

Network Policy Working Group

National Connections Framework
for Electricity Distribution
Networks

Final Report

Micro embedded generation

Minimum content requirement for connection agreements

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National Connections Framework for Electricity Distribution Networks

1. Introduction

1.1 Purpose

The purpose of this paper is to provide recommendations on a number of discrete issues arising from the work being undertaken by the Ministerial Council on Energy (**MCE**) Network Policy Working Group (**NPWG**) in relation to the National Framework for Regulation of Connection to Electricity Distribution Networks.

The issues addressed by this paper are:

- (a) the appropriate definition of 'micro embedded generators' for the purpose of the proposed regulatory framework, and the approach to be taken in relation to the technical requirements for micro embedded generators;
- (b) the minimum content of standard and negotiated connection agreements for connection to electricity distribution networks, including both load and embedded generation contracts, and the coverage of the necessary content within chapter 5 of the National Electricity Rules (**NER**).

We previously released a draft of this paper in February 2009, which has been the subject of stakeholder consultation. This paper presents our final recommendations on the issues set out above.

1.2 Background

This work arises from the MCE Standing Committee of Officials Policy Response on Electricity Distribution Network Planning and Connection dated 15 December 2008 (**SCO Policy Response**), which responds to a report prepared by NERA Economic Consulting (**NERA**) and Allen Consulting Group (**ACG**) on National Frameworks for Electricity Distribution Networks – Network Planning and Connection Arrangements dated August 2007. The questions relate to the proposed national framework for electricity distribution connection arrangements, covered in part 2 of the SCO Policy Response and chapter 3 of the NERA/ACG report.

In essence, it is proposed that the process for network connection, as currently contained in chapter 5 of the NER, should be simplified and streamlined as it relates to the distribution network. The revised process would contain two possible routes to connection, as illustrated on page 14 of the SCO Policy Response:

- standard connections, which will be provided on the basis of standard applications and agreements, facilitating a short time period (5 business days) for a connection offer to be made following an application for connection; and

- negotiated connections, which will be provided on a more individual basis, with greater time allowed for offers to be prepared which relate specifically to the particular connection being sought.

Distributors will be required to have at least one standard connection service for a customer load category (likely to be small customers), and at least one standard connection service for micro embedded generators. Customers in these categories will be able to pursue a negotiated arrangement if they prefer. Distributors will also be able to develop standard contracts for other categories of customers (both load and embedded generators).

The process in chapter 5 will relate to the initial connection process for all new connections to the distribution network, and also to modifications to existing connections. The national energy customer framework (**NECF**) will regulate the energisation of existing connection points of retail customers. The NECF will also provide for standard distribution contracts which, in the absence of a negotiated arrangement, will apply to all retail customers connected to the distribution network in relation to the ongoing provision of distribution services. To the extent that retail customers wish to negotiate a non-standard agreement with the distributor for the ongoing provision of distribution services or where the NECF does not otherwise apply (ie. for non-retail customers), then it appears the chapter 5 process would apply to both the initial connection and also the ongoing provision of distribution services.

It is also worth noting, in relation to the proposed definition of micro embedded generators, that the proposed approach to the costs of connecting to the distribution network distinguishes between micro and other embedded generation. The SCO Policy Response proposes that micro embedded generators should be required to pay a capital contribution for extension and dedicated connection assets, but not for augmentation to the shared network. In relation to augmentations, micro embedded generators will be treated in the same way as small customers, and the costs of any augmentation recovered through distribution use of system charges. In contrast, it is proposed that other embedded generators should bear the cost of any network augmentation necessitated by their connection.

1.3 Approach

(a) Research and consultation

For each question, we reviewed the existing jurisdictional regulation and the work that has been undertaken to date on the national framework.

In addition to the SCO Policy Response and the NERA/ACG report, the work undertaken to date includes:

- in relation to embedded generation:
 - the draft Code of Practice for Embedded Generation that was prepared by the Utility Regulator's Forum in 2006, and the submissions made in response to the draft Code; and

- a Policy Framework Discussion Paper on embedded generation published by the Energy Networks Association in November 2008; and
- in relation to the interaction between chapter 5 of the NER and the NECF, the SCO Policy Response Paper on a National Framework for Regulating Electricity and Gas (Energy) Distribution and Retail Services to Customers, published in June 2008.

For the purpose of preparing our draft report, we consulted on technical aspects of the questions (in particular, in relation to the definition of micro embedded generation) with the Energy Networks Association and Dr Ted Spooner of the University of New South Wales. Our draft report was provided to stakeholders and discussed at a roundtable conference held on 16 February 2009. We also received a number of written submissions from stakeholders and held further discussions with stakeholders. Finally, we have consulted with the Retail Policy Working Group in relation to the development of the NECF, in light of the interaction between chapter 5 of the NER and the NECF in relation to the provision of services to retail customers connected to the distribution network.

(b) Analysis

We have addressed each of the questions set out in section 1.1 above in two parts:

- (i) embedded generation:
 - (A) we have considered the definition of micro embedded generation in section 3;
 - (B) we have considered other associated technical requirements for micro embedded generators in section 4;
- (ii) minimum content of connection agreements:
 - (A) we have considered the minimum content for customers taking load from the distribution network in section 5; and
 - (B) we have considered the requirements for embedded generators in section 6.

We note that there was significant discussion at the stakeholder roundtable, and in submissions on the draft report, in relation to the overall framework proposed in the SCO Policy Response for the regulation of the initial connection and ongoing distribution services provided by the distributor. We have discussed these issues in sections 5 and 6, as they provide context for our consideration of the minimum content requirements for connection agreements.

However, we note that our terms of reference were limited to the specific issues set out in section 1.1 above, and so we have not made recommendations in relation to the framework more broadly. These framework issues will be addressed through the broader consultation process being conducted in relation to the SCO Policy Response.

2. Summary of recommendations

2.1 Micro embedded generators

(a) Definition of micro embedded generator

As noted above, the purpose of defining a micro embedded generator in the NER is to establish a category of embedded generator for which each distributor must develop a standard connection process, including a standard connection agreement.

Recommendation 1

We propose that a micro embedded generator should be defined as a generator that is compliant with AS 4777, that is, an inverter system to be connected to the low voltage distribution network, with ratings up to 10kVA for single phase or 30kVA for three phase.

Recommendation 2

We suggest that consideration be given to extending the definition of micro embedded generator proposed above to cover equivalent international standards either by:

- including an express reference to the relevant standards in the definition; or
- including a reference to equivalent international standards approved by the AER.

We note that, even if this approach is not adopted, if distributors are satisfied that other categories of embedded generators can be connected to their network using the standard process and agreement then they can propose other standard categories for approval by the AER.

Other issues for consideration

We suggest that consideration be given to whether there is a category of embedded generator (for example, 'mini' embedded generators as proposed by Climate Action Network Australia), for which additional protection should be provided in the negotiation of a connection agreement with the distributor. For example, it may be appropriate for the jurisdictional ombudsman schemes to be used as the dispute resolution process, instead of the dispute resolution provisions in the National Electricity Law and NER.

Finally, we also note it is our understanding that all micro embedded generators will be required to apply to the distributor for connection using the standard process and, accordingly, we have not proposed a separate sub-category that would be entitled to 'automatic access'. However, we also note the comments made by stakeholders that the standard connection process should be made as simple as possible.

We suggest that, to seek to prevent customers connecting embedded generators without following the applicable process, the NECF terms could include a prohibition to this effect.

(b) Technical requirements for micro embedded generator

The NERA/ACG report proposed that new schedules, equivalent to the existing schedules 5.2 and 5.3 of the NER, should be developed for embedded generators and customers not covered by those existing schedules. The SCO Policy Response proposed that the NER need only deal with the technical requirements for micro embedded generators, to support

the requirement for distributors to prepare standard connection agreements for this category of embedded generators.

Recommendation 3

We propose that the additional technical requirements for micro embedded generators would be developed by the distributors as part of the standard contract to be approved by the AER. The NER would set out parameters for the technical requirements, which would be that they must meet any jurisdictional requirements and otherwise must be limited to those requirements that are necessary to enable the distributor to meet its own regulatory obligations in relation to the performance of the network. The NER may also set out particular subject matter which the technical requirements should address (for example, voltage, frequency and fault levels).

Other issues for consideration

We suggest that this approach could also be applied in relation to the technical requirements for other embedded generators that are not Registered Participants under the NER.

2.2 Minimum content for connection agreements

As noted above, the overall framework proposed in the SCO Policy Response for the regulation of the initial connection process and the ongoing provision of distribution services provides context for the questions we were asked to consider in relation to the minimum content requirements for connection agreements.

Key issues raised by stakeholders in relation to the overall framework included:

- whether there should be separate contracts for the initial connection process and ongoing provision of distribution services, respectively, or a single combined contract; and
- whether it should be necessary for the parties to execute contracts formed under chapter 5 of the NER, or whether a deeming process could be adopted similar to that proposed for the NECF distribution contracts.

These framework issues will be considered as part of the broader consultation on the SCO Policy Response.

Recommendation 4

For the purpose of this paper, we note our understanding that the NECF will regulate the terms for the ongoing provision of distribution services to retail customers in relation to both load and embedded generation. On this basis we propose that, for retail customers, the NER need only expressly provide for the minimum content requirements of connection agreements in relation to the initial connection process.

We consider this approach should apply regardless of the contractual structure adopted. We propose that, if it is necessary for the NER to deal with the terms for the ongoing provision of distribution services to retail customers, then it should do so by way of cross reference to the NECF.

