

Australian Energy Market Commission

DRAFT REPORT

UPDATING THE REGULATORY FRAMEWORKS FOR EMBEDDED NETWORKS

31 JANUARY 2019

REVIEW

INQUIRIES

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ABOUT THE AEMC

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

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SUMMARY

- 1 The Australian Energy Market Commission (AEMC or the Commission) is developing a new regulatory framework for embedded electricity networks.
- 2 The Commission has previously found that the current regulatory arrangements for embedded electricity networks are no longer fit for purpose, resulting in some customers not being able to access competitive prices or important consumer protections. There are also insufficient monitoring and enforcement powers, leading to a lack of clarity that embedded network operators are meeting their obligations as suppliers of an essential service. While some embedded networks are providing benefits to energy consumers that they may not receive in a standard supply arrangement, often they do not.
- 3 In this report, the Commission presents a draft package of law and rule changes that will apply to new embedded networks to address these issues. The new framework will elevate new embedded electricity networks into the national regulatory regime under the National Electricity Law (NEL), National Energy Retail Law (NERL), National Electricity Rules (NER) and National Energy Retail Rules (NERR). Proposed drafting amendments for the NER and NERR, and drafting instructions for the NEL and NERL, have been published to accompany this report.
- 4 The new regime will improve consumer protections and access to retail market competition for embedded network customers by extending many of the arrangements for grid-supplied customers to embedded networks. The Commission's view is that consumer protections should be driven by the needs of customers and not the business model of suppliers.
- 5 Stakeholder feedback on the proposed framework is welcome, prior to the Commission finalising its recommended changes and providing them to the COAG Energy Council in mid-2019 for its endorsement. The report also deals with some residual matters, including the extent to which the new arrangements should be applied to existing embedded networks, that will be subject to further consideration and stakeholder consultation prior to the Commission finalising its advice to the COAG Energy Council.
- 6 The proposed framework will not be implemented until the COAG Energy Council has redrafted electricity and energy retail laws based on the AEMC's proposed law change descriptions, and submitted these to South Australian Parliament to make. The proposed changes to electricity and energy retail rules will then be able to be made. Following the enactment of this package of law and rule changes, jurisdictions may also need to make amendments to jurisdictional instruments and AEMO and the AER will require a transitional period to consult on and update relevant procedures and guidelines. These additional processes are likely to take at least twelve to eighteen months following the AEMC submitting its final advice to the COAG Energy Council.

Background

- 7 The National Electricity Law requires that an entity which owns, controls or operates a transmission or distribution system register with Australian Energy Market Operator (AEMO)

unless exempted by the Australian Energy Regulator (AER) from doing so. Similarly, the National Energy Retail Law requires that a person must be authorised to sell energy to a person for premises unless exempted by the AER from obtaining an authorisation.

- 8 Embedded networks are private electricity networks – that is, they are owned and operated by parties that have been exempted from the requirement to register with AEMO – which serve multiple customers and are connected to another distribution or transmission system through a parent connection point.
- 9 Generally, the exempt network service provider also purchases electricity at the parent connection point and on-sells it to customers at child connection points within the embedded network. Such sales are referred to as being ‘off-market’, in that they are not conducted through the National Electricity Market (NEM). On-selling entities must hold a retailer authorisation from the AER or be exempted by the AER from having to hold a retailer authorisation.
- 10 Common examples of embedded networks include shopping centres, retirement villages, apartment complexes and caravan parks. Embedded networks may occur as new developments or as retrofits of existing buildings. In addition, they may – but at present usually do not – include distributed energy resources such as solar photovoltaic (PV) panels, battery storage, or diesel generators within them.
- 11 In recent years, there has been significant increase in the number and scale of embedded networks, with the residential apartment market being the primary driver of this growth.
- 12 This reflects a shift towards higher-density living, together with the evolution of a ‘business model’ associated with installing and operating embedded networks. While there continue to be large numbers of ‘traditional’ embedded network operators such as caravan parks and retirement villages, in recent years new types of businesses have emerged that fund and supply the metering and other electrical infrastructure in apartment complexes. In return, these businesses may receive lengthy contracts to provide power to the whole building and effectively become a monopoly retailer to occupants. Many such businesses also provide other bundled services, including hot water, chilled water for air conditioning, gas for cooking and telecommunications.
- 13 There are currently over 4,000 embedded electricity networks that have been registered as being exempt from registering as a Network Service Provider. The number of networks that are deemed to be exempt from registering as a Network Service Provider are unknown given they are not required to be registered with the AER. In late 2017, the Commission estimated there could be over 200, 000 embedded network customers. However, stakeholders have recently suggested that the current amount could be significantly higher than this – perhaps in excess of half a million customers.
- 14 The regulatory frameworks for exempting networks from registration and retailers from authorisation were developed to address limited risks associated with a limited set of activities where the sale and supply of electricity was not an entity’s core business in developments such as caravan parks, shopping centres, office buildings and apartments. . Thousands of embedded networks have now been exempted, even where these are being

run as a core business by specialised operators, leading to concerns regarding the appropriateness of the exemption frameworks.

Problems with the current regulation of embedded networks

- 15 In December 2016, the Commission was requested by the COAG Energy Council to undertake a review of the regulatory arrangements for embedded networks. In doing so, we were asked to determine whether the current arrangements remain appropriate, to identify and assess any issues arising and to outline potential solutions to any identified problems.
- 16 The final report for the review was published in December 2017. In it the Commission set out its finding that the exemption framework is no longer fit for purpose in the face of the growth in the number and scope of embedded networks. The current framework does not strike an appropriate balance between innovation, consumer protection and facilitating consumer access to retail market competition.
- 17 In particular, the Commission found significant practical barriers to customers in embedded networks accessing retail market competition, despite earlier regulatory reforms that sought to put in place arrangements to allow for this. Currently, customers of exempt on-sellers in embedded networks are not included in AEMO's retail market systems, and so competing NEM retailers are unable to quote, transfer and bill customers using standard market processes. Bespoke embedded network tariffs and billing arrangements also require NEM retailers to adapt product offerings and operate manual processes to manage transactions with embedded network customers. These issues mean that, in practice, embedded network customers have limited ability to change supplier if they are unhappy with the price they are paying or the level of service they are receiving.
- 18 While embedded network customers do benefit from some consumer protections imposed by the AER as conditions of exempting embedded network operators from registering as a network service provider and being authorised as a retailer, these consumer protections are more limited than those applicable for standard supply arrangement customers. Consumer protection gaps exist in areas such as de-energisation and re-energisation obligations, obligations to provide connection services, life support arrangements, information provision and retailer of last resort arrangements. There are no reliability standards or guaranteed service level payments for outages that apply to customers in embedded networks, as well as gaps in safety obligations in some jurisdictions. It is also more difficult for embedded network customers in some jurisdictions to access concessions and ombudsmen schemes.
- 19 Finally, the current exemption frameworks suffer from an inadequate compliance and monitoring regime, in that the AER does not place reporting requirements on exempt parties and therefore has no visibility over their compliance with exemption conditions. There are also limited enforcement options available to the AER.
- 20 These issues can further be exacerbated by the complexity of some business models, which can involve owners corporations, embedded network operators, billing agents, exempt sellers and authorised retailers. There are instances, for example, where authorised retailers undertake selling activities in embedded networks where a retail exemption is in place, and this makes it difficult for the AER and ombudsmen to determine which parties are responsible

for the supply and sale of energy, and which obligations apply to them.

21 Fundamentally, the Commission has concluded that consumer protections should be driven by the needs of consumers, rather than the business model of the supplier. In any event, the provision of embedded network and retail services is increasingly being performed by entities for which this is their core business.

Recommendations made in the 2017 Review of regulatory arrangements for embedded networks

22 Given the above findings, in the 2017 Review the Commission recommended changes to the regulatory framework for embedded networks to address the identified issues. The proposed package of changes included:

- improving consumer access to retail market competition in legacy and new embedded networks, by capturing all embedded network customers in AEMO's market systems and by standardising network billing arrangements between embedded networks and NEM retailers
- elevating new embedded networks into the national regulatory frameworks, including through the registration of embedded network service providers (ENSPs), the authorisation of on-selling retailers and the extension of standard NEM metering arrangements to embedded networks
- narrowing the network service provider and selling exemption frameworks for new embedded networks to apply only to circumstances where the costs of registration as an ENSP and retail authorisation would outweigh the benefits to consumers and where the need for regulatory oversight is low
- enhancing consumer protections in legacy and new embedded networks through improving the AER's ability to monitor and enforce exemption conditions, addressing gaps in the NERL and NERR for embedded network customers supplied by an authorised retailer and improving the information provided to consumers entering embedded networks or involved in the conversion of a property to an embedded network.

