10 Eagle Street
Brisbane QLD 4122
T 07 3347 3100

31 December 2019

Mr John Pierce
Chair
Australian Energy Market Commission

By online submission

Dear Mr Pierce

Requests for Rules – Multiple facilities connecting to dedicated connection assets

AEMO requests the Australian Energy Market Commission (AEMC) consider amending the National Electricity Rules (NER) to clarify the application of key NER requirements to enable multiple proponents connecting to a dedicated connection asset (DCA).

This rule change proposal, if implemented as drafted, would facilitate multiple proponents in an identified user group registering and connecting to a DCA.

AEMO's proposal seeks to maintain the original policy intent of the AEMC's 2017 Transmission Connection and Planning Arrangements Rule, which sought to clarify the connections framework and enable more competition in the provision of transmission connections.

AEMO requests the AEMC consider making the proposed rule. Any queries concerning this rule change proposal should be directed to Kevin Ly, Group Manager - Regulation on Kevin.Ly@aemo.com.au

Yours sincerely

Peter Geers

Chief Strategy and Markets Officer

Attachment: Multiple facilities connecting to dedicated connection assets – rule change proposal

ELECTRICITY RULE CHANGE PROPOSAL

MULTIPLE FACILITIES CONNECTING TO DEDICATED CONNECTION ASSETS

December 2019

CONTENTS

1. SUMMARY

Dedicated connection assets (DCAs) are a part of the transmission system developed and constructed for the purpose of connecting an identified user group (this can be one or more parties) to an existing transmission network, including identified user shared assets (IUSAs)[1]. The Australian Energy Market Operator (AEMO) considers the current DCA framework is unintentionally unworkable due to the National Electricity Rules (NER) not identifying how key requirements would apply to more than one proponent in an identified user group. For example, how to establish performance standards, calculate marginal loss factors (MLFs), establish metering arrangements and settle these proponents.

This rule change proposal seeks to ensure that proponents in an identified user group can efficiently connect to a DCA and operate in the national electricity market (NEM), while maintaining the original policy intent to clarify the connections framework and enable more competition in the provision of transmission connections.

2. RELEVANT BACKGROUND

2.1 The 2017 Rule change

In May 2017 the Australian Energy Market Commission (AEMC) published the Transmission Connection and Planning Arrangements Rule, which came into effect on 1 July 2018 and does not apply in Victoria [2]. The intent of the Rule was to:

- Remove regulatory ambiguity in the NER over connection assets and services.
- Enable more competition in the provision of transmission connections, while maintaining clear accountability for safety, security and reliability of the transmission network.

Among other things, the Rule defined and created a framework for two types of contestable assets that can connect to the 'shared' transmission network[3]; DCAs and IUSAs. Table 1 compares the key differences between these asset types.

The rule change consultation did not explore scenarios where multiple proponents seek to connect to a DCA.

[1] Dedicated connection assets and identified user group are NER defined terms. Refer to Table 1 for the key differences between DCAs and IUSAs.

[2] Refer to the AEMC's website, see: https://www.aemc.gov.au/rule-changes/transmission-connection-and-planning-arrangements.

[3] The 'shared' transmission network refers to a transmission network that is owned, operated or controlled by a Primary TNSP.

Table 1 Comparison between DCAs and IUSAs

Asset	Connection	Third party access	Contestability and payment
DCA	• Connects an identified user group to an existing transmission network[4]. The identified user group enters into commercial arrangements with the Dedicated Connection Asset Service Provider (DCASP) • Could be electrically isolated at the DCA transmission network connection point (DCA connection point)[5], if this occurred the identified user group would also be isolated[6] • Can connect to an IUSA	• For small DCAs, no third party access framework[7] • For large DCAs, access is subject to an access policy approved by the Australian Energy Regulator (AER) and negotiated on commercial terms[8]. Any disputes are subject to commercial arbitration[9]	• Contestable assets[10] • Identified user group pays for its share of costs associated with the asset[11] • Where additional users seek to connect, the cost needs to be negotiated with the DCASP and are subject to the DCASPs access policy[12]
IUSA	• Connects one or more identified user group(s) to an existing transmission network non-exclusively • A part of a Primary transmission network service providers (TNSPs) 'shared' transmission network and not electrically isolatable without impacting the 'shared' transmission network[13]	As part of the 'shared' transmission network, one or more identified user groups can connect[14]	• Is contestable if the IUSA capital cost is expected to be more than $10 million and is a non-regulated transmission service[15] • Is non-contestable if the IUSA capital cost is $10 million or less and is a negotiated transmission service[16] • Paid for by identified user group(s) [17]

2.2 Current NEM arrangements

The following NEM arrangements are relevant in understanding the DCA issues identified in section 3.

