

222 Exhibition Street T: + 61 3 9929 4100
Melbourne F: + 61 3 9929 4101
Victoria 3006 E: info@cleanenergycouncil.org.au
Australia W: cleanenergycouncil.org.au
ABN: 84 127 102 443



Clean Energy Council

12/08/2013

John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235
Lodged Electronically

Dear Mr Pierce,

RE: ERC0147 Connecting Embedded Generation Rule Change Consultation Draft Determination

The Clean Energy Council (CEC) works with more than 600 solar, wind, hydro, bioenergy, energy storage, energy efficiency, cogeneration, geothermal and marine energy businesses to accelerate the transformation of Australia's energy system into one that is smarter, cleaner and more consumer-focused. Its priorities are to:

- create the optimal conditions in Australia to stimulate investment in the development and deployment of world's best clean energy technologies
- develop effective legislation and regulation to improve energy efficiency
- work to reduce costs and remove all other barriers to accessing clean energy

The CEC welcomes open and frank discussion on the current connection process as it is applied to embedded generators.

The CEC has previously noted that the current frameworks and practices applied to *small* embedded generator connections are rapidly losing context in respect of the growing interest in this space¹. It is pleasing to note that the incremental benefit arising from the proposed rule change has been acknowledged with a proactive Draft Determination to more broadly address connection process challenges. The acknowledgement of the National Electricity Rules' (NER) fundamental design principle of technology neutrality is also welcomed as a principle for assessing the request².

However, the following submission firstly provides some feedback on the CEC's fundamental concerns with the draft determination and the rule change process to date. These concerns are likely to compromise the rule proponent's objectives should they remain unaddressed. In order to overcome these matters the CEC advises that the Draft Rule be quarantined to apply to generation which is eligible for AEMO's standing exemption from registration, and placed in Chapter 5A with that chapter to apply to the connection of all generators in this class.

¹ 2013, CEC Submission to Issues Paper, p. 1.

² AEMC 2013, *Connecting Embedded Generators, Rule Determination*, 27 June 2013, Sydney, p. 20.

Although the technical challenge of connecting a generator to a network is, in practice, disconnected from the registration class the connection process applied should be representative of the generator's impact on the network and system. Chapter 5A should be restricted to those with anticipated negligible impact, as were the generators contemplated by the rule proponents, and Chapter 5 to those with anticipated material impact. Larger embedded generator connections have a closer relationship to transmission network connections, while registration exempt generation has a closer relationship to retail customer connections.

The CEC believes that the Draft Rule has departed significantly from the proponent's rule change request, and the consultation process has been inadequate to engage generator proponents with larger generator interests. Despite this, the CEC's submission secondly provides detailed comment on the Commission's proposal and Draft Rule. The CEC believes that, given the limited exposure to the Draft Rule, limited consultation process and extensive detail within it, the opportunity for consideration of direct comments on the rule should not be withheld by the Commission. The CEC expects that this detail will enhance the rule in light of the rule making test and should be considered irrespective of how the Commission proceeds with it.

Please do not hesitate to make contact on the details below to discuss any part of this submission.



Tom Butler | Network Specialist | Clean Energy Council

Direct +61 3 9929 4142

Mobile +61 431 248 097

Email tbutler@cleanenergycouncil.org.au

Media: Mark Bretherton +61 9929 4111

1 Summary

This submission has been prepared in two distinct parts. In the first instance it outlines a range of fundamental concerns related to the Draft Rule and the Commission's assessments. In particular it demonstrates how these fundamental matters will lead to the Draft Rule likely failing to enhance the process as intended by the rule proponents.

Secondly, the submission provides a range of suggested improvements to the Draft Rule which will realign it with a reasonable process and enhance it in light of the rule making test.

General concerns

The CEC believes that fundamental concerns related to the Commission's draft determination have ultimately compromised the rule proponent's intent. As clearly identified throughout the rule proponent's documentation their objective was to improve the connection process for *non-registered embedded generators*. The Commission's consultation was also framed within this context.

Essentially the Draft Rule is now attempting to reform all distribution and sub-transmission connections based on the proponents' experiences with the development of mostly sub 5 MW generator's located within commercial building premises.

To date the Draft Rule has been developed based on a proposal from Essential Energy and with consultation being limited to a single workshop with the rule proponents, property developers and some industry bodies. Consultation has been inadequate to address the needs of larger embedded generators. In practice these have a closer relationship to transmission connections – the CEC reminds the Commission that it recently took 3 years of consultation to review and come to a landing on efficient transmission connections.

In summary this submission

- Examines the motives of the rule proponents and demonstrates that their intent was to improve the connection process for embedded generators with capacities below 5 MW, or those holding a standing exemption from registration as a generator with AEMO.
- Argues that inserting the Draft Rule into Chapter 5 of the rules creates ambiguity and puts the Commission's objectives in making the rule at risk.
- Demonstrates the fundamental differences of the connection of generation with ratings above 5 MW (registered generators and those eligible to apply for provisional exemption) and the need for a quarantined connection process for smaller generators externally to Chapter 5.
- Demonstrates that the connection process for larger embedded generators in Chapter 5 presents exactly the same challenges as were addressed in the Transmission Frameworks Review (TFR), and challenges the Commission to consider and consult on them in detail prior to proceeding further with rule changes which target these generators.

As a result of these matters being unaddressed, the CEC recommends that the Draft Rule is quarantined to the connection of embedded generators which are eligible for a standing exemption

from registration as a generator. The CEC also notes that, as the rule making test is unambiguous externality legislation has historically been ignored by the Commission in rule making processes. As such the Draft Rule would be more appropriately placed within Chapter 5A, and that chapter refined to ensure that the connection of generators in this class is restricted to that process.

Suggested improvements to the Draft Rule

While the CEC is proposing that the Draft Rule is quarantined to Chapter 5A, and to generation which is eligible for AEMO's standing exemption from registration, this submission also identifies a number of aspects to the Commission's proposals which are likely to add significant risk and costs for connection applicants. These have been derived by analysis the Draft Rule with the following principles in mind:

- The connecting party carries all risk and costs associated with the connection.
- Optionality must be retained and the process should not challenge connection applicants' decision making processes.
- The premise that connection applicants hold countervailing market power has been demonstrated to be false.
- Connection applicants must have access to all necessary technical information in order to undertake independent assessment of a distribution network's power transfer capability.
- The current framework for the negotiation of technical access standards must be retained.
- Ambiguity in the rules must be overcome and reinforce the NER's current contestability frameworks, while considering enhanced contestability wherever possible.

This submission suggests a range of minor changes to the Draft Rule for the Commission's consideration and expects that these changes will enhance the rule in light of the rule making test and the appropriate allocation of risk. These changes should be applied regardless of how the Commission proceeds with the Draft Rule.

2 General

As noted the CEC supports reform to the connection process for embedded generation. However, this section demonstrates how the connection process as experienced by the rule proponents is one which relates to a limited definition of ‘embedded generation’ – primarily non-registered generation embedded within retail customers’ electrical installations. It demonstrates how the Commission’s intended enhanced connection process within Chapter 5 has not addressed the rule proponent’s concerns appropriately by considering four main areas:

- The context of the rule change request;
- The location of the Draft Rule within the context of connection processes;
- Ambiguity arising from the application of parallel rules resulting from the draft rule, and;
- Key differences between connection requirements for different generator classes.

These matters are of fundamental concern and relate to the scope of the Draft Rule. Each requires addressing prior to advancing the rule as it currently stands.

As a result of these matters remaining unaddressed, the CEC recommends that the Draft Rule is quarantined to the connection of embedded generators which are eligible for a standing exemption from registration as a generator. Further, the Draft Rule would be more appropriately applied within Chapter 5A, and that chapter refined to ensure that generators in this class are restricted to the Chapter 5A process.

It has always been the case that Chapter 5 was designed to apply to larger embedded generators. As there is no significant distinction between the connection of these generators to distribution or transmission the process is already defined in Chapter 5 for both network types. Proceeding with the intent to apply this rule change to larger embedded generators will require the Commission to consider the application of the connection-related matters recently considered in the TFR to distribution.

2.1 Context of rule change request

The CEC believes that the Draft Rule has now departed significantly from the scope of the rule proponent’s request: to consider the connection of 10 kW – 30 MW cogeneration systems located within commercial premises, and primarily to address a lack of clarity of technical standards.