23 In the 2017 review's final report, the Commission noted that it intended to commence work on developing detailed advice on implementing the proposed recommendations set out in that report, unless advised otherwise by the COAG Energy Council by July 2018. The COAG Energy Council subsequently noted its support for the Commission undertaking this work.¹

Approach

24 On 30 August 2018, the Commission published terms of reference for providing detailed advice on updating the regulatory frameworks for embedded networks.

25 The purpose of the review is to provide advice to the COAG Energy Council on the detailed amendments to the regulatory framework that are required to implement the recommendations made by the Commission in the *2017 Review of regulatory arrangements*

¹ COAG Energy Council, *Terms of Reference - Review of changes required to the national electricity framework for stand-alone power systems*, July 2018, p. 5.

for embedded networks.

- 26 The recommendations will collectively establish a new regulatory framework for embedded networks and, through the review, the Commission is developing a package of changes to the NEL, NERL, NER, NERR and any other relevant regulatory instruments required to give effect to this new framework.
- 27 In addition to developing the package of framework changes, the Commission will provide advice to the COAG Energy Council on the appropriate pathway for implementation of the changes.
- 28 The Commission is closely coordinating the review with its work on stand-alone power systems. On 23 August 2018, the COAG Energy Council requested that the AEMC undertake a review of the regulatory arrangements for stand-alone power systems. Stand-alone power systems are electricity arrangements that are not physically connected to the national grid. The two reviews are considering similar, potentially linked policy and legal issues, particularly in relation to consumer protections. Both reviews are likely to result in recommendations for changes to national energy laws, and the COAG Energy Council may subsequently decide to progress these as a single legislative package.

Purpose of this report

- 29 This report presents and explains the Commission's draft package of changes to give effect to the recommendations of the 2017 Review. At this stage, the package of changes presented focuses primarily on the arrangements that would apply for *new* embedded networks established after the introduction of the new regime.
- 30 Some amendments are also proposed for legacy embedded networks. These amendments have the objective of improving consumer protections and retail market competition in existing embedded networks. The Commission has also invited stakeholders to comment on the potential transition of some legacy embedded networks to the proposed new framework and plans to undertake further consultation on this prior to publishing a final report.
- 31 Alongside the report, the Commission has published:
- rules drafting for recommended changes to the NER and NERR
 - drafting instructions for the recommended changes to the NEL and NERL.
- 32 This is the first formal document for consultation published for this review. Given that the purpose of the review is to implement recommendations previously developed in the 2017 Review, the Commission considered that the most productive stage at which to consult formally would be following the development of a draft package of law change descriptions and rule changes.
- 33 However, in developing the draft package, the Commission has undertaken informal consultation with a wide range of stakeholders, including AEMO, the AER, consumer groups and ombudsmen, embedded network operators and state, territory and commonwealth officials.
- 34 The Commission also held a stakeholder workshop in Sydney on 23 October 2018, which was

attended by more than 70 stakeholders in person and around 30 by webinar. At the workshop, Commission staff gave a summary of the findings of the 2017 Review and the new regulatory framework under development, and roundtable discussions were held on a selection of issues.

Overview of the proposed framework

- 35 Electricity is an essential service and as set out above the Commission recommended in its 2017 review that customers in embedded network should have the equivalent consumer protections as standard supply customers. As suppliers of an essential service, the Commission recommended the registration of embedded network service providers (ENSPs) and the authorisation of on-selling retailers so that customers could be provided the same protections, access to retail market competition and regulatory oversight as standard supply customers.
- 36 The package of proposed changes which are necessary to achieve this is inevitably detailed given the complex nature of embedded network arrangements. The proposed changes impose additional regulatory obligations on embedded network businesses which may increase the costs of operating for some of these businesses. However, the Commission is of the view that these costs will be outweighed by the benefits to consumers from improvements in consumer protections in embedded networks and access to retail market competition. Furthermore, while the costs to embedded network businesses may increase, prices for embedded network customers may come down due to these embedded networks businesses having to compete with other retailers to keep their customers.
- 37 The proposed framework facilitates the establishment of embedded networks where it is efficient to do so without compromising consumer protections or access to retail market competition. Implementing the proposed framework may therefore alter the incentives for establishing an embedded network depending on the nature of the entity wishing to provide the service, the type of development and the number and types of customers.
- 38 It is likely that small entities, such as a single owners' corporation, will find it costly to become registered and authorised and to comply with the proposed framework. The Commission anticipates that the developers and owners of embedded networks will instead appoint a third party service provider that has the necessary registration and authorisation. This is similar to what already happens now in many smaller embedded networks where many activities are performed by third party billing agents and other service providers, except that those service providers are currently unregulated. Smaller developments, such as a set of townhouses, may also find the cost of connecting premises directly to the LNSP's network may be more cost effective than establishing embedded network arrangements.
- 39 As is the case now, authorisation as a retailer will only be required where there is a 'sale of energy'. As such, the proposed framework does not capture a number of other arrangements such as where the rent that is charged for a premise includes the provision of electricity, for example. This means that smaller businesses which continue to provide electricity incidentally to another service may continue to do so unaffected.

40 The proposed framework is designed to strike a balance in order to provide important consumer protections without placing undue costs on owners and operators of embedded networks. Larger operators are of a scale similar to retailers in the NEM, and it is appropriate that they bear costs in the same way. Some smaller operators, for instance caravan parks, may still be exempt if they are only supplying temporary customers or are not considered to be undertaking the sale of energy. Where smaller entities would be selling energy to permanent customers, they may be able to minimise the costs associated with operating an embedded network by outsourcing this or avoid these costs entirely by not establishing an embedded network in the first place.

41 This report presents and explains the Commission's draft package of changes to implement the new regulatory framework for embedded networks. The proposed changes are discussed in the following themes:

- registration and exemption
- market and system integration
- network billing
- connection and network charging
- consumer protections in the NERL and NERR
- monitoring and compliance.

42 The report also highlights areas of jurisdictional regulation that jurisdictional governments and regulators may need to give consideration to as part of the implementation of the new framework.

Registration and exemption

43 The proposed framework would significantly reduce the number of parties eligible for network service provider and retail exemptions as compared to today. Instead, two new roles would be created:

- Embedded Network Service Providers (ENSPs), which will be required to register with AEMO and will be subject to many of the existing regulatory requirements placed on Distribution Network Service Providers (DNSPs), and
- Off-market retailers, which will be required to obtain an authorisation from the AER, and will be subject to most requirements that existing authorised retailers are subject to.

44 The number of exemptions will be further reduced by clarifying the definition of the term 'distribution system' such that a number of network activities currently subject to deemed exemptions under AER guidelines would no longer be considered to be a network activity for the purpose of the NER.

45 The registration of ENSPs and authorisation of off-market retailers will result in benefits to consumers by allowing obligations relating to consumer protections and retail market competition to be placed directly on these parties, and for improved enforcement of this obligations by the AER. For those exemptions that are retained, transparency would be enhanced by requiring all exempt parties to register with the AER. The following table

illustrates the proposed treatment of a number of common types of embedded network.

Figure 1: Proposed treatment of common embedded network types under the proposed framework

Activity	Current	Proposed
Short term holiday accommodation	Deemed exempt	Registered exempt
Electric vehicle charging stations	Deemed exempt	Registered exempt
Small commercial and residential complexes	Deemed exempt	Registered network service provider and retailer
Large commercial and residential complexes	Registered exempt	Registered network service provider and retailer
Retirement villages	Registered exempt	Registered network service provider and retailer
Long term holiday accommodation	Registered exempt	Registered network service provider and retailer
Shopping malls	Registered exempt	Registered network service provider and retailer

Note: The listed activities refer to both energy supply and sale activities and are derived from current AER exemption classes.

Market and system integration

46 Integrating embedded networks into the NEM by extending the application of the NER
metering framework is key to providing customers in embedded networks improved access to
retail market competition and important consumer protections relating to metering data.

47 Under the new framework:

- Off-market retailers will be responsible for appointing a metering coordinator at their off-market child connection points, in the same way that retailers in the rest of the NEM appoint metering coordinators following the introduction of new metering arrangements in December 2017.
- ENSPs will be responsible for registering all child connection points with AEMO and maintaining information in AEMO's systems.

48 These arrangements will mean that metering in embedded networks is consistent with that in the rest of the NEM and will also allow off-market child connection points to be 'discoverable', removing a key barrier to retail competition for embedded network customers.

Network billing

49 Another important change to support retail competition is the introduction of standardised billing arrangements for the recovery of external network charges from embedded network customers who choose to go 'on-market' with an alternative retailer. These retailers purchase electricity directly from the National Electricity Market and sell this to the embedded network customer, rather than on-sell electricity bought at the connection point of the embedded network to the LNSP's distribution network. Where embedded network customers go 'on-market' like this, the external network charges are still paid by exempt embedded network service provider at the connection point to the LNSP's distribution network.

