AEMC

RULE

Australian Energy Market Commission

CONSULTATION PAPER

NATIONAL ELECTRICITY AMENDMENT (CONNECTION TO DEDICATED CONNECTION ASSETS) RULE

PROPONENT
AEMO

5 MARCH 2020

INQUIRIES

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Reference: ERC0294

CITATION

AEMC, Connection to dedicated connection assets, Consultation paper, 5 March 2020

ABOUT THE AEMC

The AEMC reports to the Council of Australian Governments (COAG) through the COAG Energy Council. We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the COAG Energy Council.

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1 INTRODUCTION

On 3 January 2020, the Australian Energy Market Commission (AEMC or Commission) received a rule change request from the Australian Energy Market Operator (AEMO) seeking to clarify the application of key National Electricity Rules (NER) requirements to enable multiple proponents to connect to a dedicated connection asset (DCA).

DCAs enable the connection of a generator or large energy customer (load) to the shared transmission network. Accordingly, these connection assets provide the connection services that are necessary for a generating system or load to connect to the shared network.

The National Electricity Market (NEM) is transitioning, with existing generators retiring and an unprecedented level of generators seeking to connect to the grid over the next 10 years. There are a number of concurrent developments and initiatives that aim to make the transmission system 'fit for purpose', in terms of being responsive to the transition of the NEM, currently underway:

- *'Whole-of-system' transmission system planning and development*: AEMO's Integrated System Plan (ISP) provides a whole-of-system plan for the transition of the energy system over the next 20 years.[1] Alongside, the Energy Security Board (ESB) has developed an action plan and a set of draft changes to the NER to convert the ISP into action.[2]
- *Potential development of Renewable Energy Zones (REZs)*: The ESB was asked by the COAG Energy Council to expedite work on short term actions to progress REZ connections and is expected to report back to COAG Energy Council in March 2020.[3] Concurrently, the NSW Government is prioritising the development of new electricity generation and planning on delivering a coordinated REZ, based on the NSW Government's Transmission Infrastructure Strategy, which is one part of the NSW Electricity Strategy.[4]

These recent developments are likely to have interactions with AEMO's rule change proposal, asking for clarification of the existing DCA framework with regard to the connection of multiple parties to a DCA. In particular, AEMO's rule change proposal may assist the potential development of REZs, which could take the form of a cluster of generators connected to the shared transmission network via a shared connection asset, e.g. a DCA.

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1 AEMO, *Draft 2020 Integrated System Plan*, December 2019, available under https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/isp/2019/draft-2020-integrated-system-plan.pdf?la=en.

2 ESB, *ISP Action Plan*, 2018, available under http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/isp%20action%20plan.pdf, and ESB, *Consultation paper on draft ISP rules*, November 2019, available under http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/Actionable%20ISP%20-%20Consultation%20on%20Draft%20ISP%20Rules_0.pdf.

3 COAG Energy Council Meeting Communique, 22 November 2019, available under http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/EC%20-%20Final%20Communique.pdf.

4 NSW Government, *NSW Transmission Infrastructure Strategy*, 2018, available under https://energy.nsw.gov.au/media/1431/download and NSW Government, *Electricity Strategy*, 2019, available under https://energy.nsw.gov.au/media/1921/download.

This consultation paper has been prepared to facilitate public consultation on the issues raised by AEMO in the rule change request and the proposed rule, and to seek stakeholder submissions.

This paper:

- sets out a summary of, and a background to, the rule change request,
- identifies a number of questions and issues to facilitate the consultation on this rule change request, and
- outlines the process for making submissions.

2 BACKGROUND

This chapter sets out the broader context for AEMO's rule change request. It explains the framework for transmission connections under the NER by describing its key aspects:

- the shared transmission network
- the process for establishing a connection to the shared network.

Against this background, the changes made to the framework for transmission connections through the AEMC's 2017 *Transmission Connection and Planning Arrangements Rule* are also set out.

2.1 The transmission connections framework

2.1.1 The shared transmission network

The 'shared' transmission network describes the transmission network owned, operated and controlled by the incumbent TNSP, i.e. the 'Primary TNSP'.[5] It facilitates the secure and integrated operation of the electricity power system and flows of electricity between parties that produce electricity (generators) and those that consume electricity (consumers). The shared transmission network is a meshed network, making it almost impossible to separate those assets that provide services to a particular party from those that provide services to all users of the network.

2.1.2 Connections

Generators, load, market network service providers (MNSPs) and distribution systems need to connect to the shared transmission network in order to facilitate the flow of electricity to and from their facility or network to the transmission system. The need for, and ongoing use of, assets that are used to facilitate connections to the network can be attributed to the party that uses them to connect. These assets that are required to enable a connection are broadly described as connection assets.

The terms and conditions of a connection are negotiated between the connecting party and the TNSP through a connection process. If the negotiating parties come to an agreement, the terms and conditions of an individual connection are specified in a connection agreement between the TNSP and the connecting party.

It should be noted that in Victoria, the functions undertaken by TNSPs elsewhere are split between AEMO and declared transmission system operators (DTSOs).

5 The incumbent TNSPs in the jurisdictions of the NEM are: Powerlink (Queensland), TransGrid (NSW), ElectraNet (South Australia), TasNetworks (Tasmania), and AEMO and declared transmission system operators (DTSOs) (Victoria).

BOX 1: TRANSMISSION CONNECTIONS IN VICTORIA

Victoria is the only jurisdiction in the NEM where AEMO has declared network functions.[1] AEMO is accountable for the provision of the shared network, procuring services from DTSOs (such as AusNet Services). In Victoria, the regulatory and legislative framework for how parties connect to the transmission network is different - it is regulated by provisions in the NEL and certain provisions of Chapters 5 and 8 of the NER. This means that the process for how parties connect to the transmission network is different to other jurisdictions, which only follow the process set out in Chapter 5 of the NER.

Generally, AEMO is responsible for assessing all new generator, load, MNSP, embedded network and Distribution Network Service Provider (DNSP) connections against the NER requirements, but is *not* responsible for providing the assets associated with connection. For generators and large loads, normally the assets associated with connection are provided by a supplier of the connecting party's choice.