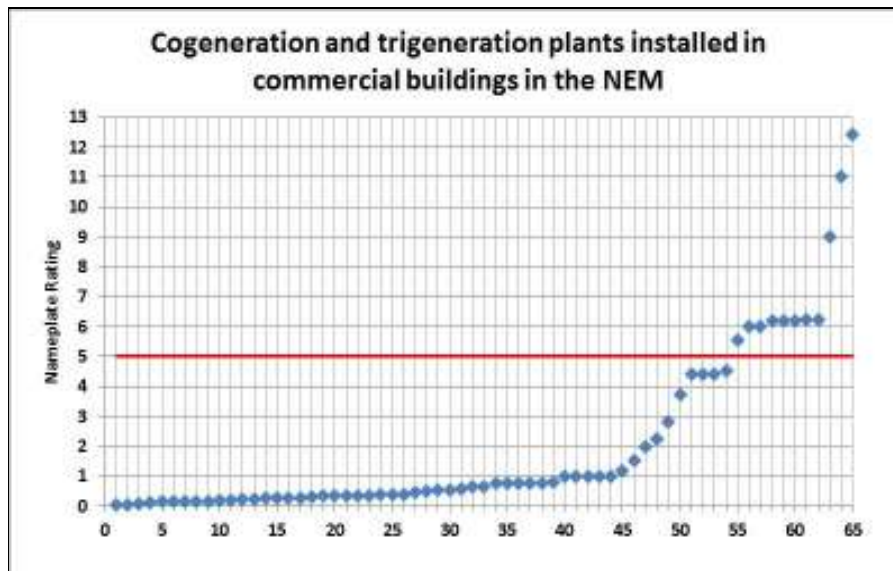
The CEC provides the plot below to demonstrate the rated capacity of gas-fired cogeneration and trigeneration units installed in commercial and amenities buildings in the NEM³, as compared to AEMO’s minimum registration exemption threshold. The plot clearly shows that of the 65 units installed only 11 exceed the minimum threshold. All are exempt from further registration and scheduling under the requirements of NER Rule 2.2.

This indicates that the proponent’s experiences and views (as implied throughout the rule change request and attached documentation) was not only derived from the outcomes of connection of *non-*

³ Source: CEC database.

registered generation, but largely derived from experiences with connecting generation with capacities below AEMO’s minimum registration threshold.

Despite this, the Commission intends to apply the Draft Rule to all embedded generating units – that is any generator connected within a *distribution* network, which will include many larger sub-transmission connected, registered generators.



The NER considers that any network which is *not* a *transmission network* is a *distribution network*⁴. Therefore, the Draft Rule applies to any generator connection within a DNSP’s network, including any ‘sub-transmission’ network, because these too are owned and operated by DNSPs. Sub-transmission generator connections are often made in proportion to the network’s *power transfer capability*⁵. As these are generally 66 kV or 132 kV assets it is not unreasonable to expect generators with capacities of the order of more than 100 MW frequently seeking connection to them⁶.

On this basis the Draft Rule appears mostly reasonable for the connection of generators that have a standing exemption for registration, but as discussed below has not addressed the complexities and needs for the connection of larger generators.

2.2 Application of the Draft Rule

The Commission acknowledged that many embedded generator proponents are inexperienced with the NER. However, the Draft Rule intends to define two parallel and equally applicable processes in the NER, which the Commission expects will clarify the process for the benefit of all involved. The CEC expects that there is now the opportunity for a significant enhancement of ambiguity for the connection of the generation technology considered by the rule proponents.

The *embedded generating units* considered by the rule proponents are likely to be embedded within a building’s electricity system. These generators are generally connected behind the retail customer’s

⁴ National Electricity Rules, Version 56, p. 1112.

⁵ As distinct from the proponent’s request which focussed on other drivers for generator capacities.

⁶ The CEC is aware of numerous projects rated at 80-120 MW, and some in excess of this.

connection assets, and are therefore embedded within a *distribution system*, but not strictly “*connected within a distribution network*”⁷ as anticipated by the NER definition of *embedded generating unit*⁸. As a result the option exists for a DNSP to simply lump these generators within a ‘component’ of the relevant retail customer’s load and process the connection as a negotiated connection under Chapter 5A.

This example demonstrates how the Draft Rule will likely fail to meet the proponent’s objectives. It also demonstrates the validity of the Ministerial Council on Energy’s (MCE) intent to incorporate non-registered embedded generation into Chapter 5A when that chapter was drafted. The combined consideration of non-registered embedded generation with retail customer connections in Chapter 5A is likely to be more practical than applying a separate process to each component⁹.

2.3 Rule location

The Commission has proposed that the Draft Rule apply to all generation connections located on distribution networks. That is all ‘*embedded generator*’ connections generally greater than the AS4777 scope upper limit¹⁰ up to any capacity, irrespective of registration class.

However, the context of the initial rule change request was for cogeneration and trigeneration systems embedded within commercial buildings. These ‘generators’ would concurrently be retail customers which, given their demand requirements, would likely be connecting through the Chapter 5A ‘negotiated connection’ category in cases where the National Energy Customer Framework (NECF) has been adopted in the participating jurisdiction. Local requirements would apply otherwise.

The Commission notes however, that Chapter 5A is designed to “*primarily accommodate basic and standard offerings*”¹¹ for connection of retail customers and non-registered embedded generators. The Commission also notes the belief that the draft determination will promote the long term interests of consumers in respect of price by “*ensuring that potential embedded generators have a clearly defined process to plant and develop the connection...*”¹² and that “*it will provide a clearer connection process of embedded generation*”¹³.

Discussion with the Commission has indicated the preference to locate the rule within Chapter 5. This appears to be based on the fact that NEM participant states which have not adopted the NECF legislation would remain unaffected by a change to Chapter 5A. Although this preference is not identified within the draft determination, which entirely ignores the relationship between the Chapter 5A *negotiated connection* category¹⁴ and non-registered embedded generation connection. As a result it appears that the Commission’s decision has been strongly influenced by externalities, rather than the rule making test.

⁷ National Electricity Rules, Version 56, p. 1116.

⁸ See below discussion on the appropriate use of terms from the NEL and NER. Also refer to the CEC’s submissions to the recent Transmission Frameworks Review Second Interim Report and attached legal advice.

⁹ Note that this does not imply that the CEC is content with the drafting of Chapter 5A in its treatment of embedded generation.

¹⁰ As defined within NER Chapter 5A, generators within the AS 4777 scope are micro-embedded generators and comply with that chapter’s basic connection category.

¹¹ AEMC 2013, *Connecting Embedded Generators, Rule Determination*, 27 June 2013, Sydney, p. 43.

¹² *Ibid*, p. 8.

¹³ *Ibid*, p. 9.

¹⁴ *Ibid*, p-p. 42-43, &p. 72.

The CEC understands that externality legislation – such as whether or not a particular participating jurisdiction’s legislation ratifies the NECF legislation – is generally not considered to be visible to the Commission’s assessment processes as the rule making test is unambiguous.

When drafting the NECF (including the Chapter 5A amendment) the MCE’s Standing Council of Officials made no reference to whether a generator was small or large, as contended by the proponents¹⁵, but does explain in detail the need for a negotiated connection category. The clear intent of the MCE when drafting Chapter 5A was to capture retail customer *and* all non-registered embedded generator connections¹⁶ because Chapter 5 does not consider the latter appropriately, as demonstrated by the creation of a negotiated connection category. Despite this, it appears the Commission’s view is that the MCE’s intent was inappropriate, although no justification has been provided in the Draft Determination.

2.4 Connection process requirements for different generator classes

This section outlines some key differences in the expectations of a connection process designed for larger distribution-connected generation within the context of the current NER, the Draft Rule and recent decisions made by the Commission.

The CEC believes that defined connection processes should be based on the generator’s interaction with the network and power system, and that the technical and commercial challenge of connecting a generator to an NSP’s *network* should be entirely removed from that generator’s registration class. Within this context the key criteria which drive the needs for a connection include:

- Anticipated impact on local and remote networks and the wider power system.
- Characteristics of technical performance requirements.
- Network characteristics at the location of the connection point.
- Drivers for the installation of the generating unit.
- Proponent’s anticipated experience level.
- The desire for and appropriateness of access to the NER’s existing contestability arrangements.
- The level, and importance of countervailing market power held by the proponent.

Table 1 below provides a matrix summary of each of these key criteria as considered in light of generator classes already defined by the NER registration categories, as also discussed below.

Generators holding a standing exemption from registration

Clause 2.2.1(c) of the NER allows AEMO to dictate the appropriate level for standing exemptions on the basis that that this exemption is not inconsistent with the national electricity objective (NEO). That is, in AEMO’s historic view generation connecting below the minimum registration threshold will have no significant material impact on power system security. Thus, generators which have a

¹⁵ Ibid, p. 43.