50 At the moment, bespoke embedded network tariffs and embedded network billing arrangements that require retailers to operate manual processes to manage transactions with large numbers of exempt network service providers represent major practical impediments to consumers accessing retail market competition and being able to choose a market offer with an alternative retailer outside the embedded network.

51 To resolve these issues, the new framework provides for ENSPs registered under the new framework and existing exempt ENSPs to:

- set network charges at a level no greater than the amount that the customer would have paid had it been directly connected to the LNSP's distribution network to which the embedded network is connected (the 'shadow price')
- use standardised processes and data formats to bill retailers these charges for on-market customers.

52 The proposed network billing arrangements do not apply to the arrangements between ENSPs and off-market retailers in embedded networks.

Network regulation and connection

53 As suppliers of an essential service, the Commission considers it appropriate for ENSPs to have obligations to connect new customers and to make requested alterations to existing connections within the embedded network. While the connection of new customers in an area served by an embedded network might be a relatively rare occurrence, in many cases it would likely be impractical for such customers to instead seek connection to the local DNSP's network, making the ENSP a monopoly provider. In addition, customers in existing embedded

networks frequently report problems with the standard of their connections and difficulties in agreeing alterations.

54 Consequently, the new framework places obligations on ENSPs to provide customer connection services under the NERL and Chapter 5A of the NER in a similar manner to DNSPs. However, unlike for DNSPs, it is proposed that a single connection policy covering all ENSPs will be established by the AER.

55 While it is not proposed that the connection charges levied by ENSPs be directly regulated by the AER (as would be the case for DNSPs), there will be obligations in place that require such charges to be reasonable and provisions that allow any disputes raised in this regard to be resolved by the AER.

Consumer protections in the NERL and NERR

56 Under the proposed framework, customers in new embedded networks which are registered with AEMO will be retail customers, supplied by either an authorised on-market NEM retailer or an authorised off-market retailer. This will enable consumer protections for embedded network customers to be closely aligned with those of standard supply customers under the NERL and NERR. While the creation of the separate class of authorised off-market retailer would allow the application of a reduced set of consumer protections, the Commission has concluded that almost all the existing consumer protections under the NERL and NERR should apply.

57 However, a number of minor amendments are required to the NERL and NERR to accommodate the broader relationships present in embedded networks. These include retailer and distributor interruptions and life support arrangements, which will require the involvement and coordination of multiple network service providers and retailers.

58 The Commission also proposes the establishment of a modified set of Retailer of Last Resort (RoLR) arrangements for embedded networks, where the retailer at the parent connection point would become the RoLR in the event of the failure of an off-market retailer. As well as providing continuity of supply to embedded network customers, this will provide some measure of protection to parent retailers in that they would then be able to recover costs from customers at child connection points directly.

Monitoring and compliance

59 Under the proposed framework, there will be increased regulatory oversight of parties providing services in embedded networks.

60 ENSPs will be treated as a type of registered participant under the NEL and the NERL, and required to comply with applicable provisions in the rules. This includes being subject to the AER's monitoring, investigation, and conduct powers, general information gathering powers and AER reporting requirements.

61 The proposed framework will require the majority of entities that would previously have been eligible for an exemption to register under the NERL and NEL as off-market retailers, and generally become subject to the provisions applicable to NEM retailers. This includes being

subject to the NERL compliance framework applicable to NEM retailers.

62 The Commission has also proposed measures to strengthen the compliance framework for existing and future exempt network service providers and exempt sellers, which will be important to improving outcomes for customers in legacy embedded networks. Exempt sellers will become subject to compliance audit provisions whilst exempt network service providers will be subject to general information gathering powers. Any breaches of exemption conditions will be enforceable by the AER as part of its monitoring, investigation and enforcement procedures with breaches of those exemption conditions or network exemptions enforceable under the law.

Jurisdictional regulations

63 To provide a complete set of consumer protection and safety regulations to consumers in embedded networks, there are state and territory functions that need to be considered. These include:

- access to state and territory concessions and rebates
- access to independent dispute resolution for both distribution and retail services
- retail price controls
- network reliability protections, including guaranteed service level (GSL) schemes
- other GSL payments
- safety requirements and monitoring regimes
- technical regulation, such as equipment and performance standards.

64 The Commission's initial analysis suggests that many of these types of jurisdictional regulation will apply automatically for retail activities under the new regulatory framework, given that off-market retailers will be subject to authorisation under the new framework. However, the situation is more complex for network activities, as jurisdictional obligations on networks are usually put in place through jurisdictional licensing schemes rather than as a consequence of network service provider registration with AEMO. This is something that jurisdictional governments and regulators may need to give consideration to as part of the implementation of the new framework.

65 Given the importance of network reliability in particular, the Commission has given consideration as to how jurisdictional frameworks might be amended to extend protections for existing DNSP customers to those of ENSPs. This would involve amending existing jurisdictional regulations for DNSPs in order to capture customers at child connection points, as opposed to treating parent connection points as only being single customers, and extending GSL schemes to cover ENSPs.

Legacy embedded networks

66 As noted, the report discusses the Commission's analysis and policy positions primarily in relation to new embedded networks. However, given the large number of customers in existing embedded networks, the Commission considers it is possible there may be benefits in requiring certain existing exempt network service providers and exempt sellers to transition

to the updated framework. In practice, for existing networks with large numbers of customers, there may be little difference in the obligations that would apply, and transitioning these network service providers to the new framework would streamline the regulatory arrangements.

67 Consequently, the Commission is keen to receive feedback from stakeholders on:

- the costs and benefits of transitioning legacy embedded networks to the new framework
- appropriate criteria for determining which legacy embedded networks should transition to the new framework
- potential impediments to legacy embedded networks transitioning to the new framework
- the appropriate timeframes for transitioning legacy embedded networks.

Next Steps

68 Written submissions from stakeholders commenting on the draft package of framework changes presented in this report are due by **14 March 2019**.

69 In the next stage of the review, and leading up to the publication of the final report for the review in May 2019, the Commission will consider and engage further with stakeholders on legacy embedded networks, together with the following additional issues:

- price protections in legacy embedded networks in which it is not possible to introduce effective retail competition
- the areas of jurisdictional regulation noted above that will require further consideration as part of the implementation process
- the extent to which there may be benefits in developing a national framework for gas embedded networks, and what such a framework should cover.

70 Further information regarding this work will be provided in early 2019.

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1 INTRODUCTION

This chapter outlines the following:

- the purpose of the review
- current related work being undertaken by the AEMC
- stakeholder consultation activities to date
- next steps for stakeholders
- the structure of this report.

1.1 Purpose of the review

The Australian Energy Market Commission (AEMC or Commission) published terms of reference for a review into *Updating the regulatory frameworks for embedded networks* on 30 August 2018.

The purpose of the review is to advise on the detailed amendments to the regulatory framework that are required to implement the recommendations made by the Commission in November 2017 in the *Review of regulatory arrangements for embedded networks (2017 Review)*.

In the 2017 Review, prompted by the significant uptake of embedded networks in recent years, the broadening scope and size of embedded networks and concerns in relation to varying consumer experiences, the Commission assessed the current regulatory arrangements that apply to embedded networks and found that they are no longer fit for purpose. To address the identified issues, the Commission recommended a new regulatory approach for embedded networks.²

The scope of the package of changes to be developed includes:

- improving consumer access to retail market competition in legacy and new embedded networks
- elevating new embedded networks into the national regulatory frameworks, including through the registration of most embedded network service providers (ENSPs) and the authorisation of off-market retailers
- improving consumer protections in legacy and new embedded networks by addressing regulatory gaps for customers in embedded networks and improved information provision, and better monitoring and enforcement.

In the final report for the 2017 Review, the Commission noted that it would commence work on developing detailed advice on implementing the proposed framework set out in that report, unless advised otherwise by the COAG Energy Council by July 2018. The Council advised that it supported the Commission commencing this work in mid-2018, in order to

² AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017, p. v.

advise the Council on changes to the law and rules to implement the Commission's recommendations in the final report of the 2017 Review.³

In addition to developing the package of framework changes, the Commission will provide advice on the appropriate pathway for implementation of the changes, including the need for, and governance of, any potential dedicated implementation program and how rule changes should be progressed.

Purpose of this draft report

This draft report presents and explains the Commission's draft package of changes to the national regulatory frameworks to implement the new approach for embedded networks previously recommended by the Commission. At this stage, the package of changes presented focuses primarily on the arrangements that would apply for **new** embedded networks established following the introduction of the new regime.

Alongside the report, the Commission has published:

- rules drafting for recommended changes to the National Electricity Rules (NER) and National Energy Retail Rules (NERR)
- drafting instructions for recommended changes to the National Electricity Law (NEL) and National Energy Retail Law (NERL).

