IPART • Avoids duplication with NER requirements and AEMO processes • Allows commercial arrangements to drive performance
Cons	<ul style="list-style-type: none"> • No state-level safety oversight for high-voltage infrastructure • No visibility of the associated risks • Inconsistent treatment compared to other unlicensed operators (Directlink, rail operators) who must comply with safety obligations as network operators • Inconsistent with regulatory approaches in other NEM jurisdictions • No visibility or recourse for safety incidents beyond NER processes • Potential risks to bushfire management and emergency response • May undermine public confidence in infrastructure safety • Risk of regulatory arbitrage to avoid distribution licence obligations
Feasibility	<ul style="list-style-type: none"> • Implementation effort: Low – requires minimal regulatory changes • Process: Would require legislative change. • Challenges: May conflict with NSW safety objectives and community expectations • Risk: Would need clear boundaries to prevent scope creep of exempt activities
Risks addressed	<p>No state-level electricity-specific regulatory obligations apply. Operators remain subject to:</p> <ul style="list-style-type: none"> • General Work, Health and Safety (WHS) laws • Contractual obligations with connecting parties

Tell us what you think



14. What do you see as the key strengths and weaknesses of Option 4? How could this be improved?

4.6 Summary comparison of options

4.6.1 How each option addresses risks

The four options provide different levels of regulatory oversight and address different combinations of the potential risks identified in [Chapter 2](#).

Which option is most appropriate may depend on the nature and impact of the potential risks on owners and operators, workers and the community, and the degree to which those risks are already managed through other arrangements (such as contractual mechanisms or other legislative frameworks). Safety and bushfire risks are addressed by options 1, 2 and 3. Other risks such as reliability, cyber security and business continuity are only addressed by options 1 and 2, but may be less significant for contestably operated supply connection infrastructure compared with traditional large, shared transmission or distribution networks.

Table 4.5 below summarises the key features of each option and the risks they address.

Table 4.5 Summary comparison of regulatory options

Aspect	Option 1: Full licence	Option 2: Modified licence	Option 3: Safety Regulation	Option 4: No regulation
Licensing requirement	✓ (Full transmission licence)	✓ (Tailored transmission licence)	✗	✗
Safety Regulation applies	✓	✓	✓	✗
Safety risks	✓	✓	✓	✗
Bushfire risks	✓	✓	✓	✗
Cyber and data security risks	✓	✓ (as appropriate)	✗	✗
Business continuity risks	✓	✓ (as appropriate)	✗	✗
Operational and reliability risks	✓	✓ (as appropriate)	✗	✗
Environmental and land-use risks	✓	✓ (as appropriate)	✓ (vegetation only)	✗
Other obligations apply ^b	✓	✓	✓	✓
Public register of operators	✓	✓	Could be added to this option	Could be added to this option

4.6.2 Alignment with other NEM jurisdictions

A degree of jurisdictional alignment may be an important consideration in developing a regulatory framework. Where regulatory approaches are broadly consistent across jurisdictions, this can reduce barriers to entry for new participants, lower compliance costs, and improve regulatory certainty for investors operating across multiple jurisdictions.

Table 4.6 compares how each option aligns with the regulatory approaches adopted in other NEM jurisdictions, as detailed in [Chapter 3](#).

Table 4.6 Jurisdictional alignment




Option	Jurisdictional alignment
Option 1: Full licence	Broadly aligns with transmission licensing approaches in ACT, Victoria, Tasmania and Queensland. However, licence conditions in those jurisdictions are generally less detailed than in NSW, which limits direct comparability.
Option 2: Modified licence	Similar to tailored licensing (Victoria, ACT) and exemption frameworks (South Australia) used in other NEM jurisdictions for certain assets including supply connection infrastructure.
Option 3: Safety Regulation	No clear direct equivalent in other NEM jurisdictions. Most jurisdictions regulate transmission assets through licensing or formal exemption frameworks that incorporate safety obligations. This option reflects NSW's unique regulatory structure where safety obligations are separate from licensing.
Option 4: No regulation	Not aligned with approaches in other NEM jurisdictions. No jurisdictions permit unregulated operation of transmission connection assets without at least safety obligations applying.