Recommendation 5

We recommend that the minimum content requirements for connection agreements for retail customers connecting to the distribution network should be set out in a new schedule to chapter 5. We propose that the new schedule apply to both retail load customers and embedded generators that are also retail customers.

We have set out the proposed contents for this schedule in Annexures 2 and 3.

Recommendation 6

We consider that, for non-retail customers connecting to the distribution network (including embedded generators that are not retail customers), it is necessary for the minimum content requirements for connection agreements to cover both the initial connection process and the ongoing provision of distribution services because the NECF does not apply to these customers.

Schedule 5.6 could be used for this purpose. However, we propose that the minimum content requirements for these customers and embedded generators should be in a separate schedule, to maintain consistency with the schedule for retail customers.

We have set out the proposed contents of this schedule in Annexure 4.

Other issues for consideration

We note our understanding that the application process for a new (or modified) connection will be regulated directly by the NER. We suggest that consideration be given to ensuring that, through this process, the distributor will obtain sufficient information to make the connection offer within the time period required. It is possible that this could involve interaction between the relevant customer/embedded generator and the distributor to finalise the application before the obligation to make the connection offer arises.

Finally, we note that where specific details or obligations are agreed between a customer/embedded generator and a distributor in relation to the connection, then those obligations should continue to apply in respect of the relevant premises:

- in relation to the ongoing provision of distribution services; and
- even if there is a change in the customer at those premises.

These issues will need to be addressed by the NECF for retail customers.

3. Definition of micro embedded generators**3.1 Current jurisdictional arrangements**

Victoria and South Australia both currently require distributors to develop a standard connection agreement for 'small embedded generators'. The definitions used for this purpose are:

Victoria:

- (a) the embedded generator has or proposes to have generating units at a connection point with power transfer capability of not more than 2kW; and/ or

- (b) the embedded generator has or proposes to have generating units that meet the standards for the grid connection of energy systems via inverters prescribed in Australian Standard AS 4777.

South Australia:

an embedded generator which owns, operates or controls an embedded generating unit that complies with the requirements of AS 4777.

It is our understanding that AS 4777 applies to inverter energy systems with ratings up to 10 kVA for single phase, or 30 kVA for three phase systems, and intended for connection to the low voltage electricity distribution network. It specifies the requirements for the inverters themselves (AS 4777.1), as well as the installation (AS 4777.2) and grid protection (AS 4777.3) requirements.

It is also worth noting that in a number of the jurisdictions the Service and Installation Rules contain a specific section for small scale parallel customer generation (via inverters), which apply to single and three phase generators rated at 10kVA per phase, and require compliance with (among other things) AS 4777.

3.2 Work to date on national regime

A significant amount of work has been undertaken in relation to embedded generation for the purpose of moving to a national framework.

(a) Draft Code of Practice for Embedded Generation

In 2006, the Utility Regulators Forum's Embedded Generation Working Group produced a draft Code of Practice for Embedded Generation (**CoPEG**). The CoPEG proposed 4 categories of embedded generators as follows:

| Category | Description |
|----------|--|
| Micro | Having a nameplate (electrical) rating not greater than 2kW or AS 4777 compliant and connected to the LV network |
| Small | Having a nameplate (electrical) rating greater than 2kW but not more than 1MW and connected to the LV network but not compliant with AS 4777 |
| Medium | Having a nameplate (electrical) rating greater than 1MW but not more than 5MW or not greater than 1MW but connected to the HV network |
| Large | Having a nameplate (electrical) rating greater than 5MW |

These definitions were referenced in the NERA/ACG report.

In the draft CoPEG, the definitions are used to distinguish between distributor obligations for standard processes, including standard application forms and connection agreements. The draft CoPEG imposes an obligation on distributors to develop standard processes, forms and agreements for micro embedded generators, and to use reasonable endeavours to do so for small embedded generators.

In relation to costs, the draft CoPEG proposed that micro and small embedded generators should be required to pay the costs of dedicated connection assets, but that micro embedded generators should only be obliged to pay for extension costs where the extension was required as a result of any import energy requirements of the embedded generator. It further proposed that both micro and small embedded generators should only be obliged to pay for augmentation costs where the augmentation was required as a result of any import energy requirements of the embedded generator.

Submissions on the draft CoPEG provided some further suggested variation on these definitions.

The Energy Networks Association proposed that the definition of micro embedded generators should be limited to generators compliant with AS 4777. It argued that generators not compliant with AS 4777, even less than 2kW, are not generally straightforward to connect and therefore should not be included in standard offer arrangements. United Energy Distribution made a similar submission.

In contrast, Climate Action Network Australia's (**CANA**) submission proposed that the definition of micro embedded generator should be expanded to include generators having a nameplate rating of up to 5kW, and that a further category of 'mini' embedded generators should be introduced for embedded generators having a nameplate rating of between 5kW and 100kW, on the basis that embedded generation units of up to 100kW:

- should require little network augmentation,;
- can be connected to the distribution network;
- are generally comprised of mass produced, over the counter components built to industry standards;
- primarily provide supply to the residential and commercial premises in which they are installed; and
- are generally proposed by new entrants with relatively unsophisticated understanding of the national electricity market.

The submission is not clear in relation to the need for compliance of generators in the respective categories with AS 4777. However, as AS 4777 only applies to generators of up to 30 kVA (for three phase) it would appear to be proposed that non AS 4777 compliant embedded generators should be included in the standard arrangements.

A number of the submissions to the NERA/ACG report supported the categories proposed by CANA, but considered that only the first category (up to 5kW) would fall within the definition of micro embedded generators for the purpose of the standard connection process.

(b) Energy Networks Association Policy Framework Discussion Paper

Most recently, the Energy Networks Association has prepared a Policy Framework Discussion Paper on Embedded Generation, published in November 2008. In this paper, the ENA proposes definitions of 'micro' and 'mini' embedded generation as follows:

| | Definition | Typical installations |
|-------|--|---|
| Micro | Less than 2kW; AS 4777 compliant; installed with a (domestic) customer installation and connected to the low voltage (LV) network via the customer service connection | Inverter connected plant; domestic roof top PV, micro wind turbines |
| Mini | Having a nameplate rating greater than 2kW and up to 10kW single phase or 30kW three phase; connected to the LV distribution and generally installed within a customer installation; not necessarily AS 4777 compliant | Fuel cells; combined heat and power systems (CHP); mini hydro; mini wind turbines |

The ENA Discussion Paper supports standard form connection agreements for both the micro and mini categories, but suggests that the technical requirements (in particular, the protection requirements) for mini embedded generators may need to be individually agreed depending on the characteristics of the generating unit and the point of connection.

The Discussion Paper also expresses concern in relation to embedded generators having an automatic right of connection, stating that all but the micro and some small embedded generator connections can impose the need to investigate the impacts of the proposed connection on network performance and the capacity of the network to provide the required connection services. It argues that in the longer term the wide spread adoption of micro and mini embedded generators could make it necessary to have a record of the number, capacity and location of all such installations, and cautions that careful consideration would need to be given to allowing automatic connection for these installations.

3.3 Discussion and recommendation

(a) Introduction

The purpose of the definition of micro embedded generation for the connections framework is to provide a balance between encouraging embedded generation by simplifying the process for connection, and adequately protecting the operation of the network by ensuring that connections are appropriately addressed from a technical perspective.

We consider that the definition should cover embedded generators which comply with AS 4777, which forms the basis for the equivalent definitions in most of the existing regulatory instruments and papers. In addition to the technical limits noted above, the elements of this definition are that the embedded generator is an inverter system, indicating it operates with a customer load, and is connected to the low voltage network.

We note that AS 4777 may evolve over time, for example, to address the overall impact on the distribution network of the increasing penetration of embedded generation. However, changes to the standard are subject to the Standards Australia process, and the use of this standard as a basis for the definition of regulatory obligations in the NER can be kept under review. Accordingly, we consider this is still an appropriate basis for a regulatory definition of micro embedded generators.

Assuming AS 4777 as a base requirement, further questions that arise from the material reviewed are:

- (i) whether embedded generators of less than a specified nameplate rating (eg. 2kW) should be included in the definition of micro embedded generation even if they do not meet the requirements of AS 4777;
- (ii) whether larger embedded generators, but still with a nameplate rating consistent with the AS 4777 category (ie less than 10kVA single phase or 30kVA three phase), should be included in the definition of micro embedded generation even if they do not meet the requirements of AS 4777;
- (iii) whether larger embedded generators, with a nameplate rating of up to 100kW, should be included within the definition of micro embedded generation; and
- (iv) whether there is a sub-category of micro embedded generators that should have an automatic right to connect to the distribution network.

These issues are discussed in paragraphs (b) to (d) below.

(b) Compliance with AS 4777

The technical arguments made by the ENA and other distributors suggest that it is only embedded generators which comply with AS 4777 that will necessarily be appropriate for a standardised process, application form and connection agreement.

The ENA Discussion Paper proposed a mini category that was not necessarily AS 4777 compliant, but noted that for this category it may be necessary for specific technical requirements for a particular embedded generator to be agreed. This is because any non AS 4777 compliant embedded generator could have impacts on the network which would require investigation, and could therefore lead to specific requirements being imposed in the connection agreement. We understand that, in part, this issue arises because an embedded generator can have a different impact on the network, depending on the existing characteristics of the relevant network.

The views on embedded generation with a nameplate rating of less than 2kW are slightly inconsistent, with the Victorian and draft CoPEG definitions assuming that such embedded generators are amenable to a standard process and agreement, even if they are not AS 4777 compliant, but the submissions to the draft CoPEG and more recent ENA Discussion Paper suggest that this is not the case. We also understand that most (if not all) installations of this size would comply with AS 4777 in any case, and note that the Service and Installation Rules commonly require compliance with AS 4777.