2.2.1 Operating a facility in the NEM

Where a proponent seeks to connect and operate a generating system or load in the NEM, they are connected at a connection point, which is the point at which power flows to, or from, the proponent (or the identified user group the proponent belongs to) can be isolated from the transmission network[18]. Importantly, a connection point is where a Registered Participant is responsible and NER requirements are applicable, including (but not limited to):

- Registration – where relevant, a person must register with AEMO in a category of Registered Participant. To provide or receive services to, or from, the NEM from a generating system, network or load, they must also be registered in a Market Participant category. A single Market Participant is financially responsible for each market connection point it classifies, e.g. a Market Generator is

[4] Refer to NER Chapter 10 definitions of DCA and identified user group.
[5] The policy intent is that any technical or operational risk imposed by the DCASP's or identified user groups' assets only impacts these parties, not on users of the 'shared' transmission network.
[6] Refer to NER Chapter 10 definition of DCA.
[7] Refer to NER clause 5.2a.8(a).
[8] Refer to NER rule 5.2A.8.
[9] Refer to NER rule 5.5.
[10] Including DCA design, construction and ownership, functional specification, cut-in works, operation, maintenance and control. Refer to NER rule 5.2A.4.
[11] Refer to NER rule 5.2A.4.
[12] Refer to NER Schedule 5.12.
[13] Refer to NER Chapter 10 definition of IUSA.
[14] Refer to the identified shared user group NER definition.
[15] Refer to NER clauses 5.2A.4(c).
[16] Refer to NER clauses 5.2A.4(b).
[17] Refer to NER clause 5.3.4 and schedules 5.10 and 5.11.
[18] Refer to the NER definition of connection point for further information. Practically, connection points can also be co-located; that is multiple facilities can be connected at the same physical point in a network.

financially responsible for a connection point where it classifies a generating unit (which is part of a generating system) as a market generating unit[19].

- Connection agreements and performance standards – typically a Registered Participant with a market connection point for a generating system and large load has a connection agreement with the relevant network service provider (NSP) for connection to its transmission or distribution system. The NSP and Registered Participant agree the terms and conditions of connection agreements. To be eligible as a Generator, a person must also satisfy AEMO that it is capable of meeting or exceeding relevant performance standards. The connection point is where performance standards are established and monitored.
- Metering – each connection point must have a metering installation, which is to be located near the connection point[20]. AEMO is responsible for reviewing and approving the metering arrangements for connections that are registering with AEMO, e.g. for generating systems[21].
- Settlement and prudential requirements – AEMO calculates and settles Market Participants' energy based on energy flows recorded by a metering installation at each market connection point, subject to NER requirements and the Credit Limit Procedures (CLP)[22].
- Non-energy cost recoveries and participant fee determination – these are determined partly based on energy flows recorded by the metering installation in addition to Registered Participant category and facility size.
- MLFs – AEMO must calculate a single or dual MLF at the transmission network connection point and apply this in central dispatch and settlements in accordance with AEMO's Forward-looking Transmission Loss Factors methodology[23].

2.2.2 Dedicated connection assets

A DCA connects an identified user group[24], which can include one or more parties, to a 'shared' transmission network at a single connection point[25]. A DCA is not a part of the 'shared' transmission network and can be electrically isolated from it. If that occurs, the identified user group (all connecting proponents) would also be electrically isolated because the relevant connection point is at the DCA connection point.

A person who owns, operates or controls a DCA must register with AEMO as a TNSP and apply to classify its transmission network as a large DCA or small DCA[26], unless otherwise exempted by the AER[27]. AEMO is responsible for assessing an application and registering a TNSP who classifies a DCA as a DCASP[28].