Although the updated framework primarily applies to newly established embedded networks, the proposed amendments to the NER include additional obligations on exempt network service providers in relation to the registration of off-market connection points in the Australian Energy Market Operator's (AEMO) systems and network billing and payment arrangements. These amendments aim to improve retail market competition in **legacy** embedded networks.⁴ The proposed framework also permits legacy exempt network service providers and exempt sellers to choose to transition to the updated framework by making it simpler to surrender an exemption.

1.2 Related work

The Commission is undertaking this review alongside a number of related projects, as discussed below.

Review of the regulatory frameworks for stand-alone power systems

The COAG Energy Council has directed the AEMC to provide advice on required changes to the electricity regulatory framework, as set out in the NEL and NERL and associated rules and subordinate instruments, to allow for the use of stand-alone power systems (SAPS) where this would be economically efficient, while maintaining appropriate consumer protections and service standards.

³ COAG Energy Council, *Terms of Reference – Review of changes required to the national electricity framework for stand-alone power systems*, July 2018, p. 5.

⁴ These changes are proposed to apply in those legacy embedded networks that have introduced an embedded network manager as part of the National Electricity Amendment (Embedded Networks) Rule 2015.

The Commission is closely coordinating and considering linked policy and legal issues between the SAPS and the embedded networks work streams. The COAG Energy Council has recommended the two work streams are coordinated to ensure strategic overview, efficiency and consistency, as the regulatory issues are similar for both reviews.

There are a number of synergies between the issues for customers in embedded networks and customers of SAPS, particularly with regard to consumer protections. The Commission has therefore progressed the development of these two frameworks concurrently and has published a draft report for the *Review of the regulatory framework for stand-alone power systems* on 18 December 2018. The final reports for both reviews are due to be published by 31 May 2019.⁵

2019 Retail Energy Competition Review

In its *2018 Retail Energy Competition Review*, the Commission made a recommendation that, taking into account any voluntary codes developed, the AEMC should assess whether changes to the National Energy Consumer Framework (NECF) are required to protect consumers receiving services and products from new energy service providers.⁶

The NECF was originally developed with the view that all consumers would be supplied through the interconnected electricity system, supported by a retail contract. Many products and services, such as solar and battery systems, are now provided by different entities, leading to an increasingly complex set of consumer relationships.

Moreover, some energy sales are not being defined and treated as such. For example, the cooling or heating of water using electricity or gas is being sold as 'bulk hot water' and often measured in units of water volume without standardised conversion in most jurisdictions.⁷ This has caused uncertainty as to which regulatory frameworks to apply, in addition to difficulties for vulnerable customers in accessing energy rebates.

Consumer protection mechanisms that exist under the NECF and Australian Competition Law (ACL) apply in different ways for consumers who invest in solar and battery products. This can lead to some confusion for consumers when trying to resolve complaints relating to these products.

The *2019 Retail Energy Competition Review's* assessment as to whether changes to the NECF are required will take into account the findings of the *Review of the regulatory framework for stand-alone power systems* and this review into *Updating the regulatory framework for embedded networks*.

5 The terms of reference for the *Review of the regulatory framework for stand-alone power systems* set out two priority areas of work. The draft report referred to here focuses on Priority 1, which is to develop a national framework to facilitate the transition of grid-connected customers to SAPS supply provided by the current distribution network service provider, as well as a mechanism for the transition of grid-connected customers to third party SAPS supply. Priority 2 is to develop a national framework for SAPS that are provided by parties other than distribution network service providers. Consultation on Priority 2 will commence in early 2019.

6 AEMC, *2018 Retail Energy Competition Review*, final report, 15 June 2018, p. 134.

7 Bulk hot water service generally refers to the individual distribution of water that is centrally heated or cooled in common systems.

1.3 Stakeholder consultation

This is the first formal document for consultation published for this review. Given that the purpose of the review is to implement recommendations previously developed in the 2017 Review, the Commission considered that the most productive stage at which to consult formally would be following the development of a draft package of law change descriptions and rule changes.

In developing the draft package, the Commission has undertaken informal consultation with a wide a range of stakeholders, including:

- collaboration with the Australian Energy Regulator (AER) and AEMO on the most appropriate means of implementing the recommendations
- consultation with Energy Consumers Australia, other consumer groups and ombudsmen seeking feedback and input
- consultation with state, territory and commonwealth officials, including jurisdictional ombudsmen
- consultation with other stakeholders, including embedded network operators, caravan parks associations, shopping centre representatives, property developers, universities, retailers, distribution network service providers and consumer groups.

The Commission also held a workshop in Sydney on 23 October 2018. At the workshop, Commission staff gave a summary of the findings of the 2017 Review and the new regulatory framework under development. Engagement with participants at the workshop included roundtable discussions on a selection of issues with all stakeholder representatives.⁸

1.4 Next steps

The AEMC invites stakeholders to provide their views on the draft regulatory framework that is presented in this report and set out in the attached draft package of law change descriptions and rule changes. Submissions are due by **14 March 2019**.

During the next stage of the review, the Commission will progress a number of issues not addressed in this report: transitioning legacy embedded networks to the new framework, gas embedded networks, interfaces with jurisdictional arrangements and implementation issues. These are discussed in further detail in chapter 8 of this report. The Commission will also need to undertake further work on a number of technical issues related to Chapters 4 and 5 of the NER.

The Commission plans to publish a final report for the review by 31 May 2019.

1.5 Structure of this report

The remainder of this report is structured as follows:

⁸ A recording of the webcast and the slides from the workshop are available on the AEMC's website, see: <https://www.aemc.gov.au/market-reviews-advice/updates-regulatory-frameworks-embedded-networks>.

- Chapter 2 provides context to the review, sets out the Commission’s approach and gives an overview of the findings of the 2017 Review
- Chapter 3 presents an overview of the recommended network and seller registration and exemption regimes
- Chapter 4 sets out the Commission’s recommendations for market integration of embedded networks, including the proposed metering framework
- Chapter 5 focuses on network billing arrangements for on-market customers
- Chapter 6 explains the Commission’s recommendations on network regulation, including the establishment of a connection framework, the approach to connection charging and shadow pricing
- Chapter 7 explains the Commission’s recommendations for updating consumer protections and introducing embedded networks into the NECF arrangements
- Chapter 8 outlines the next steps that result from the Commission’s recommendations, including the approach to transitioning legacy embedded networks to the new framework, gas embedded networks, in addition to jurisdictional and implementation issues
- Appendices: Appendix A and B provide a detailed overview of the roles and responsibilities of the newly created concepts of the Embedded Network Service Provider (ENSP) and off-market retailer, Appendix C outlines jurisdictional arrangements and Appendix D looks into reliability and jurisdictional guaranteed service levels.

2 CONTEXT FOR THE CURRENT REVIEW

In the 2017 Review, the Commission found that the current regulatory framework for embedded networks is no longer fit for purpose in the face of the growth in number and scope of embedded networks. This current review is a culmination of previous work undertaken by the Commission, and has been initiated to provide the COAG Energy Council advice on implementing a new regulatory approach to embedded networks.

This chapter sets out:

- what an embedded network is in the context of the national electricity market (NEM) and how supply arrangements to customers in embedded networks differ from standard supply customers
- the information and data available on the numbers, scale and growth of embedded networks
- an overview of the exemptions framework administered by the AER and under which embedded networks are regulated
- analysis on the incentives driving the evolution of embedded networks
- a summary of the Commission's findings and recommendations from the 2017 Review.

Box 1 lists the key terms that are used in this report in reference to the current and proposed embedded network regulatory frameworks.⁹

BOX 1: KEY TERMS USED IN THIS REPORT

Network related terms

Embedded network: The NER defines an embedded network as a distribution system, connected at a **parent connection point** to either a distribution system or transmission system that forms part of the national grid, and which is owned, controlled or operated by a person who is not a regulated **network service provider**.

Legacy embedded networks: Embedded networks established under the existing regulatory framework, which are operated by **exempt network service providers**.

Network service provider: Chapter 2 of the NER defines a network service provider as a person who engages in the activity of owning, controlling or operating a transmission or distribution system and who is registered by AEMO as a network service provider. Under the proposed framework, network service provider includes **regulated network service providers** and **embedded network service providers**.

Local network service provider: The NER defines a local network service provider (**LNSP**) as a network service provider to which a respective geographical area has been allocated by

⁹ The current regulatory framework for embedded networks refers to the current provisions relating to embedded networks in the NEL, NER, NERL and NERR. The proposed framework refers to the recommendations in the 2017 Review and this report, as set out in the attached proposed NER and NERR rules and drafting instructions for NEL and NERL changes.

the authority responsible for administering the jurisdictional electricity legislation in the relevant participating jurisdiction. A LNSP is a **regulated network service provider**, which refers to being economically regulated by the AER.