^b All options remain subject to general laws including WHS legislation, critical infrastructure laws (where applicable), relevant NER requirements, and contractual obligations.

4.6.3 Regulatory roles

Under Options 1, 2 and 3, IPART would be the primary regulator responsible for safety oversight under the Safety Regulation, compliance monitoring and enforcement. Options 1 and 2 would additionally require IPART to assess licence applications and make recommendations to the Minister regarding the grant of a transmission licence, as well as monitor and enforce ongoing compliance with licence conditions. Under Option 4, IPART would have no regulatory role in relation to supply connection infrastructure under the ES Act or Safety Regulation (other than potentially publishing a register). Other regulatory obligations would continue to apply under all options, including NER requirements overseen by the AER, WHS legislation enforced by SafeWork NSW, and critical infrastructure laws administered by the Department of Home Affairs.

Tell us what you think

-  15. Are there additional risk mitigation strategies or approaches, including non-legislative or contractual mechanisms such as Connection Agreements, that could be considered to address risks associated with supply connection infrastructure? Please provide examples of practical measures that you think may be effective in managing SCI risks
-  16. What implementation challenges or unintended consequences may arise under each of the options? How could these be mitigated?
-  17. Are there any assets currently regulated under the ES Act that you consider would be more appropriately regulated under a new framework for supply connection infrastructure?

4.7 Other matters

As a part of our information gathering phase, additional points were raised by some stakeholders.

Some stakeholders put forward a view that the Minister's licensing powers for supply connection infrastructure could potentially be delegated to IPART, should a licensing framework be adopted. They noted this may support a more efficient and streamlined transition, facilitate smoother administration of licensing processes, and enhance regulatory certainty.

Additionally, one stakeholder put forward a preference for a licensing framework, for commercial reasons. It was suggested that holding a licence could improve bankability, boost investor confidence, and strengthen competitive positioning, even if the licence may not be required under current legislation. There may be other views on these topics.

Tell us what you think



18. Are there any other matters relevant to the regulation of supply connection infrastructure that IPART should consider as part of this review?

5 Assessment of the options

Assessment criteria



The assessment criteria for this review have been developed to provide a structured and comprehensive basis for evaluating regulatory options for supply connection infrastructure.

The criteria are anchored in the Terms of Reference, which sets out eleven specific considerations that must inform the review, including the existing NSW licensing and safety regime, NER requirements, transition costs and barriers to entry (see [Appendix A](#)). We have also had regard to the objectives under the *Electricity Supply Act 1995*.

This has resulted in six assessment criteria, outlined below.



Criterion 1: Manage safety and other risks effectively

Regulatory options should address identified risks in a manner proportionate to the nature and scale of risks posed by supply connection infrastructure, both now and as the sector evolves.

This criterion focuses on whether options adequately address the safety risks to persons, property and the environment, the coverage of reliability and security of supply risks, and the appropriateness to the risk profile of entities that operate contestable supply connection infrastructure both currently and into the future.

Criterion 2: Minimise regulatory burden

Regulatory options should be cost-effective and efficient, avoiding unnecessary duplication with existing frameworks while ensuring compliance costs are proportionate to the benefits achieved and do not create undue barriers to entry.

This criterion examines the proportionality of regulatory burden to identified risks, the cost-effectiveness of compliance requirements for entities that operate contestable supply connection infrastructure, the administrative efficiency for IPART and co-regulators, and the avoidance of unnecessary duplication with existing regulations including the NER and safety requirements.

Criterion 3: Enable energy transition

Regulatory options should facilitate the timely and efficient transition to renewable electricity supply in NSW by supporting timely connection of new generation and storage without creating unnecessary development bottlenecks.