As a result, the following process applies to transmission connections in Victoria:

- If a connection requires an augmentation to the declared shared network, e.g. the construction of a new substation, AEMO will determine whether the augmentation is contestable, non-contestable, or some combination of both.
- If AEMO determines that the augmentation is contestable, then the connection applicant can either:
  - nominate a DTSO of its choice to build, own and operate the contestable assets (essentially it would conduct a private tender to determine who it wishes to appoint to provide these services), or
  - ask AEMO to select the DTSO, with AEMO running a competitive tender process to select the most appropriate party.
- If AEMO determines that an augmentation is not contestable, the services will be provided by the incumbent DTSO, e.g. AusNet Services. Typically, these are the interface works because they are considered 'not separable' from the incumbent's network.
- Regardless of whether the augmentation is contestable or not, AEMO provides the equivalent of a 'functional specification' that the provider of the assets must use.

As a result of these differences, the contractual agreements for a connection in Victoria also differ from other jurisdictions.

Source: [1] See Part 5, Division 2 of the NEL on AEMO's declared network functions. For a comprehensive overview of the process for transmission connections in Victoria, see AEMC, *Transmission Connection and Planning Arrangements Rule Determination*, 2017, chapter 6.

2.1.3 The process for transmission connections

Part B of Chapter 5 of the NER, which sets out the connection process, regulates aspects of the technical and contractual arrangements needed to connect, and sets out the obligations

on parties throughout the connection process. The connection process broadly occurs as follows:[6]

- The connection applicant submits a *connection enquiry* to the TNSP.
- The TNSP formulates a *response to the connection enquiry*, with the TNSP informing the applicant about the relevant information it must provide, the amount of the application fee and providing a preliminary program, including proposed milestones for the connection.
- The applicant makes an *application for connection* to the TNSP's network and pays the application fee.
- The TNSP makes an *offer to connect* to the applicant, including the commercial terms and engineering requirements for the connection.
- The *finalisation of the connection agreement* is dependent upon the applicant's acceptance of the connection offer and establishing a connection agreement between the connection applicant and the TNSP.

This process is a staged negotiation with defined time frames for key steps in the process. The process is relatively prescriptive with regard to the TNSP's and the connection applicant's responsibilities. In practice, it is an iterative process whereby parties exchange information in order to come to an agreement on new connections and modifications to existing connections.

The negotiation of performance standards for a specific connection also occurs through the described connection process. Accordingly, the process for negotiating the services and assets that are required for connection to the shared transmission network occurs between the TNSP and a connection applicant concurrently with the process of negotiating performance standards for connecting equipment.[7] Chapter 5 of the NER contains access standards for the required level of performance for the equipment that an applicant seeks to connect to the transmission system, e.g. a generating plant.

The agreed levels of these access standards form part of the connecting party's connection agreement and become the performance standards for the plant.[8] Performance standards are essential for the secure and reliable operation of the power system. They address the needs of a stable power system through, for example, being a means to effectively ensure a generating system is capable of operating within certain frequency limits and can respond to voltage disturbances to prevent significant power system disruption. As such, performance standards are one of the principal tools AEMO uses to manage power system security.

6 See clauses 5.3.2 to 5.3.7 of the NER.

7 AEMO has an advisory function on some matters during the connection process, see clause 5.3.4A and the definition of 'AEMO advisory matter' in Chapter 10 of the NER.

8 See clause 5.3.4A(i) of the NER.

2.2 Current arrangements: The 2017 Transmission Connection and Planning Arrangements Rule

The current framework for transmission connections was established through the AEMC's 2017 *Transmission Connection and Planning Arrangements (TCAPA) Rule*, which:

1. clarified many aspects of the connection process and the framework for economic regulation of services required to connect to the shared transmission network, and
2. ensured as many connection services as possible are contestable, while making it clear that the Primary TNSP remains accountable for outcomes on the 'shared' transmission network, including the operation and maintenance of that network and access to it.

In particular, the 2017 TCAPA Rule defined two types of assets that provide the services required to connect a party to the shared transmission network - dedicated connection assets (DCA) and identified user shared assets (IUSA):

- A **DCA** is the collection of components that are used to connect an identified user group - one or more connecting parties (generators or loads) - to the shared transmission network at a single connection point and which, once commissioned, can be isolated from electricity flows on the shared transmission network, for example the power line that connects parts of a substation to a generating system. For the purposes of registration, a DCA is defined as a transmission system. AEMO is responsible for assessing an application and registering an NSP who classifies its transmission system as a DCA.[9] The party who owns, operates or controls a DCA is called a Dedicated Connection Asset Service Provider (DCASP), which is a sub-category of a TNSP. The primary TNSP or a third party can be the DCASP.[10]
- An **IUSA** is the collection of components that are used to connect the connecting party to the shared transmission network and which, once commissioned, form part of the shared transmission network as electricity flows cannot be isolated from the shared network, for example parts of a substation.[11]

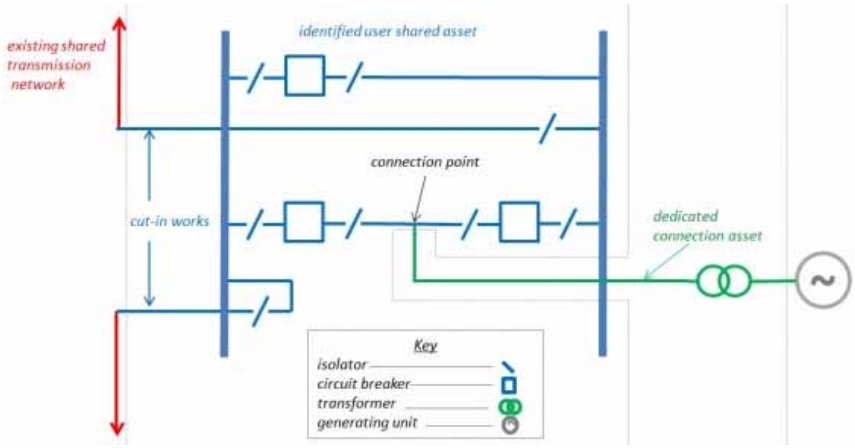
A combination of both a DCA and IUSA will generally be needed to connect a generator or load to the transmission network, although the relative size of these different asset types can vary widely depending on the configuration of the connecting party's particular connection. Figure 2.1 provides a simplified illustration of the linkages between the shared network, IUSA and DCA, as introduced through the 2017 TCAPA Rule:

9 DCAs are deemed to be transmission systems only for the purposes of requiring registration (or be exempted by the AER from the requirement to register) under Chapter 2 of the NER. DCAs do not otherwise meet the relevant requirements under the NER for a transmission system.

10 For a detailed overview of the arrangements for DCAs and the rationale behind the changes to the transmission connections framework that were introduced in 2017, see AEMC, *Transmission connection and planning arrangements rule determination*, 2017, chapter 4 and appendix D.