Exempt network service provider: A term commonly used to describe the party that owns, controls or operates an exempt network. In the context of this draft report this term is generally used in reference to the party that owns, controls or operates a legacy embedded network. That party has the benefit of an exemption from registering as a distribution network service provider (**DNSP**) (under the existing regulatory framework). Generally, the same party also on-sells electricity to customers within that embedded network under an exemption from the AER from holding a retailer authorisation. The term **embedded network operator** is also commonly used synonymously for exempt network service provider.

Embedded network manager: The *National Electricity Amendment (Embedded Networks) Rule 2015 (Embedded Networks Rule)* introduced the embedded network manager (**ENM**) as a new accredited provider role into the NER. The ENM is responsible for performing market interface services for embedded network customers. This rule came into effect on 1 December 2017.

Embedded network service provider (new concept): A person who engages in the activity of owning, controlling or operating an embedded network and who is registered by AEMO as an embedded network service provider (**ENSP**).

Embedded network area (new concept): The geographical area, site or premises served by an embedded network. Upon registration with AEMO, the **ENSP** must also register the area of each embedded network it operates.

Exempt network operator (new concept): The exempt network operator (**ENO**) is a person who owns, operates or controls a transmission or distribution system under an exemption granted or deemed to be granted by the AER.^[1]

Exempt embedded network service provider (new concept): The exempt embedded network service provider (exempt ENSP) is a person who engages in the activity of owning, controlling or operating a distribution system by means of an embedded network that has obtained a network exemption from the AER.

Retail related terms

Retailer: A retailer authorised by the AER under the NERL to engage in the activity of selling energy (electricity or gas) to a person for premises. Under the proposed framework, a retailer authorised by the AER can be a fully authorised **NEM retailer** or hold a limited authorisation from the AER, denoting the sub-class of **off-market retailer**.

NEM retailer: An authorised retailer that purchases electricity in the NEM and sells it to a customer, including to an embedded network customer.

Off-market retailer (new concept): Under the proposed framework, an off-market retailer

has a limited authorisation from the AER to sell in an off-market capacity to customers at **child connection points** in an embedded network. The off-market retailer is not a market participant under the NER (unless also registered in some other category that is a market participant).

Designated retailer: For a small customer's premises where there is no existing connection, the designated retailer under the NERL is the local area retailer for the relevant geographical area, premises or customer. In the proposed framework, the designated retailer for an embedded network is the **local embedded network retailer**.

Local embedded network retailer (*new concept*): The local embedded network retailer is the designated retailer for the embedded network under the proposed framework. The local embedded network retailer is nominated by the **ENSP** for an embedded network to be the designated retailer for small customers seeking connection to that embedded network. In case where there is an existing connection, the designated retailer is the **financially responsible retailer for the child connection point**. This could be either the **NEM retailer** or the **off-market retailer**.

Exempt seller: The exempt seller is a person who is exempted by the AER from the requirement to hold a retailer authorisation.^[2]

Market offer: A market offer is an offer by a **NEM retailer** or **off-market retailer** to a small customer to provide customer retail services under a market retail contract.^[3]

Customer related terms

Exempt customer: An exempt customer is a person to whom an **exempt seller** sells energy.^[4]

Retail customer: A retail customer is a customer of an authorised retailer. This can either be a **NEM retailer customer** or an **off-market retailer customer**.^[5]

Small customer: A 'small customer' is a customer who is a residential customer; or who is a business customer who consumes energy at business premises below the upper consumption threshold.^[6]

Standard supply customer: A customer whose electrical supply is connected to a distribution system that is owned and operated by a **DNSP** and whose retail services are provided by a **NEM retailer**.

Other terms and definitions

Off-market: Under an off-market arrangement an **off-market retailer** or **NEM retailer** on-sells electricity purchased at a parent meter from the NEM to an embedded network customer. This is known as 'off-market' activity because the customer's electricity consumption is not settled in the NEM.

On-market: Under on-market arrangements within embedded networks, a **NEM retailer** purchases electricity in the NEM and sells it to the embedded network customer. This type of

arrangement is known as “on-market” activity because the customer’s metered consumption is settled in the NEM.

On-selling: On-selling is an arrangement where a person purchases electricity from the NEM, and they, or a person acting on their behalf, sells the electricity to others. On-selling is an **off-market activity**.

Parent connection point: The agreed point of supply between an embedded network and a transmission or distribution system that is serving an embedded network.

Child connection point: The point of supply between an embedded network and a customer, generating unit or other embedded network connected to that embedded network and served by that embedded network.

Network exemption guideline: The Electricity Network Service Provider - Registration Exemption Guideline (Network Exemption Guideline) that is published by the AER.^[7]

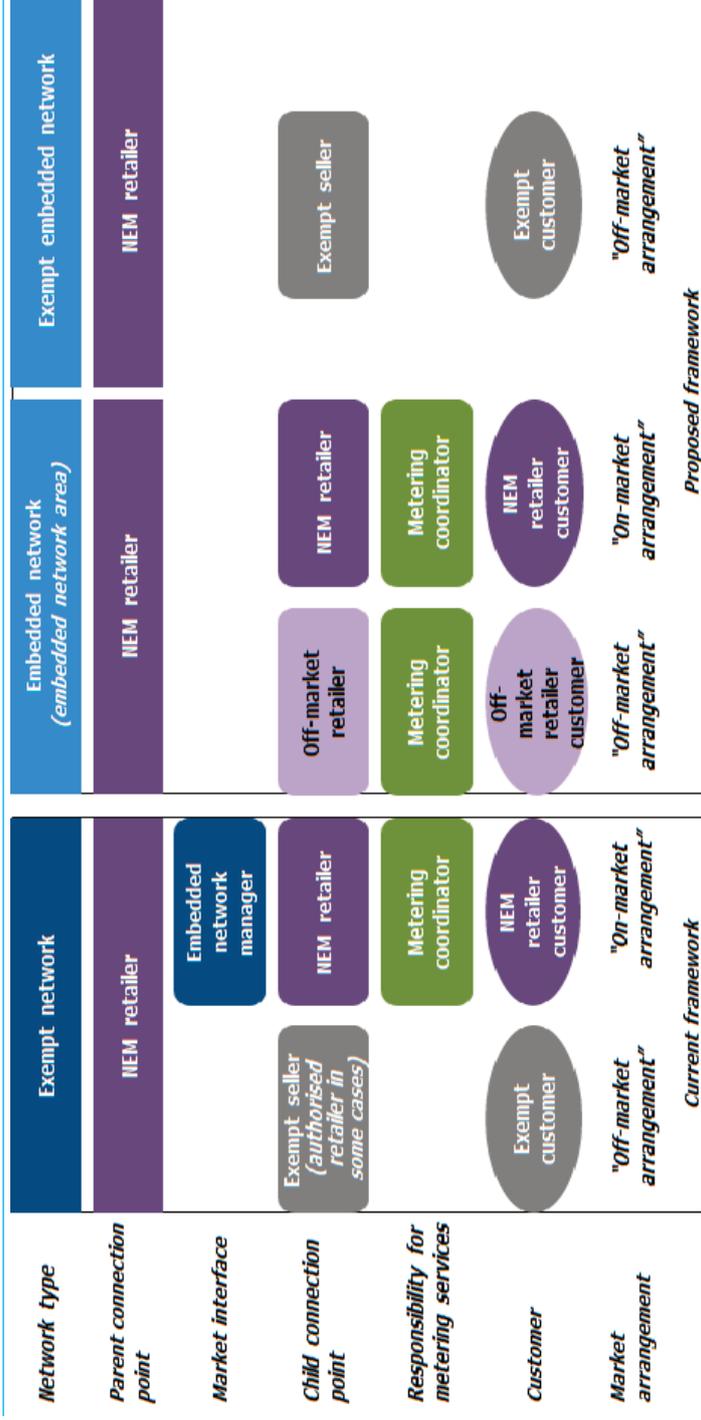
Retail exemption guideline: The AER (Retail) Exempt Selling Guideline (Retail Exemption Guideline) that is published by the AER.^[8]

Source: AEMC.

Note: [1] Section 13 of the NEL and clause 2.5.1(d) of the NER. [2] Rule 2(1) of Division 1, Part 1 of the NER. [3] Section 2 of the NERL. [4] Section 109 of the NERL. [5] Section 109 of the NERL and rule 148 of the NERR. [6] Section 5(2) of the NERL. For electricity, the upper consumption threshold is set by states and territories: in the Australian Capital Territory, New South Wales, Victoria and Queensland the threshold is 100MWh per year, in South Australia it is 160MWh per year and in Tasmania 150MWh per year. [7] Version 6 is available under <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/network-service-provider-registration-exemption-guideline-march-2018>. [8] Version 5 is available under <https://www.aer.gov.au/retail-markets/retail-guidelines-reviews/retail-exempt-selling-guideline-march-2018>.

Figure 2.1 below visualises the relationships between participants under the current and proposed frameworks for embedded networks.