A DCASP must meet relevant NER requirements for the connection point. Table 2 summarises how these responsibilities apply to a DCASP and proponents in identified user groups. For large DCAs only, a DCASP must have in place third party access arrangements as approved by the AER. NER Chapter 5 includes access negotiating principles and requirements on a DCASP to prepare, maintain and publish an access policy on their website[29]. A DCASP's large DCA access policy provides a framework for applicants to obtain access to services provided by a large DCA (i.e. large DCA services). The NER set out the information that

[19] Refer to NER clause 3.15.3.
[20] A FRMP appoints a Metering Co-ordinator who needs to locate the metering installation as close as practicable to the connection point. Refer to NER clauses 7.2.1(a), 7.8.1(a), 7.8.7 and Chapter 10 definitions of metering installation and metering point.
[21] Refer to NER clause 5.3.7(h).
[22] Further information on the CLP is on AEMO's website.
[23] Further information on Forward-looking Loss Factor Methodology is on AEMO's website.
[24] The NER defines identified user groups as "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 at the same single connection point".
[25] Under NER clause 2.5.1A(a), DCAs are not relevant for Victoria.
[26] Under the NER Chapter 10 definition a large DCA is a DCA where the total power lines forming the DCA is 30 kilometres or more
[27] Refer to NER clause 2.5.1(d).
[28] Refer to NER clause 2.5.1A(c). A TNSP who classifies a DCA is also a Dedicated Connection Asset Service Provider.
[29] The AER must approve the access policy for a large DCA, which the DCASP must comply with once approved.

this policy is required to contain. Additionally, a DCASP must report to the AER on requests for connection and access to a large DCA when a request is made and when an agreement for access is entered into, in the manner and form notified by the AER. Further, a DCASP must comply with its access policy and the negotiating principles in NER schedule 5.12 if an applicant seeks access to large DCA services. Small DCAs (less than 30 kilometres) do not have a NER requirement for the party who owns or operates that asset to have an access policy.

Table 2 Comparison of key NER requirements applicable to a DCASP and identified user group connecting to a DCA

User	NER requirement				
	Registration	Connection agreements and performance standards	Metering	Settlement and prudentials	MLFs
DCASP	Registers as an NSP and classifies a DCA as a large or small DCA	• Connection agreement at the DCA connection point – at the 'shared' transmission network • Performance standard at the DCA connection point	Single metering installation at the DCA connection point	n/a	n/a
Identified user group connecting to the DCA	Registration required as a Generator or Customer, with a 'shared' DCA connection point	As above	As above	• Settlement of multiple users with only one metering installation required. • Registered Participants would need to negotiate settlement and prudential requirements off-market	Single or dual MLF calculated at the DCA connection point, which is the transmission network connection point

2.2.3 Stakeholder engagement on DCA challenges

Since the 2017 Rule was made, AEMO has registered four DCASPs, these are classified as small DCAs with a single Registered Participant and generating system or load connected. Recently, AEMO has received several DCASP and DCA enquiries. In each instance, proponents wished to connect multiple generating systems and in one instance a DCA to a DCA, which is not possible[30]. In exploring these scenarios, AEMO and stakeholders have identified unworkable operational issues with the DCA framework, which are set out in section 3.

[30] Under the NER a DCA cannot connect to a DCA, however it is possible for a DCA to become a larger DCA by A DCASP reclassifying the existing and new connection assets.

3. STATEMENT OF ISSUE

3.1 Issue with the current Rules

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. Where the identified user group includes multiple proponents connecting to a DCA, the NER requires that connecting proponents and a relevant NSP negotiate and co-ordinate a single:

- Performance standard to apply at the DCA connection point, this would need to reflect the overall performance of all connected assets.
- Metering installation to record energy flows, these are used for market settlement and prudential arrangements, MLFs, and calculation of other fees and charges e.g. transmission use of system (TUOS) charges and non-energy cost recoveries.

In practice, this means that there will be one financially responsible Market Participant (FRMP) at the connection point and they would be responsible for key NER responsibilities, e.g. metering, settlement and the overall performance standard at the DCA connection point.