Discussion at the stakeholder roundtable and submissions on the draft report were generally supportive of using AS 4777 as the base requirement for the definition of micro embedded generation.

However, the Consumer Utilities Advocacy Centre's (**CUAC**) submission proposed that embedded generators that met an international equivalent standard to AS 4777 should also be included in the definition of micro embedded generator, and therefore have the benefit of the standard connection process. The submission noted that as the market for embedded generation in Australia is relatively small, manufacturers will not necessarily

have an incentive to have their product approved to Australian standards. Exclusion of these products from the standard process could inhibit the uptake of the products and therefore limit product choice in Australia.

We consider that there is merit in extending the definition of micro embedded generators to embedded generators which meet the same technical requirements as prescribed by AS 4777 so that a standard process can apply. However, we think that a reference in the Rules to 'an equivalent international standard' does not provide the necessary certainty for the purposes of the connections framework.

This issue could be addressed in a number of ways:

- specific international standards could be referred to in the definition, and added to over time by way of the rule change process;
- the definition could refer to international standards as approved for the purpose of the definition by the AER – this would allow the AER to include additional standards without a separate rule change process; or
- distributors could develop an 'additional' standard process for embedded generators that meet a specified international standard.

We suggest that both the first and second options are worth considering. The second option would provide an easier route to having an international standard included within the definition of micro embedded generator, if it is workable in practice for the AER to make an assessment whether an international standard is equivalent to AS 4777.

If either of the first two options are adopted, or even if neither of those options is adopted, it would remain open to distributors to accept an equivalent international standard for an additional standard process. Distributors may find it desirable to do this in order to streamline their processes, particularly if they receive numerous connection applications for such products.

(c) Larger embedded generators

It is argued in the CANA submission that the larger embedded generators proposed in its definition of mini embedded generation would also be amenable to a standard process. However, the submission does not provide reference to any existing set of standards that would be applicable here. Accordingly, it is not clear whether it can be assumed that a standard set of technical requirements would be applicable, with the ENA Discussion Paper suggesting that this is unlikely to be the case for embedded generators in this category. The CANA submission does also indicate that some mini embedded generators could require some level of network augmentation (albeit 'little').

The Total Environment Centre submission agreed that AS 4777 was an appropriate definition for the purpose of establishing a standard process. However, it also raised the issue that applications to connect larger embedded generators may be made by customers that would traditionally be regarded as 'small' (effectively, domestic and small business customers) who may not be well placed to negotiate with the distributor.

This issue does not impact on the proposed definition of micro embedded generation, but raises for consideration whether there should be another category of embedded generators

(for example, the mini category proposed by CANA) to whom additional protections should be given in relation to the connection process. The proposals to adopt the clause 6.7.5 negotiating framework for this process including, for example, the proposed requirement that the framework include time periods for negotiation to commence and be concluded, provide some degree of protection in this regard.

However, we note that clause 6.7.5 requires that a negotiating framework adopt the dispute resolution provisions of the National Electricity Law (*NEL*) and the NER in relation to disputes arising in negotiations undertaken pursuant to the framework. The NEL contains provisions for the AER to resolve access disputes, and chapter 8 of the NER contains a dispute resolution procedure for disputes arising under the NER more broadly.

It may not be practicable for a small customer seeking to connect an embedded generator to the distribution network to utilise these provisions. An alternative approach that could be considered would be for the jurisdictional ombudsman schemes to apply to disputes of this nature for certain customer categories, which could be broader than micro embedded generators. We understand that the contracts to be established under the NECF will require distributors and retailers to have dispute resolution processes and that it is intended that the jurisdictional ombudsman schemes would be used for small customers.

Accordingly, it would be consistent to also use these schemes for disputes arising in relation to the connection process for the relevant customer category.

(d) Automatic right of access

The ENA Discussion Paper seems to anticipate that there may be an automatic right of access with no need for a separate connection agreement and, if so, argues that this should be limited to the micro embedded generators compliant with AS 4777 and less than 2kW. Even for this category ENA argues strongly that information should be provided to the distributor.

We note that neither the NERA/ACG report nor the SCO Policy Response appears at this stage to be recommending an automatic right of access for any category of embedded generator, but rather is proposing that some form of application and connection agreement be required for all embedded generators.

It was generally agreed at the stakeholder roundtable and in submissions that it should be a requirement that some form of process be followed for the connection of all categories of embedded generators, and that there should not be any category with an automatic right of access without notification to the distributor. The reasons for supporting this approach included ensuring that:

- the distributor is aware of all embedded generation connected to its network; and
- the customer installing the embedded generation is aware of the applicable safety requirements.

However, it was also agreed that the process for connection applications for micro embedded generators should be as simple as possible. While it is generally agreed that there would need to be a schedule of information that is specific to the particular installation, it was proposed that the terms and conditions could otherwise be deemed to apply. This issue is discussed further in sections 5.3 and 6.3.

To seek to prevent customers connecting embedded generators without notifying the distributor and following the applicable connection process, we propose that the distribution contracts to be developed under the NECF contain provisions prohibiting the connection of any embedded generation without following the connection process. This approach has been adopted in standard connection agreements by a number of New South Wales distributors, and was supported in submissions.

4. Technical standards for micro embedded generation

4.1 Current jurisdictional arrangements

(a) Jurisdictional Codes and other instruments

Victoria, South Australia and Tasmania adopt a similar approach to the technical requirements for embedded generation, which are contained within the jurisdictions' respective Distribution Codes (or equivalent in Tasmania).

These technical requirements focus on the impact of the embedded generator on the distribution network. In Victoria and South Australia the embedded generator is obliged to comply with the relevant requirements, but in Tasmania the obligations are imposed on the distributor (and are presumably passed onto the embedded generator in the connection agreement). The technical requirements do not vary between small and large embedded generators based on the definitions described above, but in each jurisdiction there are additional requirements for embedded generators with nameplate ratings above 1MW and 10MW.

The technical requirements contained in these instruments cover the following subject matter (but with varying thresholds):

- (i) **frequency** - a requirement to ensure the embedded generating unit operates at the system frequency of 50 Hz;
- (ii) **safety and protection** – a requirement to ensure that the embedded generating unit is maintained in a safe condition and the protection equipment is effectively coordinated with the distribution system. The South Australia Code also requires that all embedded generators should be able to respond safely to network disturbances, shut down safely without external electricity supply, restart following loss and restoration of supply and operate in a stable manner during system disturbances – in Victoria these requirements only apply to embedded generators with nameplate rating above 10MW;
- (iii) **voltage and harmonics** - requirements in relation to the embedded generating unit's contribution to negative voltage sequence, voltage unbalance, voltage fluctuation and harmonic distortion levels;
- (iv) **inductive interference** – requirements in relation to the level of inductive interference caused by the embedded generating units;
- (v) **fault levels** – requirements in relation to the contribution to fault levels;

- (vi) **earthing** – requirements to ensure earthing in accordance with the distributor's requirements;
- (vii) **electromagnetic interference** – requirements in relation to the contribution to electromagnetic interference (Tasmania only); and
- (viii) **excitation control system and governor control** – imposed only on embedded generators with nameplate rating above 1MW.

The Queensland Electricity Industry Code does not specify technical requirements for embedded generators. Rather, section 28 of the *Electricity Regulation 2006* provides that a customer must not install generating plant for interconnection with a supplier's supply network without the supplier's agreement, and that the agreement must include the conditions for securing safe and stable parallel operation of the supply network and the generating plant.

As noted above, the Service and Installation Rules in a number of the jurisdictions (including New South Wales, the Australian Capital Territory, Victoria and South Australia) include a specific category of small scale parallel customer generation (via inverters), which addresses the more precise requirements for connection of the embedded generator, including requirements to comply with AS 4777 and other relevant Australian Standards in relation to matters such as protection systems and wiring.

(b) National Electricity Rules

Schedule 5.2 to the NER contains detailed provisions in relation to the technical requirements for generators connecting to either the transmission or distribution network following the connection process currently contained in chapter 5 of the Rules. These provisions effectively apply to generators with a nameplate rating above 5MW, as generators below that level are exempt from registration under the Rules in accordance with NEMMCO's current registration guidelines.

The requirements cover similar subject matter to the jurisdictional codes, including requirements in relation to reactive power capability, quality of electricity generated, generating unit response to frequency and voltage disturbances, generating system response to disturbances following contingency events, partial load rejection, protection requirements, frequency control, impact on network capability, voltage and reactive power control, active power control, monitoring and control requirements and fault current.

For each requirement, the NER specify the automatic access standard and minimum access standard, and provide guidance for a negotiated access standard. A generator which meets an automatic access standard will not be denied access on the basis of the relevant technical requirement, but a failure to meet the minimum access standard will preclude access. There are also certain requirements where NEMMCO's advice and agreement is necessary in order to settle the applicable standard.

4.2 Work to date on national regime

The draft CoPEG effectively required that distributors develop standard technical requirements for micro and small embedded generators. The proposed obligation required that the distributor should only include technical requirements for the generation or export

of electricity where failing to implement the requirement would prevent the distributor from complying with its statutory and licence obligations. It contemplated that the technical requirements could vary within the various categories, for example, in the micro embedded generation category the technical requirements for units of less than 2kW and not AS 4777 compliant could differ from those which met the requirements of AS 4777.