¹⁶ <http://www.mce.gov.au/emr/rpwg/archive.html>

Generator Class	Current Application	Impact Criteria	Technical Performance Criteria	Typical Network Characteristics	Typical Drivers	Proponent Experience Level	Contestability Framework	Countervailing Market Power
Standing Exemption	AS4777 (upper scope) – 5 MW	Local network impact	Standardisation appropriate	Frequently low voltage-connected and embedded within retail customer’s premises. Limited medium voltage-connected stand-alone generation.	Non-market. Limited contracted sale. Energy consumption offset.	Low: generation generally not being core business function.	Jurisdictional requirements.	None. NER has to ensure transparency, fair processes and defined technical standards to apply.
Provisional Exemption	5 – 30 MW and generating less than 20 GWh/annum	Local network impact. Limited remote network impact. Limited system impact.	Limited application of Schedule S5.2 pending connection point and capacity.	Frequently medium voltage-connected stand-alone, or energy offset embedded within industrial processes. Less frequently high voltage sub-transmission connected stand-alone generation.	Non-market. Mostly contracted sale. Some energy consumption offset.	Medium: generation not always core business function but proponents more equipped to grapple with technical and commercial challenges provided NER facilitates this.	NER => connection assets contestable delivery, operation and ownership. Network operation and ownership non-contestable, delivery within some jurisdictional requirements.	None. NER has to ensure transparency, fair processes and defined technical standards to apply in current S5.2 form.
Mandated Registration and Participation in Central Dispatch	>30 MW	Local network impact. Remote network impact. System impact.	Full application of Schedule S5.2	All high voltage sub-transmission connected stand-alone generation.	Market generator.	High: generation development is core business model. Proponents capable of grappling with complex technical and commercial challenges.	Desirable to enhance contestability for sub-transmission connections.	

Table 1 – consideration of key criteria for connection processes and they relate to generator classes.

standing exemption are not anticipated to need to undertake the same rigorous connection process to addresses *system security* as applied to larger generators via NER Schedule 5.2.

This generator class is mostly installed by proponents who do not have electricity generation as a core business function and are not experienced with connection processes. They are frequently connected at low voltage and located within customers' electrical installations. As a result the scope for the NER's defined contestable delivery, operation and ownership of *connection assets* is limited, although jurisdictional contestability arrangements could still apply.

The potential for growth of this generator class in the short term is significant. As the interaction of these generators is mostly limited to local network impacts there is scope for standardised connection requirements to create efficiencies. This growth also implies a growing need to ensure that such standardisation will meet a simple set of minimum standards which are consistent with the safe and secure operation of the power system. Examples of minimum requirements should cover frequency, frequency rates of change and voltage limits. In addition the NER must include that DNSPs and AEMO should have agreed and published minimums and DNSPs should be responsible for ensuring that the minimum technical capability of embedded generators are recorded and provided to AEMO.

The complexities for the connection of standing exempted generation have been well documented by the rule change proponents, the Commission and a number of others. The Commission's Draft Rule provides a reasonable starting point to define a connection process which addresses concerns for this particular class of generator.

While the CEC have proposed a series of incremental changes intended to improve the Commission's Draft Rule a coherent justification has not been made for retaining this process within Chapter 5. Chapter 5A was designed with the clear aim of integrating the connection of standing exempted generation with retail customer connections, in order to prevent ambiguity and address these connections efficiently.

Generators who can apply for provisional exemption from AEMO

At the larger end these generators are generally stand-alone systems directly connected to the medium voltage distribution network or the high voltage sub-transmission network. Their purpose can vary from efficiency gains in energy intensive industrial processes, to stand-alone generation systems contracted to a local consumer. Registration as a market generator is less frequent in this class.

These generators differ from the previous class by AEMO's expectation that there is the opportunity for them to have an impact which extends from the local network, onto remote network and the wider system. It is for this reason that AEMO must consider whether an exemption is reasonable on a case-by-case basis.

This exemption category is a legacy component of AEMO's practices for a centralised generation portfolio. It was created to overcome the need for full registration of generators which are not anticipated to operate at all times due to varying fuel availability. These generators have to apply for registration to AEMO's Registration Committee through the normal stringent process and provide supporting evidence of ongoing compliance with the energy export limit to the Committee on an annual basis.

As with the standing exemption threshold this setting has been arbitrarily selected by AEMO and would likely come under review should a large number of generators seek exemption.

While there is much diversity within this class of generator it is appropriate that the NER is ambivalent in its treatment of this generator class as compared to any other registered generator. Above the standing exemption threshold the interface with the DNSP (or TNSP for larger generating systems in this class) is entirely unrelated to the generator's registration class, which is simply settled with AEMO at the appropriate stages in the application process.

Currently, the NER is inconsistent as a larger generator which receives an exemption could connect under Chapter 5A, while also being required to comply with a number of the Schedule 5.2 access standards. Despite Chapter 5A being clear that the DNSP would determine the technical requirements for connection¹⁷, which contravenes the Schedule 5.2 access standard framework that allows the generator to propose negotiated access standards.

As a result this class of generator should reasonably be expected to be treated in the same way as any other registered generator, and the threshold between defined connection processes in Chapter 5A and Chapter 5 can reasonably be set to differentiate these generators from those having a standing exemption from registration.

Note that this more practical application of the rules differs from the current interpretation of Chapter 5A to apply to this generator class. The CEC recommends that the introduction of Chapter 5A is refined to strictly apply to generators which comply with AEMO's standing exemption class, and Chapter 5 is refined to clarify that it applies to all generation otherwise.

Registered generators, including those who must participate in central dispatch or those who can apply for provisional exemption from AEMO

As discussed above, the requirements of Chapter 5 can be reasonably applied to the connection of *all* generation with ratings above AEMO's standing exemption threshold.

In general this class of generation connects under the same principles as transmission-connected generation, with the relationship gaining strength for sub-transmission connections. As a result all of the matters considered and addressed in the TFR are relevant to the development of a connection process for this class of generator within Chapter 5. The only key difference between the NER's defined processes is the TNSP defined negotiating frameworks¹⁸.

In particular a connection process for this class of generator must address

- The NER's treatment of assets and the defined limits of monopoly DNSP services.
- Connection process complexity and ambiguity.
- Asymmetric power held by DNSPs in negotiations.
- Mechanisms to address competitive performance of DNSPs.
- Defining and strengthening negotiating frameworks.

¹⁷ NER cl. 5A.C.3(5)(i).

¹⁸ The TFR consultation process identified that these frameworks have provided little benefit to connection applicants. The Final Report recommended sweeping reform of them including defining them within the NER and allowing the AER to administer them.

These matters are addressed within Chapters 11 to 13 in the TFR Final Report¹⁹ and are required to be addressed again by the Commission if the Draft Rule is to proceed to apply to this class of generation connecting to distribution networks. Alternatively, the Commission must provide reasoning for the Final Report's recommendations which address these matters being inapplicable to distribution in light of the rule making test.

In either case these matters have not been properly consulted on in developing the Draft Rule²⁰ and further consultation with the *relevant* industry participants will be required to address them accordingly. A high level set of principles to be considered in doing so is outlined below.

NER treatment of assets and the defined limits of monopoly DNSP services

The CEC refers the Commission to the CEC's submissions to the Transmission Frameworks Review Second Interim Report²¹ and attached legal advice²². In particular the Commission should be aware of the use of the terms *connection asset*, *connection point*, *extension*, *system* and *network* as they are used throughout the NER. Failing to acknowledge the proper application of these terms has been leading to significant ambiguity, which must be overcome if the rule change process is to remain consistent and transparent.

In summary

- A *distribution system* consists of the sum of the *connection assets* and *network* – that is the NER only contemplates two defined types of asset.
- A *connection point* is strictly the interface between these two assets.
- *Generating plant connects to connection points via connection assets*. It does not connect to *network* assets.
- An *extension* is strictly an *extension* of the *network* owned operated and controlled by the DNSP for the purpose of supplying *network users' connection points*, it cannot exist on the *generator* side of a *connection point*. An *extension* is strictly comprised of *network* assets.
- Similarly, *connection assets* cannot exist on the *distribution network* – they are strictly located on a *network user's* side of the *connection point* and are that part of the *distribution system* which is dedicated to that particular *network user*, or group of *network users*.
- The NER currently allows any party to own, control and operate *connection assets* – they are already fully contestable²³. There is no economic rationale for restricting this to an NSP²⁴ because *connection assets* have no direct relationship to the NSP's need to supply other *network users*. All risk related to the delivery, ownership and operation of a *connection asset* is carried by the relevant connecting party.

¹⁹ AEMC 2013, *Transmission Frameworks Review, Final Report*, 11 April 2013, Sydney.

²⁰ Which has mostly been developed from a single workshop and a proposal from Essential Energy, rather than broad industry consultation as was required to achieve an outcome in the TFR process.