The DCA framework works where there is a single proponent in the connecting identified user group, however is inappropriate where there are multiple proponents connecting to a DCA. This occurs because the NER and, consequently, relevant processes, procedures and systems are based on a one-to-one mapping between a FRMP, connection point and metering installation[31]. Many of the NER processes are inextricably linked and, in practice, are unable to work where a one-to-many relationship is required at a single connection point. This may cause the following issues when proponents seek to register and connect (except in Victoria) their generating systems or loads to a DCA, including:

- AEMO and NSPs would need to negotiate individual performance standards for a proponent with a generating system or load at the DCA connection point. While a shared performance standard can be negotiated it will be very difficult to identify individual plant non-performance or whether it is causing a material impact to the power system. This might result in a breach (and potential disconnection) that affects multiple systems and their responsible proponents. The ability for AEMO to monitor and the AER to enforce compliance of performance standards is compromised and unnecessarily difficult, and it would also be difficult for the AER to deal with any NER breaches.
- Where multiple proponents are involved AEMO is unable to require a metering installation for each generating system or load as the NER only requires a single metering installation at the DCA connection point (instead of individual metering installations for each connecting party). This increases uncertainty in their settlement arrangements because individual Registered Participant energy flows could not be established and this increases the risk of disputes (although these would need to be resolved under contractual arrangements) and impacts any NER requirement that requires the use of individual metering data, e.g. TUOS calculations, non-energy cost recoveries and participant fees.
- AEMO will not be able to determine MLFs for an individual proponent that reflect their actual transmission losses to the regional reference node – under NER clause 3.6.2, a loss factor is determined for a transmission network connection point and there is no methodology for determining or applying loss factors for individual plant in an identified user group. Given this, the MLF calculation will be based on the combined energy profile of the identified user group. This is

[31] For a Market Customer (retailer) or Small Generation Aggregator Registered Participant categories there is a one-to-many relationship between the Registered Participant and FRMP, however the NER responsibilities are still a one-to-one mapping between the FRMP, connection point and metering installation.

particularly relevant for proponents in an identified user group that includes plant with different fuel sources and technologies.

Appendix A sets out scenarios to demonstrate how AEMO considers the existing key NER obligations apply.

Overall the DCA framework unintentionally leads to regulatory uncertainty and inefficiencies because when multiple proponents seek to connect to a DCA it is operationally unworkable. AEMO considers these issues need to be resolved if multiple proponents are to connect to a DCA to allow better utilisation of DCAs and ensure the original policy intent is met in an efficient manner.

AEMO notes that submissions to the AEMC's Co-ordination of Generation and Transmission Investment Review discussion papers also raised the technical difficulties associated with connecting multiple proponents to DCAs and the appropriateness of having an access framework applying only to large DCAs. Given that the DCA framework is proposed to be modified to allow multiple proponents in an identified user group to operate as Registered Participants to encourage better utilisation of DCAs, it may be appropriate to revisit the differentiation in the small and large DCAs, including whether the difference in approach to access is still appropriate.

4. HOW THE PROPOSAL WILL ADDRESS THE ISSUES

4.1 How the proposal will address the issues

The proposed rule will address the issues associated with connecting multiple proponents to a DCA by ensuring they have a separate connection point and metering installation for each facility located at the point where the facility connects to a DCA. This approach would allow existing NEM arrangements (e.g. performance standards, settlement, non-energy cost recoveries, fees and charges and MLFs) to be applied for individual proponents in an identified user group. Under the proposed rule a DCA would continue to have a connection point to the 'shared' transmission network, however would not be required to have a metering installation. While AEMO does not require a metering installation at the DCA connection point for calculation of settlement, non-energy cost recoveries, fees and charges and MLFs for a DCASP, the AEMC should consider whether a metering installation is required at the DCA connection point.

Table 3 sets out how the proposed rule would apply compared with the existing NER requirements. Figure 1 illustrates where the proposed connection points and metering installations are to apply under the proposed rule.

AEMO considers the proposed rule is consistent with the policy intent of the Transmission Connection and Planning Arrangements Rule. Ensuring existing NER obligations can be applied to each Registered Participant that connects a facility to a DCA would also facilitate the efficient operation and investment of DCAs and facilities connecting to them.