The NERA/ACG report proposed that the schedules to chapter 5 of the NER should be amended to include a definition of the technical requirements for small load, large load and micro, small and medium embedded generators, but noted that the applicable technical requirements were beyond the scope of the report. The report also proposed that the information provisions schedules to chapter 5 (schedules 5.4 and 5.5) should be amended to cover all of the categories of distribution connections intended to be covered by the new connections framework.

The SCO Policy Response only partially accepted this recommendation, and instead proposed that the NER need only provide a technical definition for micro embedded generators, on the basis that this would be necessary to support the requirement for distributors to prepare standard connection agreements for micro embedded generators. For other connections, it was proposed that the technical requirements would be part of the negotiation of the connection agreement.

The recent ENA Discussion Paper considered the applicable technical requirements for embedded generators, focussing on the importance of safety and network protection requirements. In relation to fault level, voltage and power quality issues, the Discussion Paper suggests that because networks can have specific constraints, the distributor is best placed to determine the applicable requirements at each connection point.

4.3 Discussion and recommendation

(a) Introduction

The purpose of defining the technical requirements for micro embedded generators in the NER is to support the requirement that distributors prepare standard connection agreements for this category of embedded generator, by prescribing the technical requirements that all micro embedded generators are required to meet in order to connect to the distribution network.

There is no readily available list of technical requirements for micro embedded generators that can be adopted for the purpose of chapter 5 of the NER.

There are a number of options which could be considered for addressing these technical requirements:

- a list of technical requirements specific to micro embedded generators could be developed using either the existing jurisdictional code requirements for embedded generators or the existing requirements in schedule 5.2 of the NER as a base; or
- the technical requirements to be included in standard connection agreements could be developed by distributors, in accordance with relevant jurisdictional requirements for the network service standards. The technical standards would

still be subject to approval by the AER in approving the standard connection agreements.

(b) List of technical requirements

The technical requirements imposed by the jurisdictional codes provide a relatively simple list of categories which could be adopted for the purpose of developing a set of technical standards for micro embedded generators to be included in a schedule to chapter 5 of the NER. However, the current requirements of the respective jurisdictions are not identical and accordingly it would be necessary to agree a single set of standards, which accommodate any different network requirements between the respective jurisdictions. Alternatively, on the basis that the standards are to be included as part of chapter 5 of the NER, it may be preferable in the interests of consistency to start with the list of technical requirements in schedule 5.2, which seem to cover equivalent subject matter to the jurisdictional codes, and produce an equivalent list of requirements specific to micro embedded generators.

In either case, the requirements could either be viewed as:

- a list of technical standards which if met by the micro embedded generator enable it to gain access to the distribution network, similar to the 'automatic' standards; or
- effectively a list of minimum standards, with the distributors then allowed to develop their own requirements which would be subject to the approval of the AER as part of the standard connection agreement.

It is worth noting that the objective in providing the technical requirements for micro embedded generators is not to regulate the generators themselves (as they are deemed to be too small to otherwise require regulation under the NER), but to regulate the connection of the generator to the distribution network. As described above in relation to the definition of micro embedded generators, these requirements should encourage embedded generation by making the connection process relatively simple, while providing adequate protection for the network. As between the 'automatic' and 'minimum' approach to standards, the automatic standard approach seems to provide a simpler process for embedded generators whereas the minimum standard approach is more directed to the requirements of the distribution network.

(c) Distributors to develop requirements

An alternative to including detailed technical requirements within the NER would be to require the distributors to develop their own requirements as part of the standard connection agreement. An approach similar to that proposed in the draft CoPEG could be adopted, stipulating that the requirements must be only those necessary to ensure that the distributor is able to meet its regulatory obligations in relation to the performance of the network. This approach provides flexibility for the distributors to develop appropriate requirements within the bounds of their own obligations, and is also consistent with the approach to regulation of distribution network standards which will continue to be undertaken at a jurisdictional level. In this regard it is worth noting that some of the jurisdictional requirements for embedded generators reference the applicable obligations of the distributor in relation to the network performance.

The disadvantage of this approach is that it achieves less consistency as between the distributors in terms of their standard connection agreements. However, this fits within the framework being proposed for standard connection agreements under the NER. It is not proposed to provide model terms for those connection agreements, but to allow the flexibility for distributors to develop terms specific to their network, subject to the minimum content requirements and the approval of the AER.

We consider that this approach would be the preferable way of addressing micro embedded generator technical standards for the purpose of regulating connection of embedded generators under the NER, in terms of interaction with the broader regulatory framework. The NER would, of course, effectively impose certain specific technical requirements on micro embedded generators by virtue of the approach proposed above to the definition of micro embedded generators. The NER may also set out the subject matter to be addressed by the technical requirements, but otherwise these would be required to be developed by the distributors as part of their standard connection agreements. The distributors would be required to adopt any jurisdictional requirements imposed on embedded generators as part of their agreements, and a further limitation should be that the requirements to be imposed on the embedded generators should be no more than is necessary to enable the distributor to meet its own technical obligations. The requirements would be subject to AER approval as part of the standard connection agreements.

Consideration could also be given to imposing similar parameters on other categories of embedded generators which are not subject to the requirements of schedule 5.2.

This recommendation was not commented on at the stakeholder roundtable or in submissions, with the exception of EnergyAustralia, which was supportive of the proposal subject to the clarification that distributors should be able to impose technical obligations to meet system performance requirements imposed on them under either the jurisdictional or national regulatory regime.

EnergyAustralia also suggested that it may be beneficial to develop a set of uniform technical standards for various classes of micro embedded generators, either through the ENA or Standards Australia. We consider this proposal would be worth pursuing.

In addition, EnergyAustralia commented that it is necessary for distributors to be provided with all the information they require in order to determine the impact of an embedded generator on the network as part of the connection process, and that the embedded generator should have ongoing obligations to comply with technical requirements. See further discussion on these issues in relation to the terms of the connection agreements for embedded generators in sections 5 and 6 of this paper.

5. Minimum content for connection agreements for customers (load)

5.1 Current jurisdictional arrangements

The SCO Policy Response distinguishes between:

- agreements between distributors and customers for the process of connecting to the network (or modifying a connection), which it is proposed will be regulated by chapter 5 of the NER; and
- agreements between distributors and customers for the ongoing provision of distribution services, which, for retail customers, are to be regulated under the NECF.

The connection process is addressed in two different ways in the jurisdictional regimes:

- (a) In some jurisdictions (Victoria, Queensland and South Australia) there is a deemed agreement between the distributor and customer which commences once the customer is connected to the distributor's network. In these jurisdictions, the process of establishing the initial connection is governed by regulatory instrument, rather than by an agreement between the distributor and the customer.
- (b) In other jurisdictions (New South Wales, the Australian Capital Territory and Tasmania) there is a deemed agreement between the distributor and customer which commences on application by the customer for connection to the distributor's network. In these jurisdictions, the process of connection is governed by the agreement. However, the agreement also covers the ongoing provision of distribution services, and is not a stand alone agreement for the connection process.

The matters which are covered by either the regulatory instrument governing connection or the connection-specific provisions of the deemed agreement are similar. The key provisions are set out in the table below:

| Subject matter | Description |
|--|---|
| Requirement to connect within agreed timeframe | The distributor is obliged to connect within the period agreed with the customer or, if no timeframe is agreed, within the period specified in the instrument or contract. |
| Retailer | The customer is generally required to have a retailer before the distributor will connect the customer to its network. |
| General conditions for connection | These include: <ul style="list-style-type: none"> • connection application to be made in writing; • customer to provide acceptable identification and contact details, which may include contact details of the owner of the premises if different to the customer. |
| Technical conditions for connection | These include: <ul style="list-style-type: none"> • adequate supply of electricity available at the required |

| Subject matter | Description |
|----------------------|--|
| | <p>voltage;</p> <ul style="list-style-type: none"> • customer to provide estimated load information for the premises; • the rate of supply sought must not exceed the maximum capacity of the connection; • additional equipment to be installed if required, including service lines and other equipment; • appropriate meters have been installed; • certificate of electrical safety to be provided to the distributor; • customer agrees to comply with reasonable technical and safety requirements of the distributor; and • completion of any extension or augmentation of the network required to make the connection. <p>The customer may also be required to ensure that it has any easements which are necessary for the distributor to effect the connection.</p> |
| Access | <p>The distributor is not obliged to connect the customer unless the customer agrees to provide the distributor with safe access to the customer's electrical installation, the meter, and any of the distributor's equipment on the customer's premises for specified purposes.</p> |
| Payment and security | <p>The distributor may require the customer to meet its obligations to make any payment in relation to the connection, which may include:</p> <ul style="list-style-type: none"> • advance payment for the ongoing distribution services; • meeting the costs of any extension or augmentation required to make the connection. <p>The distributor may also be entitled to seek security for these payments.</p> <p>Some agreements provide for the reimbursement of extension / augmentation costs where the assets subsequently benefit another network user.</p> |
| Previous agreement | <p>The distributor may not be obliged to connect a customer who has previously been disconnected, unless the reason for the disconnection has been remedied. [This is more likely to be applicable to energisation than 'connection' in the sense used in this paper.]</p> |

5.2 Work to date on national regime

(a) Retail Policy Working Group

The content of agreements between distributors and customers has been the subject of significant work undertaken by the Retail Policy Working Group.

The SCO Policy Response Paper on the National Framework for Regulating Electricity and Gas (Energy) Distribution and Retail Services to Customers dated June 2008 contemplates the following:

- the obligation of a distributor to connect a retail customer's premises to its network will be subject to other applicable rules, both national and jurisdictional (ie this would include the requirements of chapter 5 of the NER);
- there will be a deemed distribution contract between a distributor and each retail customer connected to its network, except where a negotiated distribution contract exists;
- the deemed distribution contract will arise on the connection of the customer to the distributor's network;
- the deemed distribution contract will be on standard terms which will either be model terms set out in the NECF or terms approved by the AER (for large customers); and
- a retail customer and a distributor may negotiate different terms for their distribution contract, subject to certain protections in the case of small customers.