This criterion assesses the impact on speed and cost of renewable generation connections, the effect on barriers to entry for new connection assets, the flexibility to accommodate evolving connection models and technologies, the adaptability of the regulatory framework to technological change and innovation, and the contribution to NSW renewable energy transition objectives.

Criterion 4: Ensure practical implementation

Regulatory options should be feasible to implement, monitor and enforce, taking into account operator capabilities and maturity, transitional requirements, and the administrative capacity of regulators.

This criterion considers alignment with entities that operate contestable supply connection infrastructure's maturity and capabilities, practicality of monitoring and enforcement mechanisms, clarity of regulatory obligations and responsibilities, and manageability of transitional arrangements.

Criterion 5: Protect consumer interests

Regulatory options should protect consumers by minimising the risk of indirect impacts arising from poor safety, reliability or operational standards of supply connection infrastructure, while ensuring regulatory costs do not create unnecessary burdens that are ultimately borne by electricity users.

This criterion evaluates the extent to which options mitigate indirect risks to consumers arising from safety or reliability failures, including consideration of whether there are indirect impacts on vulnerable communities. It also examines the potential for regulatory costs imposed on entities that contestably operate supply connection infrastructure to flow through to wholesale electricity prices and ultimately to consumers, the efficiency of regulatory arrangements in achieving safety and reliability objectives without imposing disproportionate costs, and the transparency and accountability mechanisms that support effective oversight without creating unnecessary compliance burden.

Criterion 6: Maintain regulatory coherence

Regulatory options should align with National Electricity Law and Rules requirements, demonstrate consistency with approaches to other network operators in NSW, be consistent with approaches in other jurisdictions where appropriate, and integrate effectively with NSW's existing regulatory framework.

This criterion assesses consistency with NEL and NER requirements, alignment with regulatory treatment in other jurisdictions, integration with the existing NSW electricity regulatory framework, and compatibility with IPART's statutory objectives under both the IPART Act³⁵ and ES Act.

5.1 Current industry practice

Before assessing the regulatory options, it is relevant to reflect briefly on current industry practice in NSW and how this compares with other jurisdictions.

In other NEM jurisdictions, operators of transmission connection assets are generally required to hold either a transmission licence or obtain an individual exemption from the relevant regulator or Minister. This provides a formal regulatory pathway with clear accountability and oversight requirements (see [Chapter 3](#) for detailed jurisdictional comparison).

In NSW, operators of supply connection infrastructure are currently not required to hold a transmission licence and it is unclear whether they are required to hold a distribution licence. Engagement with supply connection infrastructure operators suggest that they nonetheless comply with safety management requirements through arrangements established with the primary TNSP. However, these arrangements do not result in a standalone ENSMS published by the operator or in a direct reporting relationship with IPART.

This illustrates both the strengths and limitations of the current NSW framework. Established operators may achieve safety outcomes through corporate or contractual mechanisms, but visibility, accountability and consistency are variable without a dedicated regulatory pathway.

5.2 High level assessment of the options against the assessment criteria

We have undertaken a preliminary assessment of the four options against the six evaluation criteria detailed above.

01 Option 1 Provides comprehensive oversight by applying the full transmission licensing framework. This supports strong performance on safety and risk management, consumer protection, and regulatory coherence with existing licensed operators. However, it may come with a significantly higher regulatory burden that may be disproportionate to the scope of connection-only infrastructure and includes conditions that may be irrelevant or inapplicable to supply connection infrastructure. These requirements may also affect delivery timeframes that could deter new entrant operators, potentially impacting the energy transition.

02 Option 2 Seems to perform strongly across several criteria. Its modified licensing framework provides structured oversight and supports clear governance, safety and system-interface obligations that are tailored to address the risks posed by each operator's specific infrastructure and operations. This can result in strong performance on risk management, consumer protection and regulatory coherence while maintaining proportionality. However, it introduces additional compliance and implementation requirements relative to non-licensing approaches and will require a program of work to design and implement the modified licence framework through consultation.