²¹ <http://www.aemc.gov.au/Media/docs/Clean-Energy-Council---121025>

²² <http://www.aemc.gov.au/Media/docs/Clean-Energy-Council---121025---Att>

²³ NER, cl. 5.5(e).

²⁴ Note the rationale applied in the TFR was based on perceived efficiency gains from third party access at a later date and not on economic regulation.

- The *connection point* is the agreed point of supply from the *network*, but this does not limit the metering location to this point exactly as metering is intended to account for losses between the *connection point* and the meter.

Connection process complexity and ambiguity

The levels of information provided to connection applicants must be coherent, consistent and clearly articulated. The NER should prescribe transparency requirements in detail and allow connection applicants to request any technical information relevant to assessing the commercial significance of any user access arrangements sought.

Where it is standardised, commercial or technical information should be published. A connection enquiry response should provide all other relevant locational-specific information, while negotiations should be supported by transparent information. Costs breakdowns should be detailed and stringent reporting requirements applied to DNSP expenditure.

Timeframes must permit connection applicants to fully appreciate the commercial implications of a connection, access financing on reasonable terms and acknowledge that only generators face material risk from concurrent connection applications for limited network capacity (DNSPs do not).

Technical assessment of connection requirements should address technical performance and requirements within the following criteria:

- 1) The DNSP must specify all access standards or technical criteria within the format of *minimum access standards* and *automatic access standards*. These must be within the limits already contemplated by NER S5.2 and the NER must be supported by an effective negotiating framework (similar to that defined in cl. 5.3.4A).
- 2) The NER must be clear that the proponent *will* be provided with the information it reasonably requires to fully assess the commercial significance of the network's *power transfer capability*, access standards and/or technical requirements and develop and propose *negotiated access standards* to be negotiated within the defined framework.

Asymmetric power held by DNSPs in negotiations: defining strong negotiating frameworks

The framework must recognise that connection applicants hold *no* countervailing market power. The principles underpinning negotiations should be properly defined in the NER and consistently applied across DNSPs. The AER should be responsible for this.

Commercial arbitration processes must be made to be accessible to connection applicants.

Mechanisms to address competitive performance of DNSPs

The application of the frameworks for contestability proposed in the TFR Final Report should be considered in relation to distribution networks, particularly sub-transmission networks.

3 Specific Responses to the Commission's Assessments

While the CEC is proposing that the Draft Rule is quarantined to Chapter 5A, and to generation which is eligible for AEMO's standing exemption from registration, there are a number of aspects to the Commission's proposals which are likely to add significant risk and costs for connection applicants. The CEC has prepared these detailed responses by applying of the following principles to each aspect of the Draft Rule:

- The connecting party carries all risk and costs associated with the connection. DNSPs will simply provide a connection offer with a risk profile and costs that they are content with.
- Optionality must be retained. While some generators may wish to prioritise a fast-tracked connection, adding unavoidable bureaucracy which challenges a connection applicant's decision making processes and forces decisions is unlikely to produce efficient outcomes.
- The premise that connection applicants hold countervailing market power has been proven to be false. The connection process must assume that no connection applicant holds any power in negotiations.
- Connection applicants must have access to all necessary technical information in order to undertake independent assessment of a distribution network's power transfer capability.
- The current framework for the negotiation of technical access standards must be retained. Allowing DNSPs to dictate connection requirements in the absence of transparency will be likely to lead to grossly inefficient outcomes.
- Ambiguity in the rules must be overcome. The current intent of the rules to allow contestable delivery of connection assets must be retained.

The CEC suggests that the following detailed responses to the Commission's assessment be considered in their aim to further enhance the rule in light of the rule making test and appropriate allocation of risk, and applied regardless of how the Commission proceeds with the Draft Rule.

The assessments made in this section are supported by proposed amendments to the Draft Rule outlined in the next section.

3.1 Connection process

Selection of process

As discussed previously a DNSP could pressure a connection applicant to use Chapter 5A, as they may already be doing so for the load component of their connection. While the Draft Rule remains in Chapter 5 and Chapter 5A also remains equally applicable to "non-registered embedded generation", draft cl. 5.1.2(b) needs to be classified as a civil penalty in order to prevent 'avoidance' behaviour.

Process timelines

There are a range of concerns outlined below in relation to the Commission's proposed timeline. When proposing this new process it is of fundamental importance that the additional bureaucracy created by hard and fast timeframes does not jeopardise the capacity for connection applicants to make efficient decisions on their investments. It is of the upmost importance that optionality is included to ensure that the connection applicant can address risk and costs accordingly, as they are carrying all of the both of these matters, while DNSP's are not. A new subparagraph (13) should be added to rule 5.2.3(d) to require that DNSPs must provide information in response to any reasonable request in a reasonable timeframe.

With regards to the connection offer stage a firm 20 day timeline for acceptance is not appropriate. As NSPs are risk-averse an offer to connect will generally contain extremely one-sided terms. The connection applicant must have sufficient time to appreciate the commercial impact of these terms. The CEC suggests that any request for extension of this timeframe be generally met, unless extenuating circumstances apply. A maximum period of 6 months could then be applied. Draft cl. 5.3.6(b4) can be updated to achieve this.

Availability of up-front information

The CEC supports the Commission's intent for the publication of up-front information in the proposed 'information pack'. However, the Commission has not considered the extent to which this will be useful to larger, registered, embedded generators. This will need to be clarified for the benefit of the DNSPs who are preparing the information pack.

Draft cl. 5.3A.3(b)(5) should be updated to ensure that where DNSPs publish model connection offers these should be accompanied with an indication of which aspects of the offer are generally flexible in negotiations.

Enquiry stage – availability of detailed technical information

The proposed preliminary enquiry stage appears to be aimed at providing general, high level information to the enquirer. However, the preliminary enquiry also includes technical information specifically related to the proposed connection point and the application to connect as specified in draft cl. S5.4A(a) while the DNSP is also to provide any other *additional* technical information it holds as it relates to the *enquiry* itself (draft cl. S5.4A(b)).

The enquirer is also able to include a list of technical information which it reasonably requires from the DNSP in relation to its *application to connect* (draft cl. 5.3A.5(c)(3)), which *might* be sufficient for the enquirer to request any relevant detailed technical information in addition to that outlined in draft cl. S5.4A(a).

A connection applicant must be provided with the opportunity to assess the commercial significance of the *distribution network user access* arrangements sought. Currently DNSPs will provide detailed technical information for this purpose, indicating that limiting the opportunity for the applicant or enquirer to request this information is unlikely to support efficient connection practices.

Draft cl. S5.4A(b) must be clear that any information needed to prepare an *application to connect* would be provided if reasonably requested by the enquirer.

Similarly, the detailed enquiry stage must be framed appropriately to ensure complete provision of detailed technical information to fully assess the *distribution network user access* arrangements sought (discussed further below). A defined maximum time period of 20 days should be applied to the provision of this information. The CEC suggests that a new draft cl. 5.3A(8)(i) be included to address this.

Preliminary enquiry stage

Currently clause 5.3.6(e) enables the offer to connect to include options for connection at more than one point. This information would likely be more useful in the enquiry process which should provide appropriate optionality at the early stages of the project, rather than in the connection offer. Thus this detail needs to be brought into the *connection enquiry* response (S5.4A) in order for connection applicants to be able to make informed investment decisions on an efficient connection point location²⁵.

The proposed validity period of 3 months for the preliminary enquiry response is insufficient to allow the enquirer to carry out network studies and make commercial decisions regarding concepts. When defining timelines such as this it is critical to recognise that there is no material risk placed on DNSPs from the connection applicant using outdated information. A DNSP will simply make an offer to connect that it is comfortable with, that is an offer which meets its risk appetite. As the *connection applicant* carries all of the risk of the DNSP rejecting an application based on outdated information a stringent validity period is inappropriate.

A more appropriate measure would be to require that the enquirer confirm to the DNSP, at three month intervals, that the enquiry is still active and that the applicant intends to follow through with the project. The connection applicant should be responsible for requesting an update to any information provided as reasonably expected by their assessment timeframe. Draft cl. 5.3A.7(b) could be amended to achieve this.

The preliminary response could also be improved by including the following minor changes to the technical information outlined in draft cl. S5.4A(a):

- ‘Fault levels and fault clearance’ should reference existing maximum and minimum fault levels and clearances relevant to local substations. Assessment of fault levels at the connection point will require work in addition to that expected to prepare a preliminary response. Referencing fault levels and clearance information to local substations would be more appropriate as this information is known as a parameter considered within the DNSPs planning processes and asset database.
- Protection specifications, insulation coordination and lightning protection requirements should include the relevant philosophies to describe their objectives. This will provide the enquirer with a complete understanding of the DNSP’s need for them, and enhance the transparency of the DNSP’s decision making process.
- ‘Switching and isolation facilities’ should include all *interface* equipment requirements at the point of connection.
- The response should also include relevant voltage and frequency limits in a new subparagraph (11).