11 For a detailed overview of the arrangements for IUSAs and the rationale behind the changes to the transmission connections framework that were introduced in 2017, see AEMC, *Transmission connection and planning arrangements rule determination*, 2017, chapter 4 and appendix B.

Figure 2.1: Illustration of key concepts: shared network, IUSA and DCA



Source: AEMC.

2.2.1 Contestability of connection services

Chapter 6A of the NER covers the economic regulation of the provision of transmission services - that is whether transmission services are to be provided as prescribed, negotiated or non-regulated services - and specifies the terms and conditions of access to be applied by TNSPs for the provision of prescribed and negotiated transmission services:

- **Prescribed transmission services**: the costs for providing prescribed transmission services are recovered from network users, with the revenue that a TNSP can recover for these services regulated by the AER pursuant to the transmission determinations made for each TNSP that provides these services under Chapter 6A of the NER.
- **Negotiated transmission services**: there is no regulation of the revenue that a TNSP can earn for the provision of negotiated transmission services. The terms and conditions, including the price, of the provision of these services are negotiated between the TNSP and the party who wishes to receive these services under a framework set out in Chapters 5 of the NER.
- **Non-regulated transmission services**: These services are provided by the TNSP outside the NER and are as such unregulated.

Under the NER, connecting parties are responsible for costs associated with any new apparatus, equipment, plant and buildings to enable their connection to the transmission network. Connecting parties must pay for the connection assets, regardless of how they are provided. Accordingly, the connection services that are required to connect a party to the transmission system, e.g. the services provided through an IUSA or a DCA, are negotiated or non-regulated transmission services. They are not a prescribed transmission service, and as such, they are not paid for by consumers via transmission use of system (TUOS) charges.

The 2017 TCAPA Rule clarified how services for DCAs and IUSAs are regulated.[12] Clause 5.2A.4 of the NER sets out a summary of these different services and how they are regulated.

Contestability of services for DCAs

All aspects of a DCA are fully contestable. That means that all services provided for a new DCA, including design, construction, ownership, operation and maintenance, are non-regulated transmission services. A connecting party can either provide the services itself, or choose its preferred service provider (e.g. the Primary TNSP, a generator, a government or a firm looking to invest in renewable energy) to construct, own and operate these assets on commercial terms. Consequently, there is:

- no obligation on any party, including the Primary TNSP, to offer these services, and
- no regulated framework for the setting of price and non-price terms and conditions for the provision of these services.

Contestability of services for IUSAs

Services provided by IUSAs are classified as either a non-contestable service that the Primary TNSP has an obligation to provide and must negotiate to do so as a negotiated transmission service, or as a contestable service that can be provided by any party on commercial terms.

Non-contestable services: functional specification, cut-in works, operation and maintenance

The services of setting the functional specification, providing cut-in works, and the operation and maintenance of an IUSA must be provided by the Primary TNSP as a negotiated transmission service. The Primary TNSP is accountable for any outcomes on the shared network, including IUSAs.

Contestable services: detailed design, construction and ownership

The Primary TNSP must provide the services of detailed design, construction and ownership of an IUSA as a negotiated transmission service only if it reasonably expects the capital cost of all the components that make up the IUSA to be $10 million or less. If the capital cost is reasonably expected to exceed $10 million, then the design, construction and ownership of these assets are non-regulated transmission services and can be provided on a contestable basis to the extent that the components satisfy the following criteria:

- the components being constructed are new or a complete replacement of existing components (and do not involve the reconfiguration of existing components), and
- the detailed design and construction of the relevant component of the IUSA is separable as the new assets will be distinct and definable from the existing transmission network.

12 See AEMC, *Transmission connection and planning arrangements rule determination*, 2017, sections 4.2.1 and 4.4.1.

The Primary TNSP must determine whether each component of the IUSA meets these two criteria. If the two criteria are not met, the Primary TNSP is required to provide these services as negotiated transmission services.[13] If the two criteria are met, the arrangements for the provision of non-regulated transmission services are agreed between the connecting party and its chosen service provider on a purely commercial basis.

Subject to meeting the above two criteria, parties other than the Primary TNSP may retain ownership of contestable components of an IUSA. If this is the case, the NER requires a third party owner of an IUSA to enter into a network operating agreement with the Primary TNSP.[14] The network operating agreement must provide for the Primary TNSP to have control of the asset and provide subsequent parties with access to the transmission system via that asset. Further, a person that is engaged in the activity of owning, controlling or operating a generating system or load that is connected to an IUSA is prohibited from owning that IUSA.[15]

2.2.2 Third party access

Under the NEM access regime all Registered Participants should have the opportunity to negotiate and form a connection to a network and have access to the network services provided by the networks forming part of the national grid in accordance with the NER.[16]

Consequently, a TNSP has to consider and respond to an applicant's connection enquiry. Provided that the applicant proceeds with the connection process and formulates a connection application (and pays the fees related to that), the TNSP has to make an offer to connect. However, that being said, a connection to a TNSP's network does not mean a connected party has firm access to the shared transmission network, as a connected party can still be affected by congestion on the transmission network.

Third party access to a DCA

Upon registration, a DCASP must classify its DCA as either 'large' (30km or longer) or 'small' (shorter than 30km). As DCAs are always privately owned and operated, and not subject to the NEM's open access regime discussed above, the 2017 TCAPA Rule set up a framework by which parties can negotiate access to the services provided through a large DCA. Small DCAs are not subject to this third party access regime. The DCASP of a large DCA is required to prepare, maintain and publish an access policy for its large DCA on its website to provide a framework for applicants who want to obtain access to large DCA services. A DCASP (including any TNSP that own such assets) must lodge its access policy with the AER within 30 days of an asset being classified as a large DCA. The AER is required to approve an access policy if it is reasonably satisfied that it complies with the requirements for an access policy set in the NER.[17] A DCASP must comply with its access policy once the AER has approved it.

13 In the event that there is disagreement on whether a particular component meets or does not meet these criteria, either party can engage an independent engineer to provide technical advice on the matter, see rule 5.4 of the NER.

14 Clause 5.2A.7 of the NER.

15 Clause 5.2A.7(e) of the NER.

16 Clause 5.1A.2(a) of the NER.

17 Clauses 5.2A.8(b) and 5.2A.8(c) of the NER.

In addition, the NER set out a number of principles that a DCASP for a large DCA is subject to when negotiating access with another party.[18] Further, a DCASP must report to the AER all requests for connection and access to a large DCA when such requests are made and when an agreement for access is entered into, in the manner and form notified by the AER.[19]

Parties have access to the commercial arbitration process set out under Chapter 5 of the NER for any disputes in relation to the provision of large DCA services.[20]

All other arrangements regarding a third party's connection to the DCA will need to be negotiated and addressed between the relevant parties on a commercial basis.