03 Option 3 Seems to perform well on criteria relating to regulatory burden, energy transition and practical implementation. By relying on the existing Safety Regulation, it may build on an established compliance framework familiar to operators and regulators. This keeps administrative requirements relatively low while ensuring that core safety, bushfire-risk and vegetation management controls are in place. The addition of a register and incident reporting requirements would also improve visibility and accountability. However, Option 3 may not address cyber security, business continuity, financial capacity, or operational and reliability risks beyond those required for safe operation, which limits its performance on risk management and consumer protection criteria.

04 Option 4

Seems to perform well on regulatory burden and implementation, but does not perform well across most other criteria due to the absence of formal electricity-specific oversight of safety, bushfire risk management, emergency response and other risks. It would require legislative change to carve out supply connection infrastructure from existing definitions, creating inconsistency with how assets currently operated by unlicensed network operators are regulated under the Safety Regulation. This affects both its risk management performance and regulatory coherence.

Taken together, the assessment highlights that the options vary in how they balance safety oversight, regulatory burden and implementation complexity. Options 1 and 2 align with licensed network operator treatment while Option 3 aligns with unlicensed network operators such as Directlink, reflecting different regulatory approaches within the existing NSW framework. Option 4 may represent a departure from current treatment of comparable high-voltage infrastructure.

As previously outlined, the four options presented above reflect distinct regulatory approaches that could be taken. However, it is important to recognise that these options are neither exhaustive nor mutually exclusive. There may be merit in exploring a modified or hybrid approach that combines elements from the options described or even incorporates new elements that better address specific circumstances. Stakeholders are therefore encouraged to provide feedback not only on the options set out, but also on potential adaptations, variations, or additional components that may enhance the effectiveness and proportionality of the regulatory framework.

In developing our final recommendations for this review, we will consider stakeholder feedback and operational experience to understand how these trade-offs play out in practice.

IPART welcomes and encourages submissions from all interested stakeholders. Your feedback will play an important role in informing our final recommendations. Please refer to page iii for more information on how to make a submission. Written submissions can be lodged via the IPART website by **8 April 2026**.

Tell us what you think



19. How appropriate and complete is the assessment criteria we have used to evaluate the options? What additional factors should be taken into account?



20. What options do you consider most appropriate for addressing the emerging risks for supply connection infrastructure in NSW and why?



21. Are there any other options you consider would be more appropriate?

Appendices

A Terms of Reference

Review the regulatory framework for supply connection infrastructure in NSW

I, the Hon. Penny Sharpe, MLC, Minister for Energy, with the approval of the Premier, have entered into an arrangement for the provision of services by the Independent Pricing and Regulatory Tribunal (IPART) under section 9 of the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act). Under this arrangement, IPART is to investigate and report on the regulatory framework for supply connection infrastructure in NSW in accordance with these Terms of Reference.

Context

In making recommendations, IPART should identify where legislative change would be required to give effect to its recommendations. The current NSW regulatory framework for electricity supply network infrastructure applies to distributors and transmission operators. The framework includes parts of the *Electricity Supply Act 1995* (ES Act), and regulations made under that Act. The framework sets out licensing and safety requirements and IPART's regulatory role.

Since this framework was put in place, the electrical supply system in NSW has evolved. Renewable generation and storage assets (for example, solar, wind and batteries) are connecting to the existing grid with lines and substations (Supply Connection Infrastructure), infrastructure that does not easily fit in the current regulatory framework. This Supply Connection Infrastructure connects renewable generation and storage assets to:

- the existing transmission systems, or
- the existing distribution systems, or
- new Renewable Energy Zone (REZ) transmission and distribution systems.