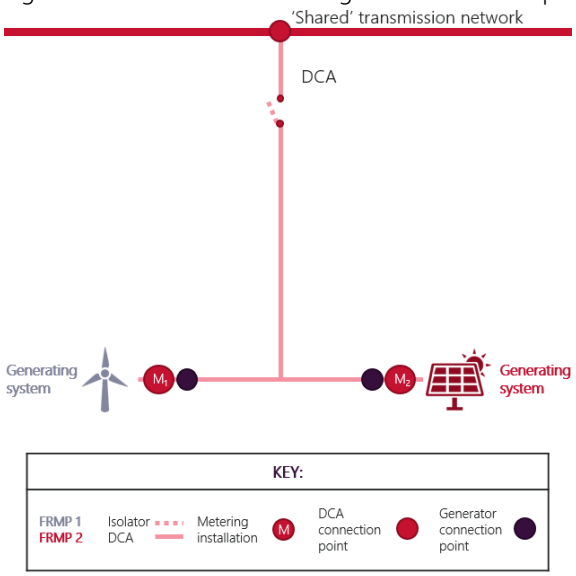
Consistent with the Transmission Connection and Planning Arrangements Rule, the proposed rule intends to allow the following arrangements to continue to apply for the DCA arrangements:

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

Table 3 Comparison of the proposed rule and existing NEM arrangements

	Market Participant	Proposed rule	Existing NEM arrangement
Registration	DCASP	Registers as an NSP and classifies DCA as a small or large DCA	Registers as an NSP and classifies DCA as a small or large DCA
	Generator or Customer connecting to a DCA	Registers as a Generator or Customer for a connection point connecting to a DCA	Registers as a Generator or Customer at the DCA connection point
Connection agreements and performance standards	DCASP	DCA connection point and connection agreement with TNSP at the 'shared' transmission network	Connection agreements and performance standards are at the DCA connection point
	Generator or Customer connecting to a DCA	Connection point where generating system or load connecting to the DCA and where the connection agreement and performance is applicable	As above
Metering	DCASP	No metering installation required at DCA connection point	Single metering installation only required at DCA connection point
	Generator or Customer connecting to a DCA	Metering installation required at each generating system or load connection point	As above
Settlement and prudentials	DCASP	N/A	N/A
	Generator or Customer connecting to a DCA	Based on energy flows from the generating system's or load's metering installation located at the facility's connection point	AEMO settles and calculates prudentials for single 'agreed' market participant based on energy flows from the metering installation located at the DCA connection point
Participant fees and non-energy recoveries	DCASP	N/A	N/A
	Generator or Customer connecting to a DCA	Based on energy flows from the generating system's or load's metering installation (located at the connection point) and Registered Participant category and facility size	• Non-energy cost recoveries for a single 'agreed' market participant would be based on energy flows from the metering installation located at the DCA connection point • Participant fees are typically based on a Registered Participant's energy flow at their connection point. Since participant fees could not be appropriately calculated because the metering installation is at the DCA connection point, this approach would not appropriately reflect the extent to which the budgeted revenue requirements involve that Registered Participant
MLFs	DCASP	N/A	N/A
	Generator or Customer connecting to a DCA	Calculated at the generating system's or load's connection point, not at the DCA connection point (which is the transmission network connection point) as a single value for each FRMP in the identified user group	Calculated at the DCA connection point as a single value for a single FRMP

Figure 1 Illustration of DCA arrangements under the proposed rule with multiple FRMPs connected



4.2 Alternative options to address the issues

Table 4 sets out the alternative options and their benefits, costs and risks that AEMO has identified to address the issues described in section 3.1.