Figure 2.1: Embedded network participants - current and proposed framework



Source: AEMC.

Note: The obligation to appoint a metering coordinator only applies to embedded networks with ENNs, and to all (non-exempt) embedded networks under the proposed framework. Under the proposed framework, the role of the ENM is subsumed under the role of the ENSP for new registered embedded networks.

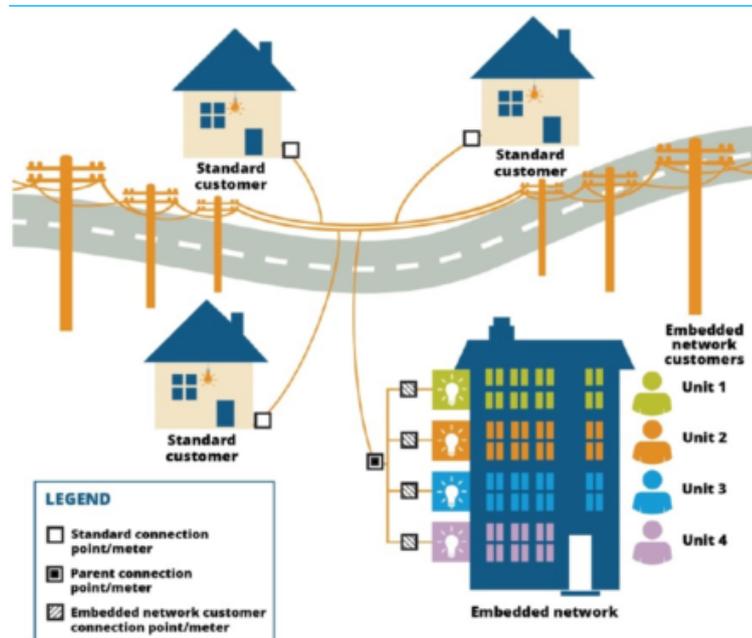
2.1 What is an embedded network?

Under 'standard supply arrangements' in the national interconnected system, each individual electricity customer has a meter and a connection point that connects them directly to the DNSP's network. In most jurisdictions, the standard customer is able to choose their electricity retailer. The retailer purchases electricity from the wholesale market, pays the network charges to the DNSP,¹⁰ and issues the customer a single bill that covers all of the retailers' costs and any margin. The retailer also appoints a metering coordinator, which in turn appoints a metering data provider and metering provider.

An embedded network is an electricity network that serves multiple premises and is connected to a distribution or transmission system through a **parent meter** and **parent connection point** to the interconnected grid and the NEM. In an embedded network a party other than a LNSP owns and operates the electricity network that customers connect to. That party is an **exempt network service provider**.

Figure 2.2 illustrates how the configuration of an embedded network differs from the traditional model of retail supply for a standard customer.

Figure 2.2: Comparison of standard supply arrangements and embedded networks



Source: AEMC.

¹⁰ Chapter 6B of the NER defines network charges as charges that a DNSP is entitled to claim for connection services of shared customers.

Instead of individual consumers in the embedded network buying energy from a NEM retailer, the party which is the customer at the parent connection point purchases all the energy at a bulk rate (typically at a lower cost than would be available to individual small consumers) from a NEM retailer and then on-sells this energy to the individual downstream embedded network customers which are separately metered. Generally, the on-selling party provides a single bill to embedded network customers that recovers energy costs and network charges from the LNSP at the parent connection point.

The party which is the customer at the parent connection point and on-selling to downstream embedded network customers has traditionally been deemed or registered as an **exempt seller** by the AER.¹¹ Under this traditional embedded network model, the exempt network service provider and the exempt seller are often the same entity. Typical examples of where embedded networks have been established include:

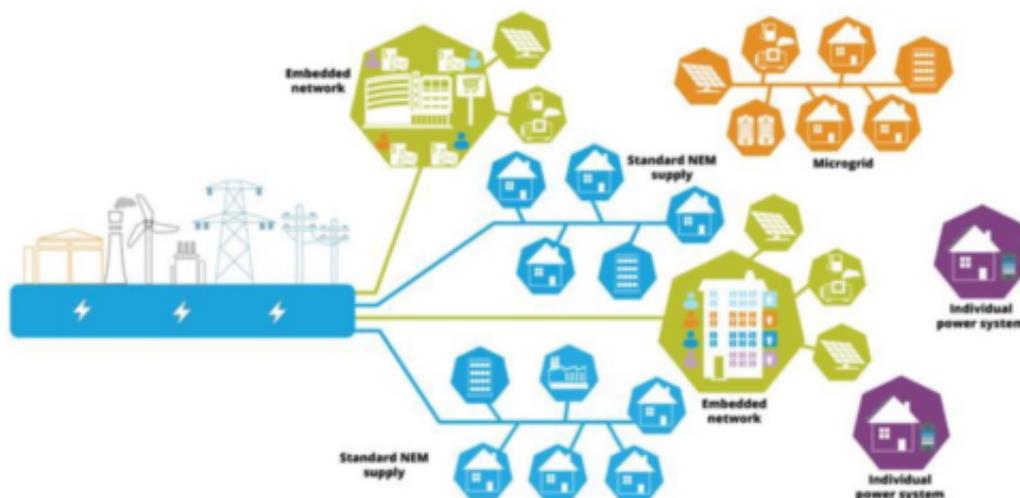
- **Residential embedded networks managed by owners corporations** which are involved in the embedded networks market when the buildings they manage are established with (or converted to become) an embedded network. This means that the owners corporation is not only responsible for the maintenance of the common areas of property and levying appropriate fees to owners of the units, they are also responsible for the delivery of electricity, gas and sometimes other products to consumers. Many owners corporations have registered as exempted parties for both network and retail activities at their sites, or engage others to act on their behalf to supply energy to tenants.
- **Retirement village, residential park and caravan park operators** provide a range of specialised services to their clients, including the provision of electricity. These participants can register as exempted parties for both network and retail activities at their sites, or engage others to act on their behalf.
- **Businesses that on-sell to other commercial entities** which include a range of commercial arrangements where a common property owner (or agent for the owner) sells energy to commercial entities operating on site. These sellers operate facilities such as airports, ports, hotels and shopping centres.

An embedded network's connection to the national grid distinguishes it from two other types of electricity supply, namely microgrids and individual power systems, which are not grid-connected (see Figure 2.3) and which the AEMC refers to as stand-alone power systems (SAPS). A grid connection results in embedded networks being regulated under the NEL and the NER, while SAPS are not regulated under this national framework.¹²

¹¹ Exempt sellers also cover sellers than on-sell energy to customers that are not embedded network customers.

¹² AEMC, *2017 Retail Energy Competition Review*, final report, 25 July 2017.

Figure 2.3: Different models of electricity supply



Source: AEMC.

2.2 Scale of embedded networks in the NEM

The number of embedded networks in the NEM has grown rapidly in recent years. Embedded networks in the residential apartment market are the primary driver of this growth.¹³

Across the NEM, the total number of (registered) network exemptions at 23 November 2018 was 4,320, while the number of retail exemptions was 4,097.¹⁴ This includes all commercial, industrial and residential activities, excluding retail exemptions from Victoria. This number and the information in Table 2.1 below only includes registered exemptions and does not include embedded networks that receive deemed exemptions, meaning that the total number of embedded networks in the NEM is expected to be much greater than this. The exemption arrangements mean that no information is available about embedded networks operating or selling energy under deemed exemptions, and no accurate numbers regarding the total number of embedded networks are available. This lack of information is a significant drawback of the current exemptions system.

¹³ AEMC, *2017 Retail Energy Competition Review*, final report, 25 July 2017, pp. 160-161.

¹⁴ AER website, public register of network exemptions webpage, <https://www.aer.gov.au/networks-pipelines/network-exemptions/public-register-of-network-exemptions>; public register of retail exemptions webpage, <https://www.aer.gov.au/retail-markets/retail-exemptions/public-register-of-retail-exemptions>.

Table 2.1: Registered exemptions as at 23 November 2018

JURISDICTION	EXEMPT SELLERS	NETWORK EXEMPTIONS
Queensland	2,116	2,026
New South Wales	883	764
ACT	231	19
Victoria	1,038	1,102
South Australia	655	404
Tasmania	212	5
Total	4,097	4,320

Source: AER network and retail exemptions data, ESC register of exempt sellers.

In 2017, the AEMC found that the number of embedded network sites with a residential component accounts for just under half of all network exemptions. The other exemptions relate to commercial and industrial sites such as airports, mines, hotels, hospitals, and shopping centres. These involve no residential activity, and all energy consumers in the embedded network are commercial entities.¹⁵

Box 2 below summarises relevant findings from the 2017 Review. The numbers have continued to grow since this analysis, and best estimates are that there are several hundred thousand customers in embedded networks. The Commission considers that the lack of comprehensive and reliable data on embedded network customer numbers highlights the challenges that the current framework imposes on effective compliance and enforcement.