²⁵ A similar arrangement was proposed in Transmission Frameworks Review Final Report Recommendation 3, p. 163. The reasoning behind this is clearly outlined on page 166-7 of the Final Report.

Detailed enquiry stage – reinforcing contestability frameworks

The detailed enquiry stage should reinforce the obligation on DNSPs to advise the connection applicant on which aspects of the connection are likely to be contestable in the relevant jurisdiction. While this is included in the preliminary enquiry response, contestability arrangements require DNSPs to be completely transparent with this option. A new clause should be added to the detailed response in order to outline which aspects of the connection charges are contestable.

Detailed enquiry stage - 'Agreed Project' framework

While there may be benefits to an agreed project framework as for some generation projects, the premise that the framework would incentivise the DNSP to be clear on requirements and thorough on their analysis²⁶ is unrealistic. Other than the connection enquiry and application fees there is no other incentive as there is no impact on the DNSP if an 'agreed project' is not reached. The DNSP will simply make an offer to connect which it is comfortable with. As demonstrated in the TFR even the most sophisticated connection applicants hold no countervailing market power.

By applying a 30 day timeline to the detailed response it is much more likely that such a proposal from a DNSP will require the generator to meet very onerous requirements. As the DNSP has been unable to undertake sufficient analysis to determine *efficient* requirements within this stringent timeframe. This will be less an 'agreed project' and more the DNSP's proposed *automatic access* arrangement, subsequently placing very high costs on the connecting party.

Connection applicants are always incentivised to provide clear information to the DNSP, if they wish to connect with reasonable arrangements. However, the 30 day timeframe is not sufficient for the connection applicant to consider the implications of the DNSPs proposals, should they appear onerous, and propose alternative arrangements prior to settling on an 'agreed project'.

As a result of these issues the connection applicant will remain unable to make tailoring changes to their project to enhance the efficiency of the connection arrangements, making an efficient 'agreed project' very difficult to achieve in practice.

Treatment of agreed projects in the application stage

Despite the above concerns, as drafted the rule premises the lodgement of connection applications on the DNSP and applicant agreeing to the 'agreed project' prior to lodging. The DNSP is able to reject any application which has not conformed to its 'agreed project'. This framework is currently unworkable. It is essential that the connection process focus on allowing the connection applicant to assess options to derive what they consider to be an efficient outcome, while meeting the relevant technical requirements for connection.

As the connection applicant will carry all of the risk and costs associated with the connection the process must facilitate efficient decision making processes by the applicant. While having an 'agreed project' may work for some projects, which wish to prioritise a fast-tracked connection, it is essential that non-agreed projects are not discriminated against in the application process.

²⁶ AEMC 2013, *Connecting Embedded Generators, Rule Determination*, 27 June 2013, Sydney, p. 36.

In order to achieve this the CEC suggests that a new subparagraph (3) is inserted into draft cl. 5.3A.9(b) allowing the applicant to submit an application to connect for a non-agreed project. In this case the offer can simply be made within a timeframe as agreed, up to the maximum of 4 months²⁷. This would also require draft cl. 5.3.6(a)(3) to reference the new subparagraph (3).

Detailed enquiry stage – influence of validity period on efficient connections

The proposed application process is based on DNSPs advising connection applicants of the requirements for an agreed project, which the applicant would then agree to prior to lodging a connection application. The detailed enquiry response, including the agreed project remains valid for a period of 30 days.

This arrangement imposes a significant risk for connection applicants as the commercial implications of the detailed response cannot be fully understood and agreed in this time period. This would be further compounded in jurisdictions which allow contestable delivery of parts of the connection, as the relevant tenders and contracts would be rushed to completion within the 30 day period. The alternative potentially requires the detailed enquiry stage to be repeated (at the DNSPs discretion) leading to a further enquiry fee.

As a result the imposition of a 30 day validity period is unlikely to result in efficient investment. The CEC also notes that, while the validity period can be extended under agreement²⁸, DNSPs are in fact incentivised to reject an extension as they receive additional fees from the applicant (at minimal cost) if a new enquiry is required.

In the recognition that the connection applicant is carrying all risk, a more effective framework would extend the validity period defined in draft cl. 5.3A.8(g) to 6 months. In addition it would require the DNSP to notify the holder of a valid detailed response if it receives a separate application to connect which may impact the distribution network user access arrangements agreed for the initial agreed project. The DNSP should then consider the concurrent connection of the two projects, if they both wish to proceed. The CEC suggests adding a new draft cl. 5.3A.8(j) to ensure that concurrent connection applications are reasonably considered.

Connection application process – rejection of a non-agreed project

In cases where the connection application proposes variations which are “*materially different*”²⁹ to the agreed project, the DNSP can reject the application and require that a new connection enquiry be submitted.

The CEC understands that the principle of good faith should encourage the DNSP’s response to be reasonable. Additionally, the Draft Rule also allows for the connection applicant to seek independent expert appraisal under clause 5.3A.11 where they believe that the DNSP has unreasonably rejected an application.

Despite these protections the scope of what “*materially different*” applies to must be limited. In practice the DNSP’s concern is with the impact of the generator’s distribution network user access

²⁷ Note that although this appears to be the intent in the Commission’s Draft Determination, it is not evident in the Draft Rule.

²⁸ Draft cl. 5.3A.8(g).

²⁹ Draft cl. 5.3A.9(d).

arrangements on other network users (discussed below). On this basis “materially different” must be restricted to only include those parts of an agreed project which have a material impact on the *distribution network user access* arrangements sought by the initial agreed project in draft cl. 5.3A.9(d)

The option to invoke the independent expert’s assessment should also be more clearly stated within draft cl. 5.3A.9(d). As “materially different” is undefined and creates scope for subjective rejection by the DNSP this option must be clearly stated within the relevant clause under which the DNSP would reject an application.

3.2 Technical requirements for connection

As previously noted by the Commission DNSPs have strong incentives to maintain their networks and weak incentives to connect generation efficiently³⁰. These incentives diminish even further where a DNSP can derive revenue from a connection. As a result the approach to the technical aspects of connections *must* focus on consideration of connection options, and enable the development of innovative and integrated connection solutions which meet all necessary technical standards.

Given the weight of incentives on DNSPs it is unreasonable to assume that efficient decisions will result from allowing DNSPs to determine the technical aspects of the connection in isolation. That is, without complete transparency and the opportunity for connection applicants to fully understand, and agree to all technical requirements related to the connection.

Assessment of technical requirements

The NER currently obligates a DNSP to provide all relevant technical data to “*fully assess the commercial significance*” the *network’s power transfer capability*³¹ to a connection applicant. However, this framework is not clear in the Draft Rule. It appears that the Commission has premised the new framework on the basis that the DNSP determines all technical requirements, down to the *DNSP deriving negotiated access standards* for the connection applicant in the detailed response (draft cl. 5.3.6(b2)(2), S5.4A(d) and S5.4B(b)).

Draft cl. S5.4A(d) requests that the DNSP outlines “*whether negotiated access standards may be required*” in the preliminary enquiry response. Then in the detailed enquiry response draft cl. S5.4B(b) then states

“for each technical requirement where the proposed arrangement will not meet the:

(1) *automatic access standards*; or

(2) *minimum access standards*,

nominated by the *Distribution Network Service Provider* pursuant to S5.4A(c), the *Distribution Network Service Provider* must propose a *negotiated access standard* for each such requirement to be determined in accordance with clause 5.3.4A”

³⁰ AEMC 2011, *Inclusion of Embedded Generation Research into Demand Management Incentive Scheme, Rule Determination*, 22 December 2011, Sydney, available: www.aemc.gov.au.

³¹ NER cl. 5.5(c)(2), noting the definition of *distribution network user access*.

There are two fundamental flaws with this proposed arrangement. Firstly, the Draft Rule implies that it is not necessary to meet the *minimum access standard*. Secondly, and assuming that the first point is an error, it implies that if the proponent cannot meet the *automatic access standard* the DNSP will propose the relevant *negotiated access standard*. The Draft Rule effectively contravenes the framework for negotiation of access standards in the referenced cl. 5.3.4A, thus making that rule and the current negotiation arrangements effectively obsolete.