Access services provided by an IUSA

Once commissioned, additional parties can seek to connect to an IUSA, for example multiple DCAs could be connected to one IUSA. As an IUSA forms part of the shared network, the connection framework set out in Chapter 5 of the NER applies. In other words, the IUSA is subject to the NEM's open access regime.

Further, the 2017 TCAPA Rule set out a number of principles to provide guidance to connecting parties about how the costs of services for IUSA are set, and how those costs are adjusted when there are subsequent connections to those assets where those services have been provided as part of a negotiated transmission service.[21] In cases where connection services are provided as non-regulated transmission services (e.g. the construction of contestable components of an IUSA), no cost-sharing provisions apply.

18 Clause 5.2A.6(c) and Schedule 5.12 of the NER.

19 Clause 5.2A.8(k) of the NER.

20 Clause 5.2A.8(b)(5) of the NER.

21 See AEMC, *Transmission connection and planning arrangements rule determination*, 2017, section 4.2.3 and appendix B.

3 DETAILS OF THE RULE CHANGE REQUEST

The rule change request from AEMO proposes amendments to the NER that aim to clarify the application of key NER requirements to enable multiple proponents to connect to a DCA. This chapter sets out:

- the issues raised by AEMO in the rule change request, and
- details of AEMO's proposed solution to these issues.

The rule change request includes a proposed rule, and can be found on the AEMC website, www.aemc.gov.au.

3.1 Issues raised in the rule change request

AEMO considers the DCA framework under the existing NER to be unintentionally unworkable in cases where multiple generators or market customers seek to connect to the same DCA, as the NER does not identify how key requirements would apply to more than one proponent in an identified user group connected by the same DCA.[22]

The DCA framework requires a single (and, where there are multiple connecting proponents, shared) connection point for the identified user group connecting to the 'shared' transmission network. This consequently requires there to be a single:[23]

- performance standard to apply at the connection point, reflecting the overall performance of all connected assets
- metering installation to record energy flows, with the meter data used for market settlement, including the application of marginal loss factors (MLFs) and the calculation of other fees and charges, such as TUOS.

In practice, this means that there is one financially responsible Market Participant (FRMP) at the connection point, and this FRMP must comply with the relevant NER requirements.[24] As DCA connections are largely unregulated, the contractual agreement between the DCASP and connected parties (i.e. generators and/or customers) would need to assign responsibilities and obligations to the contractual parties.

While AEMO considers that the DCA framework works where there is a single proponent in the connecting identified user group, it considers it to be problematic to only have one FRMP assigned to the connection point where the DCA connects to the shared transmission network in cases where there are multiple proponents connecting via the DCA. AEMO is concerned that many of the relevant NER processes, procedures and systems would not work effectively where one FRMP is the intermediary for many proponents at a connection point. An example would be the requirement for a single FRMP to negotiate a shared overall performance

22 Rule change request, p. 2.

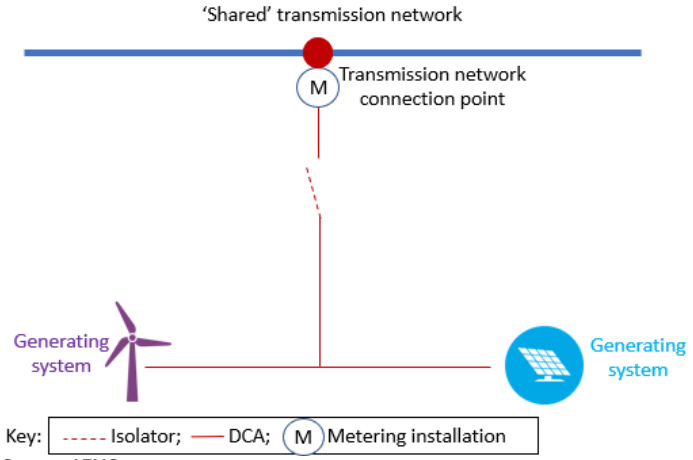
23 Rule change request, p. 6.

24 We understand that, if the DCASP and generator/customer are different parties, under the current arrangements, the generator/customer would normally be the FRMP (as opposed to the DCASP). This is due to the fact that the generator/customer would be the responsible party for negotiating and complying with the performance standards for the connected facility.

standard for multiple connected facilities, which may be owned, controlled and operated by different parties.

Figure 3.1 illustrates the current DCA arrangements in the case of multiple generators being connected to the same DCA.

Figure 3.1: Current arrangements: connection of multiple proponents to the same DCA



Source: AEMC.

In its rule change request, AEMO has identified issues related to:

- a single DCA connection point, and
- the DCA access framework.

These issues are discussed in more detail in the following sections.

3.1.1 Issues with a single DCA connection point

AEMO has identified operational implications with the current DCA framework, relating to DCAs having a single connection point to the shared transmission network. The NER and the relevant processes, procedures and systems build on the assumption that responsibilities and obligations can be allocated to a single FRMP at a connection point with a metering installation. AEMO has identified issues that emerge from the one-to-many relationship between one connection point and FRMP and potentially many parties connected to a DCA, including:[25]

- **Performance standards**: AEMO considers that it is unclear how a TNSP would negotiate individual performance standards for each proponent with a generating system or load at the connection point if there is only one FRMP at the DCA connection point. While a shared performance standard could be negotiated, it would be very difficult to identify individual plant non-performance and make an assessment whether this is causing any material impacts on the power system. A potential breach of performance

25 Rule change request, pp. 6-7.

standards may result in a disconnection that affects multiple proponents and their facilities. AEMO's ability to monitor and the AER's ability to enforce compliance of performance standards would be compromised and unnecessarily difficult.

- **Metering installation**: As the NER only requires a single metering installation at the DCA connection point (instead of individual metering installations for each connecting party), AEMO is unable to require each connecting generating system or load to have a NEM compliant metering installation. Consequently, parties' energy flows cannot be reliably established, creating difficulties for AEMO in terms of the settlement of individual Registered Participants for which individual metering data is required, e.g. TUOS calculations, non-energy cost recoveries and participant fees.
- **Marginal loss factors**: AEMO notes that it would be unable to determine MLFs for individual proponents where multiple proponents were connecting to a single DCA. Instead, the MLF calculation would be based on the combined energy profile of the identified user group. This may be a particular issue where there is plant with different fuel sources and technologies.