¹⁵ AEMC, *2017 Retail Energy Competition Review*, 25 July 2017, final report, p. 162.

BOX 2: EMBEDDED NETWORKS IN 2017

In 2017, the AEMC obtained advice on the numbers of embedded networks and embedded network customers.

The numbers were sourced from strata title searches, building consent approvals, and from parties representing or delivering embedded network services (for instance, Caravan Industry Association and the Australian Shopping Centre Industry).

The 2017 advice contained the following estimates:

- the number of embedded networks was in the order of 4,000, which was greater than the number registered with the AER and suggests many network exemptions are unregistered
- there were 213,000 to 227,000 embedded network customers, based on billing data provided by embedded network operators
- 65 per cent of these customers were residential (including retirement villages, caravan parks) and 35 per cent were commercial
- there were 110,000 sites that could be configured as an embedded network, which would capture a total of about 1.5 million customers.^[1]
- As there continues to be an unknown number of deemed exemptions, these numbers only represent estimates as no accurate numbers are available.

Source: AEMC.

Note: [1] Advice from Energy Options Australia to the AEMC, August 2017.

In 2017, the Victorian Government legislated that all embedded networks are required to join the Energy and Water Ombudsman of Victoria (EWOV). As at November 2018, EWOV maintained a list of 75 embedded network sites made up predominantly of holiday and caravan parks.¹⁶

Figure 2.4 plots residential network exemptions registered with the AER in each jurisdiction over time. Between 2011 and 2014, there was modest growth in registrations in Queensland, New South Wales and Victoria. From 2014 and particularly between 2016 and 2017, registered residential embedded network exemptions significantly increased in Queensland. In 2015 alone, there were 391 network exemptions granted in Queensland, accounting for around 74 per cent of all network exemptions that year. Over the entire period, embedded networks in Queensland accounted for more than 50 per cent of all network exemption registrations across the NEM. Many of these registrations are likely to be related to an increase in existing embedded networks registering for the first time, coinciding with the introduction of the NECF in Queensland from 1 July 2015.¹⁷

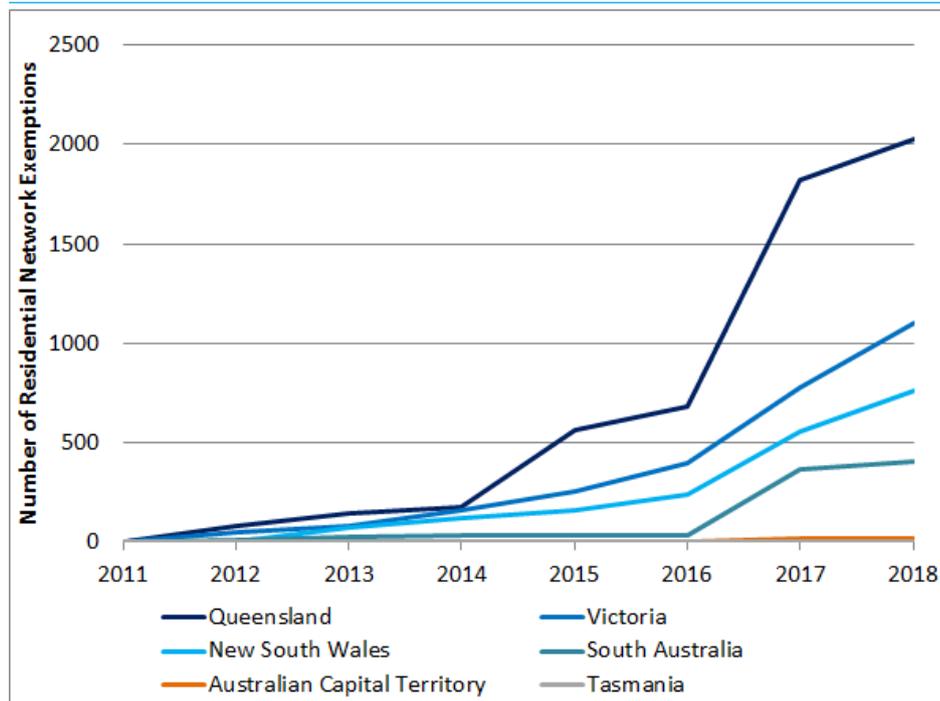
Registered network exemptions in New South Wales appear to have commenced later than in Victoria and Queensland, but have had sustained growth since then, averaging around 60

¹⁶ EWOV list of embedded networks, <https://www.ewov.com.au/companies/list-of-embedded-networks>.

¹⁷ AEMC, *2017 Retail Energy Competition Review*, final report, 25 July 2017, p. 163 (footnote 181) and p. 224.

registrations annually. Other jurisdictions have seen only limited growth in residential embedded networks since 2011.¹⁸

Figure 2.4: Jurisdictional residential network exemption registrations (cumulative)



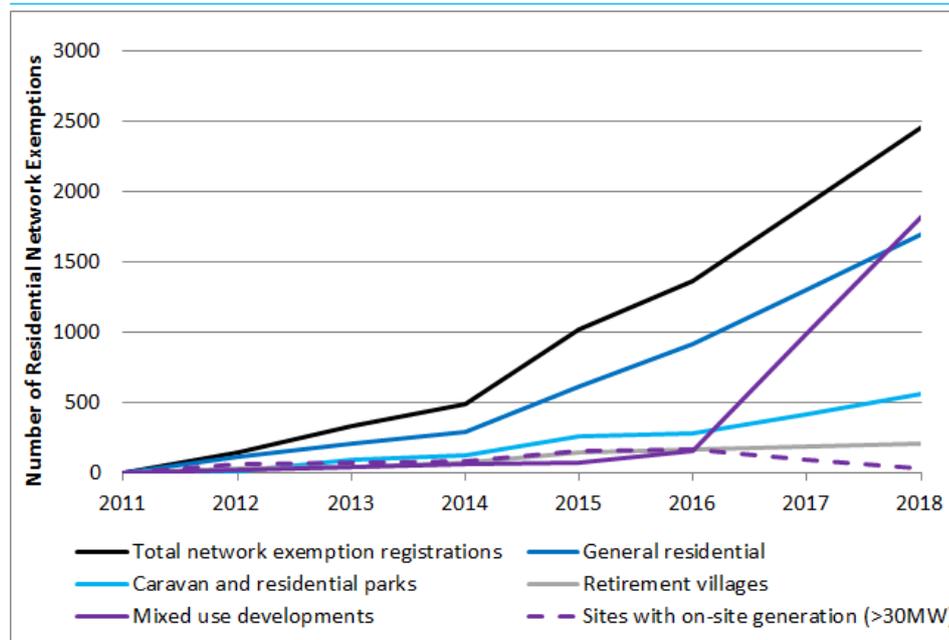
Source: AEMC, *2017 Retail Energy Competition Review*, final report, 25 July 2017, p. 163.

Figure 2.5 shows how the number of residential network exemption registrations has grown over time. It highlights that the majority of residential network exemptions across NEM jurisdictions prior to 2017 have been related to general residential activities such as apartment buildings. It also shows that network exemption registrations associated with mixed use developments have risen steeply from 2016 and overtook general residential network exemptions in 2018.

Figure 2.5 also shows that the number of sites with embedded generation is low and decreasing from 2016. However, the data relates only to generating units larger than 30 MW that are required to be registered with AEMO, and sites with smaller generation units that are used for network support or demand management purposes. It is likely that significantly more embedded network sites exist with non-registrable small-scale generators such as solar PV.

¹⁸ For more comprehensive analysis see AEMC, *2017 Retail Energy Competition Review*, final report, 25 July 2017, chapter 9.

Figure 2.5: Total NEM residential network exemption registrations (cumulative)



Source: AER, AEMC analysis.

2.3 Overview of the exemptions framework

The regulatory and market arrangements for embedded networks have evolved over time.

This section describes:

- the history of the exemptions framework under which embedded networks currently operate
- the current exemptions framework
- existing market arrangements.

2.3.1 History of the exemptions framework

The network exemptions framework was initially developed under the National Electricity Code (Code).

First published in 1998, the Code contained provisions to enable the exemption of persons or classes of persons from the requirement to register as a network service provider, and from specified network access and connection requirements. General exemptions granted under the Code applied to parties such as caravan parks, office buildings, shopping centres and apartment complexes that reticulated electricity as part of their operations, but where it was incidental to the core business activity. Organisations that fell within one of these general exemptions were not required to make an application for a specific network exemption. The

general exemption framework was thus established to address a limited set of risks arising from these limited sets of activities.