Table 4 Alternate options to address identified issues

ID	Alternate option description		Benefits	Costs and risks
1	Multiple users connecting to a DCA	The same as the proposed rule, except a DCA loss factor (which would be averaged similarly to distribution loss factors (DLFs)) would be calculated by the DCASP for proponents connected to the DCA.	The same benefits as the proposed rule	• Similar to DLFs, a DCASP would need to calculate a DCA loss factor annually and may find it challenging to do so • Average loss factors do not accurately reflect the marginal impact of the facility on transmission losses. Potentially this distorts the dispatch process and may lead to settlement disputes • Processes would need to be implemented to manage DCA loss factors applying to a transmission network connection point
2	Single proponent connecting to a DCA	Restrict identified user group to include a single FRMP connecting to a DCA. Relevant NER obligations would apply at the DCA connection point	Allows existing NER arrangements to be applied	• Limits DCA access to one proponent, which removes the ability to share the DCA and its costs, this increases costs to proponents and reduces efficient investment and operation of these assets • This is inconsistent with the AEMC's policy intent

5. PROPOSED RULE

5.1 Description of the proposed Rule

The proposed rule would amend the following Chapter 10 definitions:

- Connection point –so that a connection point includes the point at which power flows to or from:
  - a person connected to a DCA can be isolated from the DCA.
  - a person directly connected to the 'shared' transmission network can be isolated from the 'shared' transmission network.
- Identified user group – so that an identified user group is defined as the person or persons that connect to a single DCA.
- Transmission network – correct minor error to replace "identified shared user asset" with "identified user shared asset".
- Transmission network connection point – so that this includes a connection point to a DCA.

5.2 Transitional matters

The proposed rule would:

- Allow existing registered DCASPs and classified DCAs to remain unchanged.
- Retain the existing transitional provisions so that the treatment of "Existing DCAs" remains unchanged.
- Utilise further transitional provisions so as:
  - not to affect connection agreements entered into, and registration applications made or registrations which occur, prior to the effective date of the proposed rule.
  - to 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.

  Note: AEMO has not proposed wording for these further transitional provisions.

6. HOW THE PROPOSED RULE CONTRIBUTES TO THE NATIONAL ELECTRICITY OBJECTIVE (NEO)

AEMO considers the proposed rule would promote efficient investment in, and operation of electricity services for the long term interest of consumers by improving transparency, accountability and regulatory certainty for proponents connecting to a DCA. The proposed rule would facilitate NEM participation and enable efficient investment decisions by clarifying the NER obligations to be applied at a proponent's connection point to the DCA, instead of at the DCA connection point. This also makes it possible to apply existing NEM processes to those proponents. This would reduce the time spent and costs associated with the existing DCA arrangements by:

- Eliminating the need and inefficiencies involved with:
  - Negotiating a performance standard with multiple proponents in an identified user group or re-negotiating it where an additional proponent is added to the identified user group.
  - One proponent being responsible for energy settlement, non-energy cost recoveries and charges for multiple proponents in an identified user group.

  - AEMO being unable to calculate each Registered Participant's participant fees based on their energy flow at their connection point, which would inappropriately identify the extent to which the budgeted revenue requirements involve that Registered Participant.
  - MLFs calculated based on a combined energy profile for multiple proponents at a single connection point.

- Improving NSPs', AEMO's and the AER's ability to identify facility non-performance by measuring and defining it at the DCA connection point. This approach would make it easier to enforce compliance with agreed technical performance and standards, which are necessary to enable AEMO and NSPs to maintain power system security within a safe operating state.
- For a proponent, removing the risk of being held accountable for and disconnected based on another party's non-performance.
- For all parties, reducing the time spent debating and challenging the application of the current DCA framework.

7. EXPECTED BENEFITS AND COSTS OF THE PROPOSED RULE

The expected benefit of the proposed rule is to:

- Improve investor certainty by clarifying how the NEM arrangements apply to proponents connecting to a DCA. The proposed rule will allow connecting proponents and TNSPs to negotiate connection agreements and performance standards more efficiently. Additionally, the proposed rule will clarify how NEM market arrangements apply, e.g. metering arrangements and calculation of MLFs. This would reduce connecting proponents' set up costs, and TNSPs' and AEMO's costs associated with the confusion and time-consuming clarifications and debates caused by the lack of clarity of how NEM arrangements apply.
- Improve transparency and facilitate efficient operation of DCAs by improving regulatory certainty and operational efficiency for proponents in identified user groups. For example, separate performance standards for each connecting party would benefit NSPs in negotiating connection agreements and all proponents involved in establishing performance standards. It will also improve the ability of AEMO and NSPs to identify non-performance and non-compliance of plant, thereby reducing the risk of the AER not being able to enforce Registered Participant performance standard compliance. This approach also reduces the risk for other proponents in the identified user group being held accountable for the non-performance of another party.