AEMO argues that the above issues need to be resolved in order to meet the policy intent of the 2017 TCAPA Rule in terms of clarifying the framework for connections to the transmission system and contributing to a more efficient utilisation of connection assets.

3.1.2 Issues with the DCA access framework

Based on the submissions of various stakeholders to the AEMC's *Coordination of Generation and Transmission Investment (COGATI)* Renewable Energy Zones discussion paper,[26] AEMO also questioned in its rule change request whether having an access framework applying to large DCAs only remains appropriate. Accordingly, AEMO suggested that, in the context of its proposal to modify the DCA framework to encourage better utilisation of DCAs, it may be appropriate to revisit the differentiation between small and large DCAs, including the difference in approach to access.[27]

3.2 Solution proposed in the rule change request

Given the above issues, AEMO has proposed a rule change that seeks to clarify the framework for connections to the shared transmission network through DCAs. Its aim is to ensure that proponents in an identified user group seeking to connect to a DCA enjoy regulatory certainty by ensuring existing NEM arrangements, e.g. registration, metering, calculation of transmission losses, would apply to individual proponents in an identified user group.

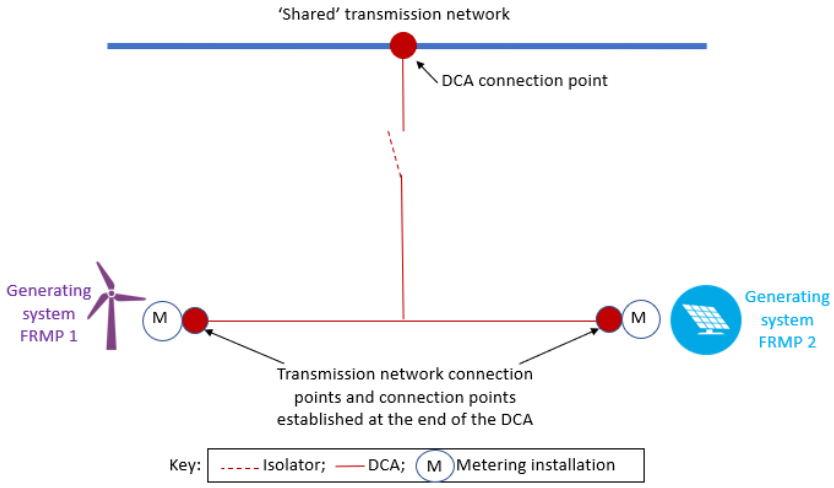
AEMO proposes to have a separate transmission network connection point and metering installation for each individual proponent in an identified user group, which would be located at the point where each facility connects to the DCA. This approach would allow existing NEM arrangements - registration, performance standards, settlement, non-energy cost recoveries,

26 See e.g. the submissions from the Clean Energy Council, p. 2 and Transgrid, p. 5.
27 Rule change request, p. 7.

participant fees and MLFs - to be applied to individual proponents connected to the same DCA.[28]

As part of the rule change request, AEMO has provided a proposed rule. The proposed rule amends the NER definitions of 'connection point' and 'transmission network connection point' to include references to the point where each facility would be connected to the DCA.[29] AEMO notes that a DCA, as an asset, would continue to have a connection point to the 'shared' transmission network,[30] and refers to this as a 'DCA connection point' - but the proposed rule does not introduce this as a separately defined new term. Figure 3.2 illustrates the DCA arrangements under the proposed rule with multiple FRMPs connected.

Figure 3.2: AEMO's proposed solution: DCA with multiple FRMPS connected



Source: AEMC.

To ensure consistency with the policy intent of the 2017 TCAPA Rule, AEMO notes that it intends for the proposed rule to allow the following arrangements continue to apply for the DCA arrangements:[31]

- A DCA can be electrically isolated from the 'shared' transmission network.
- The quality of supply between the TNSP and DCASP is consistent with network performance requirements under Chapter 5 of the NER.
- A DCASP must continue to provide negotiated connection asset performance to an identified user group.
- One DCA cannot connect to another DCA.

The rule change request and the proponent's proposed rule are discussed in more detail in chapter 5 of this consultation paper.

28 Rule change request, pp. 7-9.
29 Rule change request, p. 12.
30 Rule change request, p. 7.
31 Rule change request, p. 7.

4 ASSESSMENT FRAMEWORK

This chapter sets out the requirements under the National Electricity Law that the AEMC must satisfy in considering the rule change request, and provides detail of the proposed approach for assessing the rule change request. This framework may be refined during the rule change process.

4.1 Achieving the NEO

Under the NEL, the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national electricity objective (NEO).[32] This is the decision-making framework that the Commission must apply.

The NEO is:[33]

> To promote efficient investment in, and efficient operation and use of, electricity services for the longer term interests of consumers of electricity with respect to -
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system.

Based on a preliminary assessment of the rule change request, the Commission considers that the relevant aspects of the NEO are the efficient investment in, and operation of, electricity services with respect to the price, quality and security of supply of electricity.

At this stage, the Commission is seeking stakeholder views on its proposed assessment framework which includes the following criteria to assess whether the proposed rule is likely to promote the NEO, namely the impact the rule change request would have on:

- **Transparency and regulatory certainty**: clarifying how NEM arrangements, e.g. performance standards, metering and calculation of MLFs, should work would allow proponents and NSPs to negotiate DCA connection agreements more efficiently. This in turn would result in reduced negotiation costs for proponents and NSPs. The Commission will consider whether more prescription in the NER would lead to more clarity, increased efficiency of negotiations and reduced costs, or whether more prescription would actually increase the administrative burden for contracting parties.
- **Efficient provision of electricity services**: ensuring the proposed rule would reduce inefficient processes and transmission system investment, by allowing competition and a better utilisation of DCAs. The Commission will consider whether the proposed rule would encourage an efficient provision of transmission connection services and utilisation of connection assets, which ultimately would lead to lower electricity costs for consumers.
- **Clear, singular accountability**: the application of individual performance standards for each connected facility may enhance proponents' accountability for the safe operation of their facilities while enabling NSPs and AEMO to identify non-compliance and help the

32 Section 88 of the NEL.
33 Section 7 of the NEL.

AER to enforce compliance with performance standards. This will also reduce the risk for other proponents in an identified user group being held accountable for the non-performance of another party in case of non-compliance with performance standards at the shared DCA connection point. The Commission will consider whether AEMO's rule change proposal would lead to increased accountability of connecting parties and as a result a safer and more reliable operation of the electricity system.