The prevalence of Supply Connection Infrastructure is expected to increase significantly, as the electricity supply system transforms to renewable generation. There is uncertainty regarding how new and existing Supply Connection Infrastructure fits in the current framework, and as a result, how the regulatory regime applies to it.

This review is one of a series of reviews of the energy sector taking place across government. The purpose of this review is to contribute to the broader work of the DCCEEW in reforming and modernising the regulatory framework for energy networks in NSW, and, in particular, to ensure the regulatory framework is designed for the future and continues to provide appropriate and necessary community protections. This review will provide recommendations on how the regulatory framework should apply to Supply Connection Infrastructure assets within NSW.

The task

IPART should investigate and make recommendations on:

1. The regulatory framework that should apply to Supply Connection Infrastructure, including:
 - a. whether the infrastructure or assets should be regulated as distribution systems, transmission systems or categorised and regulated in a different way
 - b. if other categories are recommended, how these categories should be delineated from the existing network categories under the ES Act
 - c. whether it is appropriate to impose existing obligations for network operators under the ES Act and regulations, on operators, owners or controllers of Supply Connection Infrastructure
 - d. consider the following, at a minimum: the licensing framework; safety obligations; and assurance and compliance requirements.
2. If a new framework should apply to Supply Connection Infrastructure, whether any of the assets currently regulated by the ES Act are more appropriately regulated under the new framework.
3. Any other regulatory framework improvements identified as part of the review.

In making recommendations, IPART should identify where legislative change would be required to give effect to its recommendations.

Relevant considerations

In undertaking this task, IPART should, where relevant, have regard to:

1. the regulatory regime for licensing and safety in NSW (including the ES Act and the regulations made under that Act)
2. the regulatory regimes applicable in other jurisdictions
3. the requirements of the *National Electricity (NSW) Law* and *National Electricity Rules*
4. existing and proposed Supply Connection Infrastructure within NSW
5. the nature and scale of the risk presented by Supply Connection Infrastructure and other types of network assets now and in the future
6. the scale and business maturity of operators of Supply Connection Infrastructure and other types of network assets and their ability to comply with any proposed new regulatory arrangements
7. the need to expeditiously and efficiently transition NSW to a renewable electricity supply system, including by considering:
 - a. the costs and complexity of regulation for operators of Supply Connection Infrastructure and other types of network assets (including smaller and simpler network assets)
 - b. any barriers to entry arising from regulation of operators seeking to establish new Supply Connection Infrastructure
8. the practicality, benefits and costs of complying with IPART's recommendations, including cost recovery considerations, and the costs for consumers if there is poor compliance and/or ineffective enforcement

9. the practicality, benefits and costs of monitoring and enforcing compliance
10. transitional issues as a result of IPART's recommendations
11. any other matter IPART considers relevant:

Exclusions from the Task

The task does not include investigating or making recommendations on:

- customer installations, including high voltage customers as defined by the *Service and Installation Rules of NSW*
- generators, including renewable generators, and upstream energy storage facilities (as opposed to the Supply Connection Infrastructure that connects these assets to the grid).

The Process

IPART is required to provide a final report to the Minister for Energy and the Minister administering the IPART Act within 9 months of receiving these terms of reference (received 26 September 2025).

IPART is required to consult with relevant stakeholders including existing network operators and the operators of current and planned Supply Connection Infrastructure.