The expected cost of implementing the proposed rule is minimal because it clarifies how existing NEM arrangements apply to DCAs and Registered Participants that are part of an identified user group.

Under the proposed rule proponents would connect their facility at a connection point on the facility end of the DCA (instead of at the DCA connection point – which is at the 'shared' transmission system end) and would incur the costs associated with establishing a connection point and metering installation. This cost needs to be balanced against:

- The costs associated with negotiating NER responsibilities for multiple proponents at a single DCA connection point.
- A connecting proponent needing to install a metering installation at their facility to satisfy other needs, e.g. to facilitate settlement with the FRMP at the DCA connection point.

8. DRAFT RULE

This draft is based on version 131 of the NER.

Chapter 10

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 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*:

(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 the *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.

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

A *network* within any *participating jurisdiction* operating at nominal *voltages* of 220 kV and above plus:

(a) any part of a *network* operating at nominal *voltages* between 66 kV and 220 kV that operates in parallel to and provides support to the higher voltage *transmission network*;

(b) any part of a *network* operating at nominal *voltages* between 66 kV and 220 kV that is not referred to in paragraph (a) but is deemed by the *AER* to be part of the *transmission network*.

For a *participating jurisdiction* other than the State of Victoria, an *identified user shared* ~~*user*~~ *asset* owned, controlled or operated by a *Primary Transmission Network Service Provider* (including a *third party IUSA* that is the subject of a *network operating agreement*) forms part of that *Primary Transmission Network Service Provider's transmission network*.

Transmission network connection point

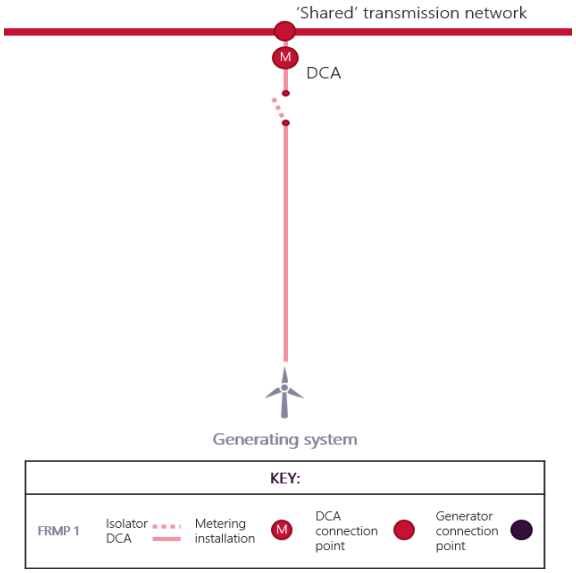
A *connection point* on a *transmission network* or on a *dedicated connection asset*.

APPENDIX A. DCA SCENARIOS

The following scenarios demonstrate how AEMO considers the existing key NER obligations apply and whether they are unworkable. Section 3 of the rule change proposal identifies the NER issues in more detail. Note that in all scenarios the DCASP is contractually responsible for quality of supply to the generating system and DCA is electrically isolatable at the DCA connection point.

Scenario 1 – DCA with a single FRMP in an identified user group

Figure 2 DCA with a single Registered Participant



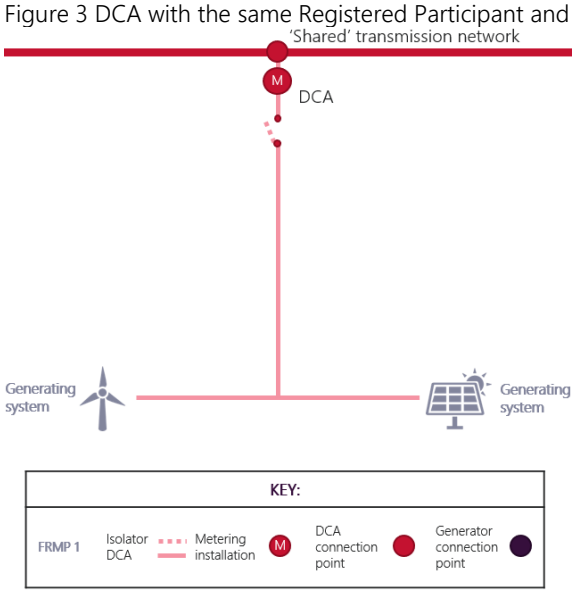
In scenario 1, NEM obligations (e.g. performance standards, settlements and a single MLF) can be applied because there is a one-to-one relationship between the connection point and FRMP (Generator). Table 5 sets out how key NER requirements would be applied.