4.2 Making a more preferable rule

Under s. 91A of the NEL, the Commission may make a rule that is different (including materially different) to a proposed rule (a more preferable rule) if it is satisfied that, having regard to the issue or issues raised in the rule change request, the more preferable rule will or is likely to better contribute to the achievement of the NEO.

4.3 Making a differential rule

Under the Northern Territory legislation adopting the NEL, the Commission may make a differential rule if, having regard to any relevant MCE statement of policy principles, a different rule will, or is likely to, better contribute to the achievement of the NEO than a uniform rule. A differential rule is a rule that:

- varies in its term as between:
  - the national electricity system, and
  - one or more, or all, of the local electricity systems, or
- does not have effect with respect to one or more of those systems

but is not a jurisdictional derogation, participant derogation or rule that has effect with respect to an adoptive jurisdiction for the purpose of s. 91(8) of the NEL.

As the proposed rule relates to parts of the NER that apply in the Northern Territory, the Commission will assess the draft rule against additional elements required by the Northern Territory legislation in further proceeding with the rule change request.[34]

34 From 1 July 2016, the NER, as amended from time to time, apply in the NT, subject to derogations set out in regulations made under the NT legislation adopting the NEL. Under those regulations, only certain parts of the NER have been adopted in the NT. (See the AEMC website for the NER that applies in the NT.) National Electricity (Northern Territory) (National Uniform Legislation) Act 2015.

5 ISSUES FOR CONSULTATION

Taking into consideration the assessment framework, a number of issues have been identified for initial consultation. Stakeholders are encouraged to comment on these issues as well as any other aspect of the rule change request or this consultation paper, including the proposed assessment framework.

This chapter provides a more detailed discussion of the proposed rule, its practical implications and, where applicable, alternative options considered by the proponent with regard to:

- creating transmission network connection points for each individual facility that connects to a DCA
- the DCA access framework
- transitional matters and other issues.

5.1 Creating individual connection points

As discussed in chapter 3, the proposed rule would ensure each proponent in an identified user group is connected to a DCA through its own connection point, which is also proposed to become the transmission network connection point. Creating transmission network connection points for each connected facility would have implications on the:

- application of NER arrangements and the obligations that arise for the connected party and the DCASP at a specific connection point
- negotiation and enforcement of performance standards
- determination of transmission losses.

5.1.1 Multiple connection points

In the rule change request, AEMO suggests that the proposed rule will address the issues associated with connecting multiple facilities to a DCA by ensuring each facility has a separate connection point and metering installation located at the point where it connects to the DCA.[35] Accordingly, the proposed rule would amend the definition of 'connection point' under Chapter 10 of the NER as follows:[36]

> connection point
>
> In relation to a *declared shared network* and a *distribution network* (other than an *embedded network*), the agreed point of supply established between a *Network Service Provider*(s) and another *Registered Participant*, *Non-Registered Customer* or *franchise customer* and includes a *parent connection point*.
>
> In relation to other transmission networks:

35 Rule change request, p. 7.
36 Rule change request, p. 12.

(a) ~~the point at which power flows to or from the~~ in relation to a person ~~or identified user group~~ connected to the *transmission network* by a *dedicated connection asset,* the point at which power flows to or from the person can be isolated from the *dedicated connection asset* ~~*transmission network*~~.

(b) otherwise, the point at which power flows to or from the person connected to *transmission network* can be isolated from the *transmission network*.

If there is more than one such point, the *Network Service Provider* and that person ~~or identified user group~~ will agree which point is the connection point in their connection agreement.

In relation to an *embedded network*, the *child connection point*, unless otherwise specified.

The proposed rule would also make corresponding changes to the definitions of 'identified user group' and 'transmission network connection point'.[37] Importantly, this implies that there would be multiple transmission network connection points - one where each user's facility is connected to the DCA, and potentially also where the DCA (as an asset) connects to the transmission network.

identified user group

One or more persons (other than a *Network Service Provider* who is not a *Market Network Service Provider*) who, from time to time, are *connected* to a *transmission network* by ~~at~~ the same ~~single~~ dedicated connection asset ~~connection point~~.

transmission network connection point

A *connection point* on a *transmission network* or on a *dedicated connection asset*.

The proposed rule would mean that each Registered Participant connected to a DCA would have a FRMP for its individual connection point, given the current one-to-one relationship between a FRMP and a connection point under Chapter 10 of the NER.

However, the Commission will need to carefully consider the implications of creating transmission network connection points located on a DCA - and away from the transmission network - and what obligations would emerge for the related parties, e.g. how the relationship between a Primary TNSP and a connecting party on the DCA would be defined (i.e. regulatory or contractually) as well as the relationship between the Primary TNSP and the DCASP.

AEMO's rule change request refers to the concept of a 'DCA connection point' multiple times[38] and appears to contemplate that this 'DCA connection point' would also remain the

37 The proposed rule also includes an amendment to the NER Chapter 10 definition of *transmission network* by replacing the words 'identified shared user asset' with the words 'identified user shared asset'. As this is only the correction of a minor error, this change will not be discussed further. See rule change request, p. 12.

38 Rule change request, e.g. pp. 7 and 9.

transmission network connection point of the DCA (as an asset), given that the proposed rule does not introduce a separately defined new term.[39] The Commission is interested in stakeholder views as to any consequences arising from having multiple transmission network connection points sitting behind each other.

The Commission is further interested in stakeholder views as to whether a metering installation would be required at such a DCA connection point. While the rule change request notes that AEMO would not require a metering installation at the DCA connection point for settlement, the calculation of non-energy cost recoveries, fees and charges, and MLFs for a DCASP, it does ask the AEMC to consider whether a metering installation should be required at the DCA connection point.[40] There may be reasons why other parties might have an interest in there being a metering installation at the DCA connection point, for example to allow TUOS charges to be levied in instances where load customers are connected to DCAs.

The Commission seeks feedback on the proposal to create transmission network connection points at the point where each facility connects to a DCA, and any implications that arise from this. The Commission is further interested to understand whether stakeholders consider that other or further amendments are necessary, in particular with regard to whether the concept of a 'DCA connection point' needs to be separately defined, and whether a metering installation should be required at such a point. To better understand the magnitude of the issues identified by AEMO, it would also be very valuable if stakeholders could support their views with any information on the impact of the current arrangements on existing and planned projects.

QUESTION 1: CREATING INDIVIDUAL CONNECTION POINTS

1.1 Should each Registered Participant connected to a DCA be required to have an individual connection point? What would be the consequences of creating a transmission network connection point at the point where each participant's facility connects to the DCA?

1.2 Should the DCA connection point to the shared transmission network also continue to be a transmission network connection point or would this 'DCA connection point' need to be defined differently? If so, how?