The SCO Policy Response Paper noted that the Network Policy Working Group would be developing further requirements in relation to the connection of customers to the distribution network. Given it is proposed that the deemed distribution contract would commence on connection, the proposed content of the model terms for the deemed distribution contract set out in Part 4 of the SCO Policy Response Paper does not include terms for the process of establishing a connection.

The proposed content for the model terms set out in Part 4 of the SCO Policy Response Paper includes terms in relation to:

- contract commencement;
- collection of charges (explanatory term only as ongoing distribution charges will be collected by the retailer);
- termination of customer distribution services;
- interruptions to supply – the contract will refer to the relevant rules in this regard;
- reference to service standards and GSLs, which are to be dealt with through jurisdictional regulation;
- liability and warranties;
- provision of information in relation to the customer's consumption, connection or applicable tariff;

- disconnections and reconnections (other than temporary supply interruptions);
- fault reporting and correction;
- dispute resolution; and
- customer obligations, including providing access to meters and other equipment, protecting the distributor's equipment, safety of the customer's installation, unauthorised supply, restrictions on consumption/usage and requirements to notify the distributor of certain events.

(b) Network Policy Working Group

The SCO Policy Response sets out the intended interaction between the provisions of chapter 5 of the NER in relation to connection to the distribution network, and the provisions of the NECF in relation to the ongoing provision of distribution services to retail customers. The SCO Policy Response notes that the connection framework in the NER is only relevant to new or modified connections, and does not apply where there is an existing connection which simply requires energisation. The intended interaction for retail load customers is summarised in the table below.

| Customer category | Connection Framework (Connection process) | NECF Framework (ongoing distribution services) |
|---|--|---|
| Small retail customer – standard connection | Standard connection process will apply – distributors must have at least one standard connection agreement | Deemed distribution contract would most likely apply – model terms |
| Small retail customer – non standard connection | Negotiated connection process will apply – negotiated connection agreement | May be a deemed or negotiated distribution contract |
| Large retail customer – standard connection | Standard connection process will apply – distributors may have more than one standard connection agreement | Deemed distribution contract would most likely apply – distributor may have standard terms approved for different customer categories |
| Large retail customer – non standard connection | Negotiated process will apply – negotiated connection agreement | May be a deemed or negotiated distribution contract |

As noted in section 1.2 above, it appears that in cases where the contract for ongoing distribution services under the NECF is to be negotiated, the process to be established in chapter 5 of the NER would apply to the negotiation of that contract.

5.3 Contractual framework

(a) Introduction

We have been asked to consider the minimum content requirements that should be specified in chapter 5 of the NER for both standard and negotiated distribution connection agreements, and whether this content should be specified by modification to existing

schedule 5.6 or by the creation of a new schedule specific to distribution connection agreements.

The overall framework proposed for the regulation of the initial connection process and ongoing distribution services under the NER and the NECF provides necessary context for considering the minimum content requirements for agreements formed in accordance with the process to be set out in chapter 5 of the NER. We note that this overall framework is still under consultation. In particular, the SCO Response Paper specifically sought stakeholder comments on whether there should be separate contracts for the initial connection process and the ongoing distribution services, or a single distribution contract governing both initial connection and ongoing services.

There was significant debate at the stakeholder roundtable, and also in some of the submissions, in relation to the overall framework. We have set out in this section of the paper a brief discussion of the key issues that have been raised, and noted any implications for our consideration of the minimum content requirements.

However, as noted in section 1.3(b) above, we have not been asked to provide advice on the framework more broadly. Accordingly, we have not made recommendations in relation to these issues, which will be considered through the broader consultation process on the SCO Policy Response Paper.

(b) Separate or combined contracts

The first issue is whether there should be separate contracts for the initial connection process and the ongoing provision of distribution services, respectively, or whether there should be a single contract covering both these elements of the services provided by the distributor.

In our draft report we suggested that, to simplify the contractual framework, the NER and NECF should contemplate that any customer seeking a new or modified connection under chapter 5 of the NER would enter into an agreement with the distributor covering both the connection process and ongoing provision of distribution services, but that the NER should dovetail with the requirements of the NECF in relation to the terms of that agreement. That is, the minimum content requirements in chapter 5 of the NER could require that a connection agreement with a retail customer formed in accordance with the process set out in chapter 5 of the NER must incorporate the same terms as the applicable terms that would apply for the purposes of the NECF framework.

This suggestion received support in submissions, with EnergyAustralia commenting that connection and ongoing distribution services are inextricably linked. EnergyAustralia also noted that it would be necessary for the NECF to adopt a similar approach so that deemed distribution contracts formed on the energisation of a premises would also cover the specific requirements for the premises agreed as part of the connection process, for example, the maximum transfer capacity of the connection point and customer obligations to comply with technical requirements.

SP AusNet commented that if the concept of a combined agreement is to be introduced then it would be necessary to develop terminology to distinguish between the various types

of agreement, suggesting that an agreement covering both the connection process and ongoing distribution services could be referred to as a 'customer service agreement'.

For the purpose of this paper, we consider that for retail customers, regardless of the contractual structure adopted, it is only necessary for the NER to specify minimum contents requirements relating to the initial connection process. This is because the NECF will regulate the terms for the ongoing provision of distribution services. If necessary, the NER can incorporate the regulation of those terms and conditions by reference to the NECF. However, for non retail customers, where the NECF does not apply, it will be necessary for the NER to specify the terms applying in relation to both the initial connection process and the ongoing provision of distribution services.

(c) Deemed contracts

The second issue is whether it is necessary for agreements formed in accordance with chapter 5 of the NER to be executed by both parties, or whether a deeming process could be adopted similar to that proposed for distribution contracts in the NECF.

It was generally agreed that the standard connection process should be as simple as possible. EnergyAustralia and SP AusNet made similar proposals, to the effect that a simple schedule could be agreed containing information specific to the customer, with the bulk of the terms to be deemed to apply. For example, the deemed provisions could take effect from acceptance by the customer of the schedule. It was also noted at the roundtable that it was important for customers to be aware of their obligations. Accordingly, if a deeming approach is adopted then it will be important to ensure information in relation to these obligations is provided to customers by other means.

For the purpose of this paper, we consider that the minimum content requirements for contracts formed pursuant to chapter 5 of the NER will be the same, regardless of whether contracts will be executed by the parties or will be deemed to apply, or whether a combination of these approaches is adopted.

(d) Other Issues

SP AusNet also proposed that the standard contracts approved by the AER under chapter 5 of the NER should be default contracts, ie. there should not be any obligation on the distributor to negotiate different arrangements for customers covered by the default arrangements.

EnergyAustralia noted its view that the minimum content requirements should be drafted in such a way that it would be unnecessary for a distributor to seek approval of the AER of its standard contracts.

We note that the views expressed in relation to each of those issues appear to be different to the proposed approach set out in the SCO Response Paper. However, for the purposes of this paper, we consider that neither of those issues impacts on the subject matter to be covered by the minimum content requirements for contracts formed pursuant to the process in chapter 5 of the NER.

5.4 Discussion and recommendations on minimum content

(a) Content requirements

We consider that the content requirements for distribution connection agreements in relation to the initial connection process should be based on the matters set out in section 5.1 above.

Some of the matters set out in section 5.1 would be dealt with in the application process. It is our understanding that this stage of the process will be regulated directly by the NER.

We consider the application process should require the customer to provide:

- identification and contact details;
- information regarding the load at the premises; and
- the customer's requirements for the connection point.

As noted by EnergyAustralia, it is important that the application process enables the distributor to obtain all of the information it requires to assess the impact of the connection on the network, so as to be able to determine the applicable connection process, and to make the connection offer.

We consider the contract covering the connection process would be formed following the acceptance by the customer of an offer by the distributor, which would include the customer specific details for connection of the premises. As proposed by EnergyAustralia, this could simply be the details set out on the application form if that contained all the information required, or a separate schedule setting out those details.

We consider the terms of the contract, including the specific customer details and also standard provisions, should include:

- the technical requirements for the connection, including obligations imposed on the customer to comply with safety and technical requirements;
- provisions for the distributor and its agents to have access to the customer's premises;
- payment and security provisions; and
- the time frame required for connection.

EnergyAustralia commented that the customer obligations in the connection agreement should be pre-conditions to the connection being energised. We agree that the distributor's obligations to connect (and subsequently energise) the premises should be conditional on the customer complying with its obligations under the agreement.

EnergyAustralia also raised the issue of third parties undertaking the connection works, and argued that it was not possible to set a timeframe for connection as this was dependent on the actions of both the customer and the third party. We consider that a timeframe should still be able to be imposed on the distributor, which could be dependent on the customer and third party service provider carrying out their respective obligations. For example, the timeframe for the distributor to undertake certain obligations may only commence once the customer and third party obligations have been fulfilled.

(b) Interaction with NECF

As discussed in section 5.3(b) above, we consider that for retail customers it is only necessary for the NER to regulate the content requirements for distribution connection agreements in relation to the initial connection process. The terms for the ongoing provision of distribution services to retail customers will be regulated under the NECF. The indicative contents of the distribution contract model terms under the NECF is set out in section 5.2 above.