The current rule 5.3.4A applies a “propose-negotiate-agree/reject-propose” arrangement which clearly allows the connection applicant to propose negotiated access standards which it believes it can reasonably comply with. This framework addresses the NEO by assuming that the proponent’s proposed performance level leads to efficient outcomes where technical performance is acceptable. Where the DNSP requires a higher performance level above a proposed negotiated standard it must advise so, along with the performance level it will accept. The NER then expects that the applicant is able to fully understand the impact of, and need for the DNSP’s proposed negotiated standard.

The Commission’s recent consultation processes have revealed in detail how even the most sophisticated *connection applicants* hold no countervailing market power in negotiations. The Draft Rule would provide an opportunity for DNSPs to simply specify performance at a negotiated standard, without fully justifying it, or providing the opportunity to understand its need or impact. The DNSP could simply request that the connection applicant fund augmentation to the shared network to meet excessively high levels of technical performance³² which will lead to increased cost and risks for connection applicants.

Compounding this issue is the fact that each DNSP has a different capability to address generator connections at an appropriate technical level. Many DNSPs do not undertake connection studies and expect the connecting party to perform them, further reducing the likelihood of efficient connection.

Thus, as the Draft Rule unreasonably contravenes the NER frameworks it will be unlikely to advance the NEO and or meet the needs of *all* connection applicants as suggested by the Commission³³. It certainly is extremely unlikely to meet the rule proponent’s objectives of efficient connection costs.

If the Commission intends to propose a new framework – one which removes the capacity for connection applicants to determine, propose and negotiate negotiated access standards, allows the DNSP to determine *all* of the technical requirements and expects the applicant to simply accept the DNSP’s decisions – it must justify this against market objectives. This justification has not been provided within the Commission’s Draft Determination and the above analysis indicates that it will be incompatible with the rule making test as risk is not allocated appropriately and inefficient costs will result.

Rectifying this will require draft clauses 5.3.6(b2)(2), S5.4A(d) and S5.4B(b) to be realigned with the current intent of the NER and cl. 5.3.4A.

³² See comments on dispute resolution also.

³³ AEMC 2013, *Connecting Embedded Generators, Rule Determination*, 27 June 2013, Sydney, p. iii.

DNSP publication of a register of generating plant that meets its minimum access standards³⁴ and the development of 'nationally' consistent technical standards³⁵

The CEC notes the Commission's focus in relation to technical matters is on 'mid-scale' embedded generation. That is, generation which complies with AEMO's standing exemption from registration. As a result it is unclear how the Commission has justified that changes to the way in which larger generators assess technical matters for a connection are appropriate, or whether the proposed register is compatible with these generators.

Despite the above the CEC agrees that it is not the role of the Commission to develop technical standards for the connection of 'mid-scale' embedded generation.

The Commission's assessment³⁶ of the 'equipment requirements' and 'network connection requirements' is an incomplete assessment and appears to simplify the needs of a connection to the specification of plant and equipment. There are in fact three fundamental aspects to a connection:

1. ***Generator*** including the generating system (prime mover, inverters, PV modules, wind turbines) and associated ancillary equipment.
2. ***Interface equipment*** including protection, communications and remote control equipment located at the point of connection, and the associated settings.
3. ***Generator performance*** including the way in which the generator behaves, and interacts with the network under different network conditions.

The NER only need to focus on the latter two of these because these are the factors which impact on the network and other network users. In practice it is generally these *two* aspects which require attention in the connection process as they create the greatest challenges and costs associated with connection. Yet, the interaction of the generator with the surrounding network has been overlooked entirely in the Commission's assessment, which appears to explain two types of *interface equipment* ('elements').

The CEC also notes the Commission's intent to develop a rule change which addresses the technology neutrality principle of the NER³⁷. On this basis it is not clear a justification can be made for detailed consideration of the *generator* within the NER at all. As it's only the latter two aspects which impact on the *network* and other *network users*, the DNSP's focus should then be restricted to the interface equipment and generator performance³⁸.

The CEC believes that the introduction of a register of generating plant, whether it obliges a connection applicant to adhere to it or not, could jeopardise the NER's technology neutrality principle if it includes *all* generating plant. Yet, as noted above it is not clear from the NER that a DNSP should have any interest in the *types of generators* connected to their network – their mandate is to protect *network* conditions in the interest of all *network users*. The proposed register may also be used as a justification by a DNSP to reinforce excessive technical requirements once one party has connected under them.

³⁴ Ibid, p. 60.

³⁵ Ibid, p-p. 54-60.

³⁶ Ibid, p-p. 55-57.

³⁷ NER cl. 3.1.4(3).

³⁸ The CEC also notes that the AS4777 compliant inverter list cited by the Commission also only relates to interface equipment and performance on the network.

It is therefore not clear that there is a benefit, or demonstrated need, for a DNSP to include anything other than interface equipment in the proposed register. The CEC also queries why such a register would not be updated as part of a DNSP's annual planning process.

If the Commission proceeds with this as part of the final determination the CEC suggests that the register should be updated annually and must be strictly limited to include interface equipment which the DNSP requires in order to meet the non-negotiable matters of safety, reliability and quality. A DNSP's interests in generating plant beyond the interface equipment should be restricted by the rules if the Commission seeks a technology neutral outcome. Draft cl. 5.4.5 and 5.4.5(c) should be refined to ensure this occurs.

NER to contain high level detail on technical network access requirements

Network studies address generator performance and are an integral component of any generator connection. As already indicated in this submission the NER needs to provide the opportunity for connection applicants to fully assess the commercial significance of a connection. It is not only the DNSP which undertakes network studies. The NER already implies that connection applicants need to be provided with the relevant information to do so. This new rule must remain consistent.

The Commission clearly states that *“greater transparency in the connection process and certainty to connection applicants on the specific technical requirements will lead to efficient investment in embedded generation for the long term interest of end consumers”*. Yet, if the NER does not stipulate that the proponent is to be provided with an opportunity to understand the implications of these technical requirements on a specific project they will be unable to make efficient investment decisions. The Commission's statements can only be supported by complete information transparency, and the NER must include measures to ensure that this is reasonably provided.

As discussed previously there is a growing need to ensure that the connection of generation which is eligible for AEMO's standing exemption is compatible with system security conditions. The NER should ensure that minimum standards are applied in accordance with AEMO's minimum requirements, while enabling flexibility of performance above this minimum level. The preliminary response should ensure that this is clear in draft cl. S5.4A(c).

Independent engineering expert appraisal for technical disputes

The CEC understands that the appointment of an independent expert is intended to be a dispute resolution mechanism and not to be used regularly to address technical challenges.

The Commission's framework assumes that the DNSP is determining all technical requirements within a compressed timeframe. As the background data and detailed technical information is not specified to be made available to the *connection applicant* it has no reasonable way of determining if a technical requirement is excessive or not.

This option will remain ineffective while the information transparency, timing and technical assessment issues noted above remain unresolved. Connection applicants would be unable to make a clear judgement on whether they should enter into the dispute process or not. In addition the compressed timeframe implies that it is already unlikely that decisions will be well informed.

The CEC does not see the merit in allowing the DNSP to invoke the independent expert at all. In practice only the connection applicant is exposed to the DNSP's connection offer terms, which will only include terms which the DNSP is content do not impose undue risk on it. As a result the dispute resolution process triggered by draft cl. 5.9A.1(a) should only apply to connection applicants as only they are exposed to undue risk.

It is highly likely that any costs imposed on a DNSP by this process will be recovered through the offer to connect in a concealed manner, effectively making the Commission's intent for this inclusion ineffective. Thus, the NER must be clear that this cost cannot be charged back to the connection applicant in draft cl. 5.9A.8 in order to ensure the Commission's intent to apply reasonable pressure on a DNSP is achieved.

Defining which aspects of a proposed connection arrangement are open to dispute will be limiting. The CEC suggests that draft cl. 5.9A.1(a) be less specific and apply to any aspect of technical design, plant specifications, interface equipment, network extension or augmentation, connection assets, distribution network user access arrangements or any other technical or financial matter.

As draft cl. 5.9A.4(d)(1) expects that the expert will be providing an estimate of their costs after being appointed the dispute resolution process is unlikely to come at an efficient cost. The Commission has provided no explanation for this proposal but should consider that there is a need to understand the costs of this process prior to entering into it officially. Dispute resolution is unlikely to be applied to challenge incremental costs if this remains. There will be a disincentive to take up the dispute process and an incentive on DNSPs to incrementally increase technical standards above efficient levels.

The CEC also notes that the independent expert concept was created within the Transmission Frameworks Review final recommendations. This included using the AER to determine the appointment of a technical expert from a panel, and making that expert's judgement final in any AER dispute processes³⁹. The rule changes subsequent to that review are not yet initiated and the Commission needs to consider how they would interact with similar proposals in this Draft Rule.