1.3 Would a metering installation continue to be required at the DCA connection point? How should TUOS charges be levied for load customers connected to a DCA?

5.1.2 Negotiation and enforcement of performance standards

In the rule change request, AEMO highlights the issue of shared performance standards as a significant barrier to the efficient utilisation of DCAs. In particular, it notes the difficulties that

39 Rule change request, p. 12.
40 Rule change request, p. 7.

would be involved in monitoring and enforcing performance standards in circumstances where multiple proponents in an identified user group connect to the same DCA.[41]

Chapter 5 of the NER provides the framework for connecting a generating system or load to the grid. As part of the connection agreement with the relevant NSP, the NSP and connection applicant agree on relevant performance standards for a particular facility. The connection point is where performance standards are established and monitored. Under the NEL and NER, the AER is responsible for monitoring, compliance and enforcement of Registered Participants, including in relation to compliance with their performance standards.[42] Chapter 4 of the NER sets out compliance obligations of Registered Participants and what happens in the event of a likely or actual breach of performance standards.[43]

Under the current arrangements, the connection of multiple proponents in an identified user group would require the proponents to select one FRMP to be the responsible party at the single DCA connection point. The FRMP and the Primary TNSP would need to coordinate and negotiate a shared performance standard to be applied at the DCA connection point, reflecting an overall performance standard of all connected facilities. Where subsequent parties seek to connect to a DCA, the connection agreement and generator performance standards would need to be reopened and revised.

AEMO suggested in its rule change request that while a shared performance standard could be negotiated, it would be very difficult to identify individual plant non-performance. It noted that monitoring and enforcing compliance with performance standards would become unnecessarily complicated due to the AER and AEMO having insufficient oversight of what is happening behind the single DCA connection point.[44] As a result, a breach of a negotiated overall performance standard would most likely result in a potential disconnection of the single DCA connection point, affecting multiple facilities.

Under the proposed rule, each connected facility would have its own connection point, and at each individual proponent's connection a connection agreement, including performance standards, would be negotiated between the connecting party (Generator or Customer) and the relevant NSP.

However, the proposed rule does not specify who the relevant NSP would be, in terms of who the connecting party would negotiate with for the purpose of establishing performance standards, and how Chapters 4 and 5 of the NER would apply to the connection of a connecting party to a DCA. Accordingly, it is not clear who the relevant parties would be, not only for negotiating, but also for monitoring and enforcing compliance with performance standards. It should be noted that under the current connection framework the DCASP is only a NSP for the purpose of registration and some limited obligations under Chapter 5 of the NER. In other words, the DCASP is not an NSP for the purpose of the connection process, including the negotiation of performance standards, in Chapter 5 of the NER.

41 Rule change request, p. 6.
42 Part 3, section 15 of the NEL.
43 Rule 4.15(f)-(q) of the NER.
44 Rule change request, p. 6.

A related issue is the impact a connected facility may have on the system strength of the power system.[45] The Primary TNSP is required to maintain system strength at the level determined by AEMO. New connecting generators have an obligation to 'do no harm' to the level of system strength necessary to maintain the security of the power system. To fulfil its obligation to maintain system strength, the Primary TNSP undertakes a system strength impact assessment for each proposed new connection (or proposed alteration) of a generating system. Depending on this assessment, the connection agreement between a generator and TNSP may also include the requirement for a generator to pay for the necessary transmission system works or implement a system strength remediation scheme in order to remedy or avoid any adverse impacts on system strength.[46] As a result, similar issues arise with regard to the allocation of the responsibility for system strength, in terms of who should be the relevant NSP for assessing the impact of a proposed new connection or modification of a generating facility on system strength.

The Commission is interested in stakeholder views on the most appropriate arrangements for ensuring performance standards and other requirements can be negotiated, and compliance can be effectively monitored and enforced, for multiple participants being connected to the same DCA.

QUESTION 2: NEGOTIATION AND ENFORCEMENT OF PERFORMANCE STANDARDS

2.1 Do the current arrangements give rise to issues in terms of negotiating, monitoring and enforcing performance standards? What would be the costs of leaving the negotiation of NER responsibilities up to the contractual arrangements with other proponents/the DCASP compared to AEMO's proposed solution?

2.2 If performance standards were to be negotiated at individual connection points to a DCA, should these be negotiated by the DCASP or the Primary TNSP? Would both NSPs need to be involved?

2.3 Which parties should have responsibilities for maintaining system strength?

2.4 Are there alternatives to AEMO's proposal, e.g. could the negotiation and enforcement of performance standards for parties connected to a DCA occur at a point other than a facility's connection point to the DCA?

45 The AEMC is currently investigating the application of the system strength frameworks to date to determine whether any improvements could be made to more effectively and efficiently address system strength issues in the NEM. A discussion paper will be published later in March 2020.

46 See Section 5.3.4B of the NER on system strength remediation for new connections.

5.1.3 Transmission losses

In the rule change request, AEMO suggested that, under the current framework, it is not able to accurately determine MLFs for individual proponents that reflect their actual transmission losses to the regional reference node.[47]

A loss factor is determined for a transmission network connection point as a single value for that single connection point. For a DCA, the calculation of the MLF would be based on the combined energy profile of the identified user group at the single DCA connection point to the shared transmission network, and all facilities connected to the DCA would be settled using this single MLF value. AEMO noted that currently no methodology exists for determining loss factors for individual facilities in an identified user group connected to a DCA.

A consequence of the changes to the definitions of connection point and transmission network connection point under the proposed rule would be that MLFs would be calculated separately at each connection point to the DCA, and therefore for each Registered Participant in the identified user group. This would resolve the issues identified by AEMO with regard to MLFs.

It should be noted that a consequence of the use of marginal - as opposed to average - loss factors is the creation of settlement residues. These residues arise as the use of the marginal approach to transmission loss factors will, by design, over-recover total settlements used to pay generators.[48] These residues are distributed to transmission customers through a reduction in TUOS charges. Where the residues arise from MLFs applied to the transmission network, the beneficiaries of the residues will closely match the parties funding the transmission network (i.e. transmission customers). However, if MLFs were to be applied to DCAs, there would not be such a close relationship: in many cases, generators will be funding DCAs, while the residues accruing across the DCAs through the use of MLFs would be allocated to customers.

The Commission is interested in stakeholder views on the appropriateness of applying the existing methodology for calculating MLFs to participants' facilities at the point they connect to a DCA.