As also noted above, EnergyAustralia commented that many of the customer obligations should be ongoing, and that therefore the NECF distribution contracts should incorporate those obligations in respect of retail customers. EnergyAustralia also proposed that, in some cases, the distributor should be entitled to disconnect the premises if the customer failed to comply with its obligations. Again, for retail customers, this would be addressed by the NECF.

(c) Interaction with Schedule 5.6

We suggest creating a new schedule for distribution connection agreements for retail customers separate to the existing schedule 5.6. The contents of existing schedule 5.6 are set out in Annexure 1.

While schedule 5.6 generally covers the matters described in section 5.1 above, it also applies more generally to the ongoing provision of distribution services. As it is proposed that, for retail customers, these matters would be addressed by the NECF, we propose that the schedule of minimum content requirements for connection agreements for retail customers should be limited to those matters relevant to the initial connection process.

We note that there are some suggested terms in schedule 5.6 which we consider could be usefully added to the minimum content requirements for the purposes of a distribution connection agreement for retail customers. We also note the specific recommendation in the NERA/ACG report to the effect that the minimum requirements should include provision allowing the parties to amend the agreement for non price terms, where the changes have no cost effects.

We have proposed a suggested set of minimum content requirements, based on our proposed approach, which is set out in Annexure 2.

(d) Non retail customers

We note the current jurisdictional requirements in relation to connection suggest that distributors are not obliged to connect non retail customers (ie. customers who acquire electricity directly from the market). However, we assume it is intended that such customers would be able to utilise the framework in chapter 5 of the NER if they wished to seek connection to the distribution network.

In our draft report, we suggested a different approach should be taken in relation to the minimum content requirements for connection agreements for any non retail customers, since the NECF does not apply to these customers. As these customers would be acquiring electricity from the market, they would be Registered Participants. Accordingly, we suggested it would be more appropriate for schedule 5.6 to apply, although it would need to be modified to address the issues raised in the NERA/ACG report in relation to:

- specifying a timeframe for the connection to be effected; and
- providing for amendment of non price terms and conditions.

SP AusNet's submission proposed that it would be preferable to establish a new schedule for non-retail customers connecting to the distribution network, to provide consistency in wording and approach with the schedule for retail customers. SP AusNet also commented that there are some important omissions from schedule 5.6, such as specific reference to interruptions and curtailment of supply.

We agree that this approach could also be adopted, although we note that schedule 5.6 would still need to be retained. This is because chapter 5 of the NER regulates connection to both the transmission and distribution networks, and schedule 5.6 is used to prescribe the content requirements for connection agreements for both networks.

The advantage of using schedule 5.6 is that this approach would maintain consistency in the regulation of connection agreements for Registered Participants connecting to either the transmission or distribution network. However, the benefit of the approach proposed by SP AusNet is that it maintains consistency between the minimum content requirements for retail and non retail customers connecting to the distribution network.

In Annexure 4 we have set out:

- the minimum content requirements for the initial connection process for non-retail customers. This table follows the table in Annexures 2 and 3; and
- a separate table with the additional provisions that would be relevant to the ongoing provision of distribution services to non-retail customers. This table is based on the contents for the model terms under the NECF (set out in section 5.2(a) above) and a comparison with schedule 5.6.

A final point raised by SP AusNet was that a provision in relation to amending the agreement was not necessary for negotiated agreements, and therefore did not need to be included in schedule 5.6 (or alternative schedule for non retail customers). However, in our view, the reference to amendment is not to amendment of the standard terms, but to subsequent amendment of the agreement, for example, if circumstances change after it has been executed (or otherwise deemed to apply). For example, commercial agreements generally contain a provision allowing amendments which have been agreed in writing by both parties. We consider provisions dealing with subsequent amendments of this nature are relevant to both standard and negotiated agreements, and have included reference to provisions of this nature in the Annexures.

6. Minimum content for connection agreements for embedded generators

6.1 Current jurisdictional arrangements

The two jurisdictions which require distributors to prepare standard connection agreements for small embedded generators (Victoria and South Australia) simply require that the terms

of the standard agreements must be approved by the regulator, and do not otherwise provide guidance on the content of the agreements.

The Tasmanian Electricity Code provides generally that a distributor must not connect embedded generators to its network unless it enters into a connection agreement with the embedded generator. The Code provides for the conditions that must be covered in the connection agreement and largely adopts schedule 5.6 of the NER for this purpose.

A number of distributors have published standard connection agreements for small embedded generators and the following table sets out the common terms of these agreements.

| Common terms and conditions | Content |
|--|--|
| Connection services | Distributor agrees to connect installation to distribution network. |
| Maximum export capacity | Must not exceed 10kVA per phase. |
| Connection | Description of connection point and requirement for endorsed certificate of electricity safety. |
| Metering | Metering must allow for both import and export. Must be installed and maintained according to NEMMCO rules, SIR, and jurisdictional codes. Must supply interval data from metering. |
| Access to premises | Allowing access to premises for the distributor. |
| Disconnecting, interrupting or reducing supply | Requirement allowing distributor to interrupt or reduce supply to/from the connection point. |
| Maintenance of equipment | Customer must install, maintain and operate the installation so as not to cause damage to the network. |
| Technical Requirements | All the contracts have a detailed list of technical requirements, either in the contract or attached as a schedule. These include licensed contractor, wiring, cables, circuit breakers, approval for changes, isolating switch, metering, earthing, voltage management, protection requirements, type test certification, maximum demand or maximum export capacity. May also include a general requirement that the embedded generator does not interfere with the network |
| Compliance with safety requirements | The contracts all require compliance with safety standards, which vary between jurisdictions. They include: <ul style="list-style-type: none"> • Service and Installation Rules • Wiring Rules AS3000, AS3010, AS 4777 • Relevant distribution codes |

| Common terms and conditions | Content |
|-----------------------------|--|
| | <ul style="list-style-type: none"> • NER/NEL • Relevant safety codes • Standard Connection Contract |
| Equipment details | <p>All the contracts require details of the installation, either in the contract or attached as a schedule. These include:</p> <ul style="list-style-type: none"> • Fuel Source eg. solar, wind, hydro • Inverter Make/Model • Inverter Rating (kVA) • No. of Phases (Inverter) [ie, Single Phase 240v Two Phase 240/480v or Three Phase 415v] • Maximum Export Capacity (kVA) • Connection Point (Location of Inverter Installation) • Metering Configuration • No. of Phases (Load) [ie, Single Phase 240v Two Phase 240/480v or Three Phase 415v] • Illustrative diagrams indicating flows and set up of installations |

6.2 Work to date on national regime

(a) Previous work

Less detailed work has been undertaken on terms and conditions for embedded generators' connection agreements than in relation to the other issues discussed in this paper.

The draft CoPEG provides as the suggested requirements for standard connection agreements a list based on schedule 5.6 of the NER.

In its discussion on contractual issues, the ENA Discussion Paper notes the following:

- transfer capacity and network services required by the embedded generator and offered by the distributor are key contractual considerations;
- communication and metering services may also be included in the connection agreement;
- service standards of the distributor should be governed by applicable regulatory instruments, and do not need to also be included in the connection agreement; and
- any risk to the distributor's obligations to provide network services and ensure power quality to other network users posed by the connection and operation of embedded generators should be covered by obligations imposed on the embedded generators.

(b) Retail Policy Working Group

As raised at the stakeholder roundtable, it is proposed that the model terms being developed for distribution contracts under the NECF would also include terms relating to the ongoing provision of distribution services to an embedded generator, where the embedded generator is also a retail customer.

This is considered necessary to deal with the contractual arrangements in circumstances where a person moves into premises to which an embedded generator is already connected. In these circumstances only the deemed distribution contract under the NECF would apply as there is no new connection for the purposes of the NER.

However, at this stage, draft terms to be included in the model terms specifically relating to embedded generators (which may, for example, be included by way of a schedule) have not yet been developed for circulation.

(c) Network Policy Working Group

The SCO Policy Response deals with the interaction between chapter 5 of the NER and the NECF in relation to embedded generators as follows:

| Customer category | Connection Framework (Connection process) | NECF Framework (ongoing distribution services) |
|---------------------------|---|---|
| Micro embedded generator | Standard connection process will apply – distributors must have a standard connection agreement | Suggests that the deemed distribution contract would also cover micro embedded generation |
| Other embedded generation | A standard process may apply (distributors will be able to have more than one standard process approved) or there may be a negotiated agreement | Customers are less likely to be retail customers and the NECF is unlikely to apply |

This is consistent with the position noted in section 6.2(b) above in relation to the NECF regulating terms for retail customers with embedded generators.

6.3 Contractual framework

(a) Introduction

The issues discussed in section 5.3 above also apply in relation to embedded generators.

We note the following in relation to embedded generators.

- On the basis that the NECF model terms for distribution contracts will also cover embedded generators that are also retail customers, then the same analysis as set out in section 5.3(b) applies, and it is only necessary for the minimum content requirements in the NER to cover the initial connection process in relation to these embedded generators. However, for other embedded generators, that may or may not be Registered Participants, then it is necessary for the minimum content requirements to cover both the initial connection process and the ongoing provision of distribution services.

- A deemed contract approach could be adopted for embedded generators in the same way as discussed in section 5.3(c) above. However, it should also be noted that there are likely to be customer specific details (which could be covered by way of a schedule), and it is important that customers are made aware of their safety and technical obligations. We consider that the approach adopted in relation to contract formation does not impact on the subject matter of the minimum content requirements.
- The issues of whether the standard agreements are default agreements, and whether it is necessary for the AER to approved standard agreements apply equally to embedded generators, but do not impact on the subject matter of the minimum content requirements.