Automatic right to export

The CEC agrees with the Commission's determination that the right to export already exists. However, the Commission should be aware that there have been increasing instances of DNSPs simply refusing the generator the option to export, without providing a clear technical justification.

The NER *must* specify that a technical justification is required to support any access standard proposed by a DNSP as part of an agreed project, or an offer to connect.

3.3 Connection charges and the cost of network augmentation

The CEC agrees with the Commission that the current framework for connection requires that a generator pays all associated connection costs. In addition, connection offer terms will pass all associated risk to the connection applicant. As a result there are inherent risks associated with a connection which must be managed with complete transparency.

³⁹ AEMC 2013, *Transmission Frameworks Review*, Final Report, 11 April 2013, Sydney, p. 167.

The following topics address the Commission's assessment in light of the above.

Enquiry and application fees

The CEC agrees with the Commission's assessment of DNSPs' option to charge an enquiry fee⁴⁰. However, in recognising that each connection is different, and that DNSPs' management of connections, and associated costs can vary there is a need to ensure that the 'behind the scenes' work undertaken by a DNSP are transparent. As a result, and in addition to the publication of component costs for the enquiry fee, DNSPs must be required to provide a reasonable report of time and expenses to the connection applicant at end-of-month intervals while processing any service funded by a connection applicant.

Without this 'feedback' there is no opportunity to ensure that DNSPs are providing services at efficient costs, which the NER's connection frameworks are supposed to support. The CEC suggests that draft cl. 5.3A.10 is updated to include this requirement.

Itemised statement of costs

While the CEC agrees that it is reasonable to require the DNSP to provide an itemised statement of connection charges within an offer to connect, connection applicants must be able to make informed decisions well before receiving an offer to connect. Concerns about the 'flexibility of DNSP offerings'⁴¹ are unjustified and can be resolved by ensuring the rule wording is not restrictive, while capturing those charges usually expected to be required.

Embedded generation projects are typically extremely price sensitive and network augmentation costs will be 'showstoppers' in many cases. As a result the connect cost *estimates* provided within the detailed response must be as complete as possible. In addition the offer to connect must include *final* costs along with a justification for any deviation from any estimate already provided to the applicant.

The CEC expects that the following level of detail should be made available in both the detailed response and the offer to connect (draft cl. 5.4B(f) and 5.3.6(b2)(2)). In addition any estimate should include written justification for any deviation from the former.

- A scope of work required to facilitate the connection;
- A statement of the basis on which charges were calculated;
- A connection cost component breakdown including:
 - *Connection service* costs including
 - *network augmentation* and/or *network extension* costs;
 - *connection asset* cost, where provided by the DNSP;
 - metering equipment costs;
 - Interface equipment costs;
 - any other incidental costs, and a basis of their calculation;

⁴⁰ AEMC 2013, *Connecting Embedded Generators, Rule Determination*, 27 June 2013, Sydney, p. 79.

⁴¹ *Ibid*, p. 85.

- A detailed description of any ongoing operation and maintenance costs and charges, and the associated schedule of works.

Contestable aspects of a connection - use of terms

During the course of the Commission's TFR the CEC made significant effort to outline to the Commission the appropriate use of terms as outlined in the National Electricity Law and the NER. In essence this work was needed to ensure that changes to the NER were based on the correct interpretation of definitions. It is disappointing to now note that an interpretation that is at odds with the NEL is being applied within this draft determination.

The CEC refers the Commission to the CEC's submissions to the TFR Second Interim Report⁴² and attached legal advice⁴³ as outlined previously in Section 2.4 of this submission. One example of this ambiguity is seen in the following quote from page 81 of the draft determination on regards to shallow augmentation:

"This augmentation covers the extension assets between the generating plant and the point of connection to the distribution network and the connection assets required on the distribution network to provide connection services to the embedded generator."

A *distribution system* consists of the sum of the *connection assets* and *network* – that is the NER and NEL only contemplate two types of *system asset*. A *connection point* is strictly the interface between these two assets and *generating plant connects to connection points via connection assets*, not *extension assets*. An *extension* is strictly an *extension of the network* owned operated and controlled by the DNSP for the purpose of supplying *network users' connection points*, it cannot exist on the *generator side of a connection point* (as implied above). Similarly, *connection assets* cannot exist on the *distribution network* (as implied above) – they are strictly located on the *network user's side of the connection point* and are that part of the *distribution system* which is dedicated to that particular *network user*.

The NER currently allows any party to own, control and operate *connection assets* – they are already fully contestable⁴⁴. There is no economic rationale for restricting this to an NSP⁴⁵ because *connection assets* have no direct relationship to a NSP's obligation to supply other *network users*. All risk associated with the efficient delivery of a *connection asset* is carried by the relevant connecting party.

First mover disadvantage

While the Commission's interpretation of the NER with regards to cost sharing for subsequent 'movers' is accurate. This does not adequately address whether the NER's intended resolution is workable.

⁴² <http://www.aemc.gov.au/Media/docs/Clean-Energy-Council---121025>

⁴³ <http://www.aemc.gov.au/Media/docs/Clean-Energy-Council---121025---Att>

⁴⁴ NER cl. 5.5(e).

⁴⁵ Note the rationale applied in the TFR is not based on economic regulation. It is based on perceived efficiency gains from third party access at a later date.

The Commission cites the example of Citipower’s application for funding to address fault level issues in Melbourne⁴⁶, however the AER’s dismissive response also noted by the Commission would indicate that the current framework to address the appropriate funding arrangements is inadequate.

This matter requires significantly more effort to resolve. At a minimum the Commission should consider whether the NER obligations for cost sharing are, or have ever been carried through to connection agreements. Further work should also investigate more appropriate funding arrangements.

⁴⁶ AEMC 2013, *Connecting Embedded Generators, Rule Determination*, 27 June 2013, Sydney, p. 54.

4 Detailed responses to the Draft Rule

In light of the above discussion the CEC proposes the following changes to the wording in the Draft Rule. To prevent ambiguity the CEC is proposing that the Draft Rule be placed in Chapter 5A and:

- 1) That Chapter 5A be clearly defined to apply to generation which is eligible for AEMO's standing exemption from registration.
- 2) That Chapter 5 be adjusted to clearly apply to any generation which must apply for registration with AEMO, even if it is eligible for a provisional exemption from registration.

Regardless of the way in which the Commission proceeds with the Draft Rule the proposed changes should be considered on the basis that that the Draft Rule would more efficiently conform to the rule making test following these changes, as described above.

Draft Clause	Issue	Proposed Solution
5.1.2(b)	Selection of Process: while the draft rule remains in Chapter 5 there is no obligation on DNSP to accept the applicant's request and ambiguity created between Chapters 5 and 5A.	Apply civil penalties to this clause if the Draft Rule remains in Chapter 5.
5.2.3(d)(13)	Process Timeline: new subparagraph to ensure that connection applicants can access reasonable levels of information from an NSP.	New subparagraph requiring that an NSP respond to any reasonable information request within a reasonable timeframe of 20 days.
5.3.6(a)	Minor: referencing error.	Parts (1) and (2) should reference 5.3A.9...
5.3.6(a)(3)	Non-agreed projects: this clause to be updated to reference suggested new option for connection applicant to lodge an application for a non-agreed project.	Update clause to reference proposed new subclause 5.3A.9(b)(3).
5.3.6(b2)(1)	Cost breakdown: costs provided in the offer to connect are to reflect costs already disclosed in the detailed response and to be reasonably complete to allow the applicant to fully assess the commercial significance of the offer.	Clause to include costs and accompanying material, including: <ul style="list-style-type: none"> • A scope of work required to facilitate the connection; • A statement of the basis on which charges were calculated; • A connection cost component breakdown including: <ul style="list-style-type: none"> ○ <i>Connection service</i> costs including <ul style="list-style-type: none"> - <i>network augmentation</i> and/or <i>network extension</i> costs; - <i>connection asset</i> cost, where provided by the DNSP;