Alternative option: DCA loss factor

AEMO outlined in the rule change request an alternative option to allow for the application of individual loss factors. Under this option, the DCASP would calculate a 'DCA loss factor' for facilities connected to the DCA. This 'DCA loss factor' could be averaged similarly to distribution loss factors (DLFs).[49]

47 Rule change request, p. 6.
48 AEMC, *Transmission loss factors*, Rule determination, 27 February 2020, p. 2.
49 Rule change request, p. 9.

AEMO considered the benefits of this alternative solution to be broadly the same as for the use of MLFs. However, AEMO also suggested that there might be a number of costs and risks associated with this alternative option:[50]

- Similar to DLFs, a DCASP would need to calculate a DCA loss factor annually for its network, which may be a challenging task for a DCASP.
- Average loss factors do not accurately reflect the marginal impact of a facility on transmission losses. This may potentially distort the dispatch process and could lead to settlement disputes.
- Processes would need to be implemented to manage DCA loss factors applying to a transmission network connection point.

The Commission is interested in whether stakeholders consider this alternative option to be a more appropriate method for calculating loss factors for facilities connected to a DCA.

> QUESTION 3: TRANSMISSION LOSSES
>
> 3.1 Should MLFs for individual facilities in an identified user group connected to a DCA be calculated consistent with the rest of the NEM?
>
> 3.2 Should the DCASP instead calculate average DCA loss factors for DCA connected proponents to reflect losses on the DCA? Are there any other alternatives to calculate transmission losses?

5.2 Access framework

As discussed in chapter 2, a DCASP must apply to AEMO to classify any parts of its transmission system as 'large' or 'small' DCAs (unless otherwise exempted by the AER). The 2017 TCAPA Rule set up a framework for third party access to DCAs. Under this framework large DCAs are required to have in place an access policy to provide a framework for applicants who want to obtain access to large DCA services. Small DCAs are not subject to this access regime.

The NER requires a DCASP to prepare, maintain, update and publish an access policy for its large DCA on its website.[51] The NER also specify the information that this policy is required to contain. Further, a DCASP for large DCA is subject to a number of negotiating principles when negotiating access to the services provided by a large DCA service with a third party. Parties also have access to the commercial arbitration process for any disputes in relation to the provision of large DCA services. All other arrangements regarding a party's connection to the DCA (small and large) need to be negotiated on a commercial basis.

50 Rule change request, p. 9.

51 Clause 5.2A.8 of the NER specifies the access framework for large DCAs.

In its rule change request, AEMO noted that stakeholder submissions to the AEMC's COGATI review raised the appropriateness of having an access framework only applying to large DCAs.[52] Accordingly, AEMO suggested that, in the context of its proposal to modify the DCA framework to encourage better utilisation of DCAs, it may be appropriate to revisit the differentiation between small and large DCAs, including whether the different approach for third party access is still appropriate.

The Commission is interested in stakeholder views on whether any changes to the existing DCA third party access regime are necessary, and whether stakeholders think that the threshold for a DCASP to have an access policy should be reviewed to enable more efficient utilisation of DCA.

Alternative option: no access

AEMO's rule change request also included an alternative option to address the issues identified in the rule change request. The alternative would limit the identified user group to only include a single person connecting to a DCA, with the relevant NER obligations applying at the existing connection point between the DCA and the transmission network.[53] This option would effectively limit DCA access to one connecting party and might thereby prevent effective utilisation of DCAs and increase the costs for connecting parties, as the costs to connect to the shared network through a DCA could no longer be shared between parties. Accordingly, AEMO considers that this alternative would be inconsistent with the AEMC's 2017 TCAPA Rule, whose policy intent was to encourage efficient investment in, and operation of the transmission system, including DCAs.

QUESTION 4: ACCESS FRAMEWORK

4.1 Should all DCAs be required to have an access policy?

4.2 If not, what would be an appropriate threshold for the differentiation between DCAs that should have an access policy, and those that need not?

4.3 Is there any merit to an approach that would limit DCA access to one proponent?

5.3 Transitional matters and other issues

In the rule change request, AEMO suggested that the following transitional provisions should apply:[54]

- allow existing registered DCASPs and classified DCAs to remain unchanged
- retain the existing transitional provisions that were introduced as part of the 2017 TCAPA Rule, so that the treatment of 'Existing DCAs' remains unchanged

52 See e.g. the submissions to the AEMC's COGATI review Renewable Energy Zones discussion paper from the Clean Energy Council, p. 2 and Transgrid, p. 5.

53 Rule change request, p. 9.

54 Rule change request, p. 10.

- utilise further transitional provisions in order to:
  - not affect connection agreements entered into, and registration applications made or registrations which occur, prior to the effective date of the proposed rule
  - allow for those covered by the existing and new transitional provisions to apply to be registered and connected under the proposed rule, if they meet the requirements of the proposed rule, i.e. allow for a voluntary transition.

AEMO noted that it has not proposed any drafting for these further transitional provisions.

The Commission is interested whether stakeholders consider the proposed transitional arrangements to be appropriate and if there are any other issues which should be considered.

QUESTION 5: TRANSITIONAL PROVISIONS AND OTHER ISSUES

5.1 Are AEMO's proposed transitional provisions appropriate? Would additional or alternative transitional provisions be required to address the issues identified in the rule change request?

5.2 Are there any other issues that the Commission should consider in relation to the proposed rule change?

6 LODGING A SUBMISSION

Written submissions on the rule change request must be lodged with Commission by 2 April 2020 online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function and selecting the project reference code ERC0294.

The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated.

Where practicable, submissions should be prepared in accordance with the Commission's guidelines for making written submissions on rule change requests.[55] The Commission publishes all submissions on its website, subject to a claim of confidentiality.

All enquiries on this project should be addressed to Martina McCowan on (02) 8296 0618 or martina.mccowan@aemc.gov.au.

55 This guideline is available on the Commission's website www.aemc.gov.au.

ABBREVIATIONS

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
COAG Energy Council	Council of Australian Governments Energy Council
Commission	See AEMC
COGATI	Coordination of generation and transmission investment
DCA	Dedicated connection asset
DCASP	Dedicated connection asset service provider
DLF	Distribution loss factor
DNSP	Distribution network service provider
DTSO	Declared transmission system operator
ESB	Energy Security Board
FRMP	Financially responsible market participant
ISP	Integrated System Plan
IUSA	Identified user shared asset
MLF	Marginal loss factor
MNSP	Market network service provider
NEL	National Electricity Law
NEO	National electricity objective
NSP	Network service provider
REZ	Renewable Energy Zone
TCAPA	Transmission connections and planning arrangements
TNSP	Transmission network service provider