(b) Integration of customer load and embedded generator contracts

An additional issue that was raised is whether both load and embedded generation can be covered by the same agreement.

In our draft report, we noted that we do not consider it would be necessary to ensure that, where the embedded generator is a load customer, the provision of distribution services to it in its capacity as both an embedded generator and a load customer is covered by a single agreement. We consider it is acceptable for the embedded generator to have a separate agreement, covering the provision of distribution services to it in this capacity, and note that this is consistent with current practice.

At the stakeholder roundtable it was commented that a customer seeking a new connection for both load and an embedded generator should be able to do so in a single process. EnergyAustralia also considered that a single contract should be able to cover both types of connection.

We agree that a single process and contract should be encouraged and adopted where possible. However, for circumstances where a customer with an existing contract for its load connection subsequently seeks a connection for an embedded generator, then a separate process would apply and it may be easier if a separate contract is formed. Accordingly, we have not recommended that the NER mandate that a single process / contract approach should be adopted.

6.4 Discussion and recommendations on minimum content

(a) Content requirements

We consider that the minimum content requirements for embedded generator connection agreements should be based on the type of provisions set out in section 6.1 above. We note that the substance of these provisions as they relate to the connection process is similar to the provisions described in section 5.1 and discussed further in section 5.4(a) above.

Additional minimum content requirements specific to embedded generators were not raised in discussion at the stakeholder roundtable or in submissions.

The only exception was the CUAC submission, which suggested that the minimum content requirements for connection agreements with micro embedded generators should also

include standard provisions regarding payment by the distributor to the generator for network support services.

Both the draft CoPEG and the recent ENA Discussion Paper include discussion of payments made by distributors to embedded generators.

The draft CoPEG envisaged that distributors may make the following payments to embedded generators:

- payments in respect of any avoided transmission use of system usage charges as a result of the connection and operation of the embedded generator;
- payments reflecting the quantified benefit (if any) in respect of the deferral of investment in the distribution system resulting from the connection and operation of the embedded generator; and
- payments for the quantified benefit of any network support services provided by the embedded generator.

However, the draft CoPEG contemplated that payments of this nature would not be made to micro embedded generators other than pursuant to a reasonable request for payment by the embedded generator.

The ENA Discussion Paper criticised the concept of distributors making payments to embedded generators in relation to avoided transmission use of system and the deferral of distribution system investment as inefficient and flawed in application. It also argued that the provision of network support services by embedded generators should be treated separately to the connection of the embedded generator, with any payments to be negotiated in relation to the particular services to be provided. That is, the ENA Discussion Paper takes the position that an embedded generator does not provide network support services merely by being connected. Rather any services to be provided would need to be specifically agreed, and the payment for those services would therefore also be agreed as part of that negotiation.

We note that the NER currently provide for:

- payments to be made to embedded generators of the locational component of prescribed TUOS services that would have been payable by the distributor if the embedded generators had not been connected to the distribution network (rule 5.5(h)); and
- the adjustment over time of the price for negotiated distribution services to the extent that the assets used to provide the service are subsequently used to provide services to another person (rule 6.7.1(6)).

In respect of network support services, the planning provisions in chapter 5 of the NER recognise that a distributor may implement a generation option as an alternative to network investment and, where applicable, may recover amounts paid to the generator for network support services through the distribution pricing provisions in chapter 6. However, the NER do not currently otherwise regulate the payment of charges for network support services.

It is beyond the scope of this paper to consider what payments are appropriate for distributors to make to embedded generators. To the extent that payments are required to

be made in accordance with the NER in relation to the connection itself (such as under rules 5.5(h) and 6.7.1(6)), then we consider these payments should be covered by the agreements for the initial connection of the customer. This should apply to both embedded generators and customer load. We have included a reference in each of the Annexures to payments required to be made by the distributor to the customer/embedded generator.

However, we have not included a reference in the Annexures to network support payments. We consider that, at present, the provisions of network services would be negotiated separately to the connection agreement, as distributors can only recover the costs of such support services where they are implemented pursuant to the planning provisions of chapter 5 of the NER.

(b) Interaction with NECF

As noted in section 6.3(a) above, if the model terms under the NECF cover embedded generators that are retail customers, then we consider the NER minimum content requirements for connection agreements for such embedded generators need only cover the initial connection process.

As discussed in sections 5.3(b) and 5.4(b), if this approach is adopted it will be necessary for the NECF terms to pick up the ongoing customer obligations established under the NER, and to deal with the consequences of a breach by the customer of those obligations which may include disconnection.

(c) Interaction with Schedule 5.6

We suggest that the new schedule proposed for distribution connection agreements for retail customers (see section 5.4(c) above) also include the minimum content requirements for connection agreements formed under chapter 5 of the NER with embedded generators that are retail customers.

The provisions common to embedded generator connection agreements described in section 6.1 cover similar subject matter to the minimum content requirements in schedule 5.6. We also note that some of the instruments and discussion papers reviewed have taken the approach that schedule 5.6 is appropriate for embedded generators.

However, as discussed in section 5.4(c), schedule 5.6 deals with both the initial connection process and the ongoing provision of distribution services. If the terms on which ongoing distribution services are provided to embedded generators which are also retail customers is addressed by the NECF, then we propose it is unnecessary for the NER to deal with those matters (other than by cross reference, as appropriate, depending on the contractual structure adopted).

We have set out in Annexure 3 the proposed minimum content requirements for embedded generators that are also retail customers based on our proposed approach. The list of terms is the same as Annexure 2, with some additional comments specific to embedded generators. In particular, we note that it is possible that an embedded generator that is a retail customer may in theory be a Registered Participant, depending on the size of the embedded generator. It is therefore necessary to cover this in the relevant minimum content requirements, in particular as they relate to the technical requirements to be imposed on the embedded generator.

(d) Non retail customers

As the NECF does not apply to embedded generators that are not retail customers, it is necessary for the NER to regulate the minimum content requirements for both the initial connection process and the ongoing provision of distribution services for these embedded generators.

There are a number of approaches that could be adopted for the minimum content requirements for embedded generators that are not retail customers:

- the minimum content requirements could be covered by the existing schedule 5.6, subject to the various changes that have been discussed in this paper; or
- the minimum content requirements could be covered by the proposed new schedule for non retail distribution customers (discussed in section 5.4(d) above).

We suggest that the latter approach be adopted, for consistency in approach to connection agreements for the various categories of customer and embedded generators connected to the distribution network. The minimum terms set out in Annexure 4 would therefore also apply to embedded generators that are not retail customers. As noted above, in contrast to load customers, an embedded generator that is not a retail customer will not necessarily be a Registered Participant, as this will depend on the size of the embedded generator and whether it qualifies for the exemption from registration. Accordingly, it will be necessary within the schedule to make allowance for relevant differences, in particular, in relation to the technical obligations of the embedded generator.

Annexure 1 – Schedule 5.6 – Terms and Conditions of Connection Agreements

The *connection agreements* must contain the specific conditions that have been agreed to for *connection* and access to the *transmission* or *distribution network*, including but not limited to:

- (a) details of the *connection point* including the *distribution network coupling points* where appropriate;
- (b) *metering* arrangements and adjustments for losses where the point of *metering* is significantly different to the *connection point*;
- (c) authorised demand which may be taken or supplied at the *connection point* (under specified conditions);
- (d) details of each *access standard* agreed between the *Network Service Provider* and the *Registered Participant* and all related conditions of agreement resulting from the application of any access provisions contained in schedule 5.1 for *Network Service Providers*, or schedule 5.2 for *Generators*, or schedule 5.3 for *Customers*, or schedule 5.3a for *Market Network Service Provides*;
- (e) *connection service* charges;
- (f) payment conditions;
- (g) duration and termination conditions of the *connection agreement*;
- (h) terms, conditions and *constraints* that have been agreed to for *connection* to the *network* to protect the legitimate interest of the *Network Service Providers* including rights to *disconnect* the *Registered Participant* for breach of commercial undertakings;
- (i) details of any agreed standards of *reliability* of *transmission service* or *distribution service* at the *connection points* or within the network;
- (j) testing intervals for *protection systems* associated with the *connection point*;
- (k) agreed protocols for maintenance co-ordination;
- (l) where an expected *load*, to be connected to a *network*, has a *peak load* requirement in excess of 10MW, the provision, installation, operation and maintenance of automatic *load shedding* facilities for 60 percent of the *load* at any time; and
- (m) terms and conditions of access to the *metering installation* for the *Metering Provider*.

The *connection agreements* may include other technical, commercial and legal conditions governing works required for the *connection* or *extension* to the *network* which the parties have negotiated and agreed to. The circumstances under which the terms of the *connection agreement* would require negotiation may also be included.