Table 5 Scenario 1 - Key NER obligations

Registration	Performance standard	Metering	Settlement and prudentials	MLF
• DCA owner, operator or controller must register as an NSP and classifies small DCA, thereby becoming a DCASP • The generating system owner, operator or controller must register as a Generator	Performance standard applied at the DCA connection point	Single metering installation at the DCA connection point	Based on the Generator's energy flow at the DCA connection point	MLF applied at the DCA connection point

Scenario 2 – DCA with a single FRMP in an identified user group and multiple generating systems

Figure 3 DCA with the same Registered Participant and multiple generating systems



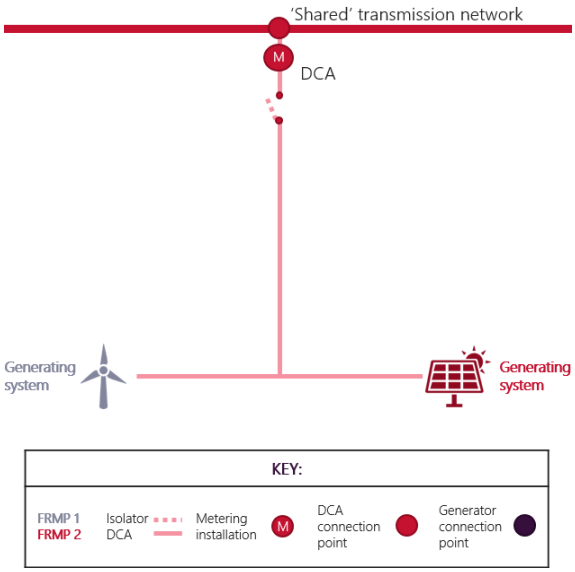
In scenario 2, NER requirements (e.g. performance standards, settlements and a single MLF) **cannot** be applied because multiple generating systems connect to a DCA. This breaks the one-to-one relationship between the connection point and FRMP (Generator). Table 6 sets out how key NER requirements would be applied.

Table 6 DCA with multiple generating systems and separate FRMPs

Registration	Performance standard	Metering	Settlement and prudentials	MLF
• DCA owner, operator or controller must register as an NSP and classifies small DCA, thereby becoming a DCASP • Generating system owner, operator or controller must register as a Generator for the individual generating systems	Performance standard applied at the DCA connection point and potentially shared performance standard to both generating systems. However, it may be difficult to identify individual asset non-conformance, the Registered Participant would be responsible	Single metering installation required at the DCA connection point	Based on the combined energy profile of the generating systems at the DCA connection point	MLF calculated at the DCA connection point, this will be based on the combined energy profile of both generating systems

Scenario 3 – DCA with multiple FRMPs in an identified user group

Figure 4 DCA with multiple generating systems and separate FRMPs



In scenario 3, NER requirements (e.g. performance standards, settlements and a single MLF) **cannot** be applied in this scenario where there are multiple generating systems with multiple FRMPs connecting to a DCA. This breaks the one-to-one relationship between the connection point and FRMP (Generator). Table 7 sets out how key NER requirements would be applied.

Table 7 DCA with multiple generating systems and separate FRMPs

Registration	Performance standard	Metering	Settlement and prudentials	MLF
• DCA owner, operator or controller must register as an NSP and classify a DCA, thereby becoming a DCASP • Generating system owner, operator or controller must register as a Generator for the individual generating systems	Performance standards are applied at the DCA connection point and potentially shared performance standard for both generating systems. However, it may be difficult to identify individual asset non-conformance, the Registered Participant would be responsible	Single metering installation required at the DCA connection point	Based on the combined energy profile of the generating systems at the DCA connection point	MLF calculated at the DCA connection point and will be based on the combined energy profile of both generating systems