B Glossary

Term	Meaning
AEMO	Australian Energy Market Operator. AEMO operates the National Electricity Market in the eastern and south-eastern states and Australian gas markets. AEMO is responsible for system security, power system planning, and connection processes.
AER	Australian Energy Regulator. Regulates the national electricity networks under the NEL and NER, including economic regulation and some access arrangements.
BESS	Battery Energy Storage Systems
CWO	Central-West Orana (Renewable Energy Zone)
DCA	Dedicated Connection Asset
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DNA	Designated Network Asset
DNSP	Distribution Network Service Provider
EII Act	<i>Electricity Infrastructure Investment Act 2020 (NSW)</i>
ENSMS	Electricity Network Safety Management System. A system required under NSW Safety Regulation for network operators to manage electrical safety risks.
ES Act	<i>Electricity Supply Act 1995 (NSW)</i>
IPART	The Independent Pricing and Regulatory Tribunal of NSW
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act 1992 (NSW)</i>
IUSA	Identified User Share Asset
Minister	The Minister for Energy
NEL	<i>National Electricity Law</i> . Establishes the national legal framework for electricity markets and network regulation.
NEM	National Electricity Market. The interconnected wholesale electricity market that operates across eastern and southern Australian, coordinating the supply and dispatch of electricity between participating states and territories.
NER	<i>National Electricity Rules</i> . Details rules governing access, connection, and economic regulation of electricity networks.
NSP	Network Service Provider
PNIP	Priority Network Infrastructure Project
REZ	Renewable Energy Zone
RNIP	REZ Network Infrastructure Project
Safety Regulation	<i>Electricity Supply (Safety and Network Management) Regulation 2014 (NSW)</i>
TNSP	Transmission Network Service Provider
WICA	<i>Water Industry Competition Act 2006</i>
WHS	Work, Health and Safety

¹ *Independent Pricing and Regulatory Tribunal Act 1992 (NSW)*, Section 9.

² *National Electricity Rules*, Chapter 5.

³ *National Electricity Rules*, Chapter 5A.

⁴ *Electricity Supply Act 1995 (NSW)*, Section 93A.

⁵ *Electricity Supply Act 1995 (NSW)*, Section 93B.

⁶ *Electricity Supply Act 1995 (NSW)*, Schedule 3.

⁷ IPART, Register of distribution and transmission licences for electricity Network Operators.

⁸ *Electricity Supply (Safety and Network Management) Regulation 2014 (NSW)*, Section 10.

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- ⁹ *Electricity Supply (Safety and Network Management) Regulation 2014* (NSW), Section 4.
- ¹⁰ *National Electricity Rules*, Chapter 10.
- ¹¹ Zenviron, Rye Park Wind Farm NSW.
- ¹² Edify Energy, Riverina and Darlington Point.
- ¹³ RWE Renewables Australia, Limondale Battery Energy Storage System.
- ¹⁴ *Electricity Supply Act 1995* (NSW), Section 31A.
- ¹⁵ Iberdrola, Flyers Creek Wind Farm.
- ¹⁶ *Electricity Supply Act 1995* (NSW), Section 93A(1).
- ¹⁷ *Electricity Supply Act 1995* (NSW), Section 93B(1).
- ¹⁸ *National Electricity Rules*, Chapter 5.
- ¹⁹ *National Electricity Rules*, Chapter 6A.
- ²⁰ Australian Energy Regulator, Ring-fencing Guideline Electricity Transmission, February 2025.
- ²¹ *National Electricity Rules*, Chapter 6.
- ²² Lumea, Connection Process Fact Sheet, October 2024, p 2.
- ²³ *Work Health and Safety Act 2011* (NSW).
- ²⁴ *Security of Critical Infrastructure Act 2018* (Cth).
- ²⁵ *Protection of the Environment Operations Act 1997* (NSW).
- ²⁶ *Environmental Planning and Assessment Act 1979* (NSW).
- ²⁷ *Biosecurity Act 2015* (NSW).
- ²⁸ Independent Competition and Regulatory Commission, Utilities Regulatory Framework.
- ²⁹ Essential Services Commission, Electricity and gas licences.
- ³⁰ Business Queensland, Electricity licences.
- ³¹ Essential Services Commission of South Australia, Licensing.
- ³² Office of the Tasmanian Economic Regulator, Licences.
- ³³ IPART, Compliance and Enforcement Policy, December 2025.
- ³⁴ IPART, WIC Act Licensees.
- ³⁵ *Independent Pricing and Regulatory Tribunal Act 1992* (NSW).