Annexure 2 - Minimum contents for distribution connection agreements for retail customers - customer load

| Content requirement | Comments |
|---|---|
| Commencement of the agreement. | The agreement may commence on execution or other defined event signifying acceptance by the customer of the distributor's offer. |
| Details of the new connection point and customer installation, including the maximum capacity of the connection. | We envisage that connection agreements (in particular, standard agreements) may include specific details of this nature in a schedule. |
| Requirement to connect within agreed timeframe or, if no timeframe is agreed, the default timeframe. | The default timeframe would be specified in the NER as a number of days following finalising the connection agreement or, where extension or augmentation works are required, following completion of those works. The timeframe could also be dependent on the customer and any third party service provider complying with their obligations, and may only commence once those obligations are fulfilled. |
| Details of the connection assets and any additional equipment to be installed on the premises to effect the connection, including responsibility for undertaking the work and timeframe for completion. | We envisage that the connection agreement could refer to any arrangements between the customer and a third party to undertake works, but the third party would not be a party to the connection agreement. |
| Details of any network extension or augmentation to be undertaken to effect the connection, including responsibility for undertaking the work and timeframe for completion. | |
| Requirement for the customer to have appropriate metering installed, including responsibility for installation. | Detailed requirements in relation to metering are covered in chapter 7 of the NER. The connection agreement should cover the location of the metering equipment. |
| Technical and safety obligations to be met by the customer in relation to the installation and the distributor's equipment on its premises. | The agreement would provide detail of relevant SIR, standards and other requirements to be met by the customer, including provision of a certificate of electrical safety. This should also cover the testing intervals for protection systems and requirement for alternative load shedding facilities (as currently required in paragraphs (j) and (l) of schedule 5.6). |
| Obligations of the customer to provide access to the distributor (or its agents) to its premises for purposes related to the connection. | |

| Content requirement | Comments |
|---|--|
| Obligation of the customer to provide space on its premises for any distributor equipment necessary for the connection and in relation to the protection of that equipment. | |
| Obligations of the customer to make payments to the distributor, including billing arrangements and details of any security to be provided by the customer. | This would need to be reconciled with the approach to payments being taken under the NECF, but would cover any amounts the distributor is entitled to charge directly in relation to the connection, for example, for any network extension or augmentation. |
| Obligations of the distributor to make payments to the customer as required under the NER. | This would include adjustment of charges for negotiated distribution services where assets are subsequently used to benefit other users. Again, the approach to these payments would need to be reconciled with the NECF. |
| Provision for amendment of the connection agreement by further agreement in writing signed by both parties. | We query whether the limitation to non price terms is necessary, given that any amounts which can be charged will be regulated. |

Annexure 3 – Minimum contents for distribution connection agreements for retail customers - embedded generators

| Content requirement | Comments |
|---|---|
| Commencement of the agreement. | The agreement may commence on execution or other defined event signifying acceptance by the customer of the distributor's offer. |
| Details of the new connection point and embedded generator installation, including the maximum capacity of the connection to export electricity to the network. | We envisage that connection agreements (in particular, standard agreements) may include specific details of this nature in a schedule. |
| Requirement to connect within agreed timeframe or, if no timeframe is agreed, the default timeframe. | The default timeframe would be specified in the NER as a number of days following finalising the connection agreement or, where extension or augmentation works are required, following completion of those works. The timeframe could also be dependent on the customer and any third party service provider complying with their obligations, and may only commence once those obligations are fulfilled. |
| Details of the connection assets and any additional equipment to be installed on the premises to effect the connection, including responsibility for undertaking the work and timeframe for completion. | We envisage that the connection agreement could refer to any arrangements between the customer and a third party to undertake works, but the third party would not be a party to the connection agreement. |
| Details of any network extension or augmentation to be undertaken to effect the connection, including responsibility for undertaking the work and timeframe for completion. | |
| Requirement for the embedded generator to have appropriate metering installed, including responsibility for installation. | Detailed requirements in relation to metering are covered in chapter 7 of the NER. The connection agreement should cover the location of the metering equipment. Note also that metering must allow for both import and export. |

| Content requirement | Comments |
|---|---|
| <p>Technical and safety obligations to be met by the embedded generator in relation to the installation and the distributor's equipment on its premises.</p> | <p>Where the embedded generator is a Registered Participant the relevant NER provisions in relation to access standards will apply.</p> <p>Otherwise, the NER may specify subject matter to be covered by technical obligations to be imposed on the embedded generator. The technical obligations imposed on the embedded generator must meet any jurisdictional requirements imposed on embedded generators. Additional technical requirements may be imposed that are necessary to enable the distributor to meet its regulatory obligations in relation to the performance of the network.</p> <p>The agreement would also provide details of relevant SIR, standards and other requirements to be met by the embedded generator, including provision of a certificate of electrical safety.</p> <p>This should also cover the testing intervals for protection systems (as currently required in paragraph (j) of schedule 5.6).</p> |
| <p>Obligations of the embedded generator to provide access to the distributor (or its agents) to its premises for purposes related to the connection.</p> | |
| <p>Obligations of the embedded generator to provide space on its premises for any distributor equipment necessary for the connection and in relation to the protection of that equipment.</p> | |
| <p>Obligations of the embedded generator to make payments to the distributor, including billing arrangements and details of any security to be provided by the embedded generator.</p> | <p>This would need to be reconciled with the approach to payments being taken under the NECF, but would cover any amounts the distributor is entitled to charge directly in relation to the connection, for example, for any network extension or augmentation.</p> |
| <p>Obligations of the distributor to make payments to the embedded generator as required by the NER.</p> | <p>This would include payments of avoided TUOS and adjustment of charges for negotiated distribution services where assets are subsequently used to benefit other users. Again, the approach to these payments would need to be reconciled with the NECF.</p> |
| <p>Provision for amendment of the connection agreement by further agreement in writing signed by both parties.</p> | <p>We query whether the limitation to non price terms is necessary, given that any amounts which can be charged will be regulated</p> |

Annexure 4 – Distribution connection agreements for non-retail customers, customer load and embedded generation

Part A – Initial connection process

| Content requirement | Comments |
|---|---|
| Commencement of the agreement. | The agreement may commence on execution or other defined event signifying acceptance by the customer of the distributor's offer. |
| Details of the new connection point and installation, including the maximum capacity of input and capacity of the connection. | We envisage that connection agreements (in particular, standard agreements) may include specific details of this nature in a schedule. |
| Requirement to connect within agreed timeframe or, if no timeframe is agreed, the default timeframe. | The default timeframe would be specified in the NER as a number of days following finalising the connection agreement or, where extension or augmentation works are required, following completion of those works. The timeframe could also be dependent on the customer and any third party service provider complying with their obligations, and may only commence once those obligations are fulfilled. |
| Details of the connection assets and any additional equipment to be installed on the premises to effect the connection, including responsibility for undertaking the work and timeframe for completion. | We envisage that the connection agreement could refer to any arrangements between the customer and a third party to undertake works, but the third party would not be a party to the connection agreement. |
| Details of any network extension or augmentation to be undertaken to effect the connection, including responsibility for undertaking the work and timeframe for completion. | |
| Requirement for the customer/embedded generator to have appropriate metering installed, including responsibility for installation. | Detailed requirements in relation to metering are covered in chapter 7 of the NER. The connection agreement should cover the location of the metering equipment. Note also that metering must allow for both import and export. |

| Content requirement | Comments |
|--|---|
| <p>Technical and safety obligations to be met by the customer/embedded generator in relation to the installation and the distributor's equipment on its premises.</p> | <p>Where the customer/embedded generator is a Registered Participant the relevant NER premises in relation to access standards will apply.</p> <p>It is possible that an embedded generator that is not a retail customer may not be a Registered Participant if it falls within the exemption criteria. In this case, the NER may specify subject matter to be covered by technical obligations to be imposed on the embedded generator. The technical obligations imposed on the embedded generator must meet any jurisdictional requirements imposed on the embedded generator. Additional technical requirements may be imposed that are necessary to enable the distributor to meet its regulatory obligations in relation to the performance of the network.</p> <p>The agreement would provide detail of relevant SIR, standards and other requirements to be met by the customer/embedded generator, including provision of a certificate of electrical safety.</p> <p>This should also cover the testing intervals for protection systems and requirement for load shedding facilities (as currently required in paragraph (j) and (l) of schedule 5.6).</p> |
| <p>Obligations of the embedded generator to provide access to the distributor (or its agents) to its premises for purposes related to the connection.</p> | |
| <p>Obligations of the customer/embedded generator to provide space on its premises for any distributor equipment necessary for the connection and in relation to the protection of that equipment.</p> | |
| <p>Obligations of the embedded generator to make payments to the distributor, including billing arrangements and details of any security to be provided by the embedded generator.</p> | <p>In the case of non-retail customers, all amounts relating to connection to the distribution network would be paid directly to the distributor.</p> |
| <p>Obligations of the distributor to make payments to the customer/embedded generator as required by the NER.</p> | <p>This would include payments of avoided TUOS and adjustment of charges for negotiated distribution services where assets are subsequently used to benefit other users.</p> |
| <p>Provision for amendment of the connection agreement by further agreement in writing signed by both parties.</p> | <p>Query whether the limitation to non price terms is necessary, given that any amounts which can be charged will be regulated</p> |

Part B – Additional provisions

| Content requirement | Comments |
|--|--|
| Provisions for termination of agreement. | This may include termination for a breach by the customer/embedded generator of its obligations under the agreement. |
| Distributor's entitlement to interrupt or reduce the transfer capacity. | <p>These provisions would need to be consistent with any applicable regulatory obligations which extend to non-retail customers.</p> <p>This should also cover protocols for maintenance coordination (as currently required by paragraph (k) of schedule 5.6).</p> |
| Obligations of the distributor in relation to the performance of the network. | These obligations will be dealt with through jurisdictional regulation. |
| Liability and warranties | |
| Provision of information by the distributor to the customer/embedded generator in relation to the connection | |
| Disconnections and reconnections | Disconnection may also be subject to any regulatory obligations of the distributor which extend to non-retail customers. |
| Fault reporting and correction | |
| Dispute resolution | The NER dispute resolution provisions may be applicable for these customers. |
| Ongoing customer obligations | <p>In particular, customer obligations as noted above in relation to:</p> <ul style="list-style-type: none"> • maximum transfer capacity; • technical and safety obligations, including in relation to the maintenance and operation of the customer's installation; • provision of access to the distributor (or its agents); and • protection of any distributor equipment on the customer's premises. |