		<ul style="list-style-type: none"> ○ metering equipment costs; ○ Interface equipment costs; ○ any other incidental costs, and a basis of their calculation; ● A detailed description of any ongoing operation and maintenance costs and charges, and the associated schedule of works, and; ● A justification for any deviation from cost estimates previously provided.
5.3.6(b4)	Offer validity period: connection applicants need sufficient time to fully assess the commercial significance of offer terms.	Edit clause to ensure that a reasonable request to extend the 20 day timeframe is met, unless extenuating circumstances apply, with a maximum extension of 6 months.
5.3.6(b2)(2)	Contravenes current rules: referenced clause S5.4B(b) has removed the capacity to negotiate access standards and made cl. 5.3.4A mostly obsolete.	Rectify issue in S5.4B(b) and reinstate negotiating framework defined in cl. 5.3.4A.
5.3A.3(b)(5)	Up-front information: the publication of model connection offers should be accompanied with an indication of which aspects of the offer a generally flexible in negotiations.	Expand clause wording to include this amendment.
5.3A.4(a)	Clarification: references to application to connect, at the detailed enquiry stage.	Clarify parts (1) and (2) to apply to a detailed enquiry rather than application.
5.3A.4(a)(2)	Clarification: inclusion of AEMO fees at the enquiry stage.	Move to part (c).
5.3A.5(b)	Clarification: “where relevant” should be clarified to be consistent with cl. 5.3A.4(b).	Replace with “where the connection applicant has requested a detailed enquiry response”.
5.3A.5(c)(3)	Clarification: expand clause to clarify the intent for the information request in accordance with current cl. 5.5(c).	Include in this clause that the information requested is done so to enable the applicant to fully assess the commercial significance of the <i>distribution network user access</i> arrangements sought.
5.3A.7(a)	Clarification: references to parts of S5.4A unnecessary.	Reference to entire schedule S5.4A.
5.3A.7(b)	Preliminary enquiry response: validity period insufficient to fully assess the network conditions and enable the proponent to make appropriate tailoring changes to derive efficient costs. No risk on DNSP from applicant working with outdated data.	Amend to remove 3 month period and state that the enquirer must confirm at 3 month intervals that the enquiry is still valid and they are planning to proceed with the project. The connection applicant should be responsible for ensuring that information it is relying on is valid at the time an application to connect is submitted.
5.3A.8(d)	Clarification: incorrect reference to clause 5.3A.7.	Correct error.
5.3A.8(f)	Clarification: unclear why clause	Clarify.

	S5.4B(i) is omitted in reference.	
5.3A.8(g)	<p>Detailed response validity period: 30 days is inadequate to enable connection applicants to make efficient decisions on their investment.</p> <p>No risk on DNSP from extending – all risk on applicant from compressed timeline.</p>	Propose that the timeline be extended to 6 months.
5.3A.8(i)	<p>Availability of technical information: insert new clause intended to allow reasonable assessment of connection requirements .</p>	New clause to promote transparency in connection process and reasonably allow a connection applicant to fully assess the commercial significance of the <i>distribution network user access</i> arrangements sought within 20 days of a request.
5.3A.8(j)	<p>Detailed response validity period: insert new clause intended to promote transparency in connection process and allow the holder of a valid detailed enquiry response to fully assess the commercial significance of the <i>distribution network user access</i> arrangements sought.</p>	New clause requiring that a DNSP notify the holder of a valid detailed response if another application to connect has been lodged which may impact on <i>distribution network user access</i> arrangements sought by the initial inquirer.
5.3A.9(b)(2)	<p>Clarification: error in defined terms “<i>connection negotiated access standards</i>” and ambiguous.</p>	Clarify bracketed text: “including <u>the connection applicant’s</u> proposed connection-negotiated access standards ”
5.3A.9(b)(3)	<p>Non-agreed projects: the ‘agreed project’ framework is unreasonably applied to all connections. As it does not support efficient decision making about applicants’ investments it will likely result in inefficient connection practices. An alternative must be in place for connections which do not wish to fast-track the connection.</p>	New subparagraph (3) allowing a connection applicant to lodge an application for a non-agreed project. Note suggested amendment to draft cl. 5.3.6(a)(3) to reference this subparagraph.
5.3A.9(d)	<p>Rejection of non-agreed project application: “materially different” undefined and allows significant scope for subjective rejection of an application.</p>	This clause must reference only those changed parts of the ‘agreed project’ which have a material impact on the <i>distribution network user access</i> arrangements initially considered by the detailed response.
5.3A.9(d)	<p>Rejection of non-agreed project application: Ensure that clause clearly states that any rejection is open to dispute resolution.</p>	Insert new part under (2) which states that any request to lodge a new enquiry is open to dispute resolution through cl. 5.3A.11, and that this process would place the application to connect on hold until the dispute is resolved.
5.3A.10	<p>Efficient service delivery by DNSPs: Monthly reporting of DNSP expenditure required to enhance transparency.</p>	DNSP reporting of expenditure to include monthly reporting arrangement for DNSP to prepare an offer to connect.
5.4.5	<p>Plant register: register of ‘compliant equipment’ should be limited to connection interface equipment in</p>	Update clause (a) to ensure that <i>only</i> interface equipment is noted within the register.

	order to ensure the rule’s application remains technology neutral.	
5.4.5(c)	Plant register: register should be updated within in accordance with planning reporting timeframes, not biannually.	Link timing for register to annual planning reporting timelines.
5.9A.1(a)	Dispute resolution: the breakdown of technical matters in (1)-(13) is unnecessarily limiting.	Reduce to “...any: aspect of technical design, plant specifications, interface equipment, <i>network extension or augmentation, connection assets, distribution network user access</i> arrangements or any other technical or financial matter.
5.9A.1(a)	Dispute resolution: remove the capacity for DNSP triggered dispute resolution. Only connection applicants need to pursue resolution because a DNSP will simply make an offer to connect which they are content will meet their terms, which will determine the DNSP’s risk exposure.	Delete Distribution Network Service Provider as only the connection applicant should be the initiating party.
5.9A.4(d)(1)	Dispute resolution: the estimate must be provided prior to appointment.	Amend and relocate to draft cl. 5.9A.3.
5.9A.8	Dispute resolution costs: the NER needs to clearly state that these costs cannot be passed back to connection applicant.	Need to state that there are no circumstances in which this cost can be passed through to the connection applicant. New civil penalty would be reasonable.
S5.4A	Preliminary enquiry response: needs to ensure that connection optionality is brought into the start of the connection process.	Insert new clause similar to existing cl. 5.3.6(e) to obligate DNSP to include connection point options if applicable.
S5.4A(a)(3)	Preliminary enquiry response: enhanced information provisions.	Include protection philosophies.
S5.4A(a)(6)		Include protection philosophies.
S5.4A(a)(7)		Reference should be to fault levels and fault clearances at local substations.
S5.4A(a)(8)		Include all interface requirements at the point of connection.
S5.4A(a)(11)		Include voltage and frequency limits.
S5.4A(b)	Availability of technical information: Clause is inconsistent with NER treatment of information and draft cl. 5.3A.5(c)(3).	Align with updated cl. 5.3A.5(c)(3) to reference technical information reasonably required to prepare an <i>application to connect</i> .
S5.4A(c)	Performance standards: the preliminary response should ensure that proposed access standards do not impact system security.	A new note should be added to this clause stating that the DNSP’s proposed access standards are adequate to meet AEMO’s minimum requirements for system security.
S5.4A(d)	Contravenes current rules: DNSP advising the applicant of which <i>negotiated access standards</i> may be required is inconsistent with NER	Realign this clause with the original cl. 5.3.3(b1) it was derived from. Reinstate civil penalties.

	frameworks.	
S5.4A(i)	Clarification: limiting information to system limitations for sub-transmission lines is of limited benefit, as it is more likely to be other assets which have an impact.	Clause should reference system limitations for “ <i>distribution network assets</i> ”, rather than sub-transmission lines.
S5.4A(i)	Clarification: suggestion.	Insert: <u>an indication of whether...</u>
S5.4A(k)	Clarification: suggestion.	Hyperlink – remove and replace with “details of the location of the information pack”.
S5.4A(r)	Fees: the NER needs to outline a monthly reporting arrangement for DNSP expenditure to prepare an detailed response.	DNSP reporting of expenditure on a monthly basis to be included in this clause.
S5.4B(b)	Contravenes current rules: negotiating framework has been made obsolete by this draft clause and removed civil penalties applied to copied cl. 5.3.3(b1).	Make consistent with cl. 5.3.4A and NER framework for development of <i>negotiated access standards</i> , and civil penalties applied to cl. 5.3.3(b1) to be reinstated. Remove error stating that <i>minimum access standards</i> are not required. Require that the DNSP provide technical justification for any proposed access standard.
5.4B(d)	Clarification: unclear why wording differs from cl. 5.3.6(d).	Realign with cl. 5.3.6(d).
5.4B(f)	Cost breakdown: align costs with the suggested changes to 5.3.6(b2)(1).	Ensure consistent breakdowns of costs in enquiry responses and offer.
5.4B(g)	Cost breakdown: include a description of any deviation from cost estimates previously provided.	Insert additional text to include a description of any deviation from cost estimates previously provided.
5.4B(l)	Reinforcing contestability: insert reference to access to contestable processes relevant to the jurisdiction, and the rules.	Insert new clause (l) to specify which aspects of the connection are contestable as relevant to the jurisdiction.