The general network exemption process was administered by the National Electricity Code Administrator (NECA).¹⁹ The authorising framework for on-selling activity, however, was determined by various jurisdictional regulations. Some jurisdictions had explicit provisions in various state laws and regulations with respect to the retailing of energy through embedded networks, while others did not. For instance, in Queensland, retail contestability for consumers in an on-supply arrangement was excluded and provisions in the Electricity Act 1994 (Queensland) reflect this position.²⁰

In 2005, the network exemption framework transitioned to the NEL and NECA's powers and functions in relation to providing network exemptions transitioned to the AER. The AER gained regulatory power and functions with respect to energy retail licensing and on-selling on 1 July 2012 when the NERL came into effect for jurisdictions that had adopted the NERL.²¹

2.3.2

The current exemptions framework

The AER manages the exemptions framework for electricity networks and energy sellers.²²

The NERL includes policy principles that the AER must take into account when exercising its exemption functions and powers in relation to sellers of both electricity and gas. The NERL also provides the AER with guidance on the exempt seller and customer related factors it may wish to consider. However, the NEL and the NER do not guide the AER regarding the electricity network exemptions.

The AER develops and applies two exemption guidelines:

- *Electricity Network Service Provider Registration Exemption Guideline* (the network exemption guideline)
- *(Retail) Exempt Selling Guideline* (the retail exemption guideline).

Once exempted from being registered as a network service provider or holding a retail authorisation, exempt network service providers must comply with the terms and conditions of these exemptions under the AER's network exemption guideline and retail exemption guideline.²³

The AER has categorised network and retail exemptions into three types: deemed, registrable and individual.²⁴ Deemed and registrable exemptions are sometimes referred to as 'class

19 NECA, *General exemptions from the requirement to register as a network service provider*, 1998, <https://www.aer.gov.au/system/files/General%20exemptions-%20NECA.pdf>.

20 However, state-based legislation (including the Electricity Act) is under review: Queensland government website, legislative review webpage, <https://www.dews.qld.gov.au/electricity/regulation/initiatives/legislation>.

21 The NERL commenced in various states at differing times (the Australian Capital Territory and Tasmania in 2012, New South Wales and South Australia in 2013, and Queensland in 2015).

22 Chapter 3 discusses the current and proposed exemptions frameworks for electricity networks and energy sellers in further detail.

23 For embedded networks that require an individual exemption, the terms and conditions are set out in the individual exemption specific to the embedded network operator instead of the AER's Network and Retail Exemption Guidelines.

24 The NERL requires that retail exemptions are categorised into deemed, registrable and individual classes whereas the NEL does not set out classes of exemptions.

exemptions', because they apply to certain groups (or 'classes') of people who supply or sell energy.

Each exemption type has a different set of eligibility requirements and is subject to particular conditions:²⁵

- *Deemed exemptions:* Small networks and small scale selling arrangements are generally eligible for a deemed exemption. Deemed network and retail exemptions apply automatically to certain types of networks and energy sellers, respectively. These do not require application or registration with the AER, but the exempt party must still comply with the conditions of the exemption, which vary depending on the type of embedded network and selling activities. The current registration framework does not record numbers of deemed exemptions.
- *Registrable exemptions:* Larger networks are required to register a registrable exemption with the AER. In relation to retail exemptions, registrable exemptions are usually required where the scale of energy selling is larger. Similar scale criteria apply to network exemptions. The AER publishes these registered exemptions on its website but it does not assess or approve them. As with deemed exemptions, the exempt party must comply with the conditions of the exemption.
- *Individual exemptions:* Networks that do not fit within one of the specified classes of deemed or registrable exemptions must seek an individual exemption from the AER. An individual exemption usually applies to the supply or sale of energy at a particular site and/or to a particular customer or group of customers. Individual exemptions apply to more bespoke or one-off arrangements and allow the AER to tailor the conditions of the exemption.

The majority of exemptions provided by the AER fall into the deemed and registrable categories, which are not assessed or approved by the AER. Within the deemed and registrable types of exemptions there are different classes of exemption for embedded networks with different characteristics.

The network exemption conditions are for electricity networks only and relate to: general sub-conditions; metering requirements; access to retail competition; distribution loss factors; network pricing; appointment of ENMs; information provision; and conversion of existing sites into embedded networks.²⁶

The retail exemption conditions are for both electricity and gas selling and relate to five key areas: information provision; dispute resolution; pricing; access to retail competition; and consumer protections.

A breach of a condition under a retail exemption is a breach of the NERL, and is a civil penalty provision.²⁷

25 A full list of deemed and registrable retail exemptions and conditions can be found in the AER's Network and Retail Exemption Guidelines.

26 Brownfield conversions refers to the conversion of existing sites into embedded networks. Greenfields refers to the establishment of sites as embedded networks.

27 Section 112 of the NERL.

This is not the case for breaches of conditions under a network exemption.²⁸

The AER has no visibility of embedded networks operating under deemed exemptions and limited visibility of embedded networks operating under registrable and individual exemptions. Unlike for registered network service providers and authorised retailers, there are no compliance reporting requirements on exempt network service providers or exempt sellers.

There are currently two possible arrangements for the provision of metering services and retail services to customers within embedded networks. They are both discussed below.²⁹

2.3.3 Embedded network manager rule change

The *Embedded Networks Rule 2015* introduced a new accredited provider role, the ENM, into the NER to be responsible for performing market interface services for embedded network customers. This rule came into effect on 1 December 2017. The rule change was made following a request from AEMO in response to the AEMC's review into Energy market arrangements for electric and natural gas vehicles³⁰ and the Power of choice.³¹

The rule change aimed to link embedded network customers to NEM systems, and reduce barriers preventing these customers from accessing competitive services from authorised retailers. The market interface functions assigned to the ENM related to the access and maintenance of standing data in AEMO's Market Settlement and Transfer Solutions (MSATS) system, which in turn affected B2B procedures.

The AEMC was limited by its rule making power to make changes only to the NER because the rule change request had been made under the NEL and set out proposed changes to the NER. Consequently, the Commission was unable to address any issues in relation to the NERR. Accordingly, the Commission's final rule determination set out a number of issues regarding embedded networks that should be addressed. The Commission recommended the COAG Energy Council request the Commission to undertake a review to identify and assess issues regarding the arrangements for embedded network customers.

Embedded network issues arise because the NERL and NERR are designed on the basis of the tripartite relationship that typically exists between a customer, its retailer and its LNSP. This relationship does not exist for embedded network customers because the customer does not have a relationship with the LNSP.

2.3.4 Existing market arrangements for embedded networks

The NERL stipulates that customers in an embedded network should, as far as practicable, be afforded the right to a choice of retailer in the same way as comparable retail customers in

²⁸ Section 2.4.8 of the network exemption guideline provides that an exemption can be revoked if there is a breach of any condition of the exemption. Section 11(2) of the NEL then makes it a civil penalty provision to operate a distribution system if not registered or if no exemption. A civil penalty would only apply if the embedded network continued operating following the revocation of an exemption.

²⁹ Chapter 3 provides a detailed overview of the current framework for embedded networks.

³⁰ AEMC, *Energy market arrangements for electric and natural gas vehicles*, final advice, December 2012, p. 38.

³¹ AEMC, *Power of choice review - Giving consumers options in the way they use electricity*, final report, November 2012.

the same jurisdiction have that right.³² There are a number of significant benefits in providing embedded network customers access to retail market offers. These benefits relate to price, variety of products, quality of service and access to government schemes and consumer protections. Access to competitive market offers helps protect consumers from receiving poor prices or services in comparison to other customers.

However, in order for embedded network consumers to be able to access retail competition, consumers need to be 'market-facing'. For a consumer to be able to access retail market offers, the consumer's metering installation must be NEM compliant, meaning it must be able to be assigned a National Metering Identifier (NMI), and registrable in AEMO's systems. Only once a NMI has been assigned and the consumer's meter registered with AEMO, can the consumer's metering data be accessed by the consumer's authorised retailer for settlement. Not all metering equipment is capable of this, and many existing embedded network metering installations do not meet this requirement.

In embedded networks, the ENM performs the market interface functions that link embedded network customers with the NEM systems. The ENM role was established by the AEMC's 2015 *Embedded Networks Rule*.

The NER sets out the detailed functions, responsibilities, and governance arrangements for ENMs and specifies the circumstances under which exempt network service providers are required to appoint an ENM. Where an embedded network customer goes on market, an ENM has clear responsibilities to performing the market interface functions, including assigning the customer a NMI.

³² Section 114(1)(b) of the NERL.

BOX 3: MARKET ARRANGEMENTS IN EMBEDDED NETWORKS - SUMMARY

There are two possible arrangements for customers in embedded networks: off-market and on-market arrangements.

Off-market arrangements

Under the first arrangement, the exempt network service provider is responsible for metering. The exempt network service provider, or related party, is deemed or registered as an **exempt seller** with the AER and on-sells energy to consumers within the embedded network.

This type of arrangement is known as **off-market** activity because there is no financially responsible market participant (FRMP) at the customer's connection point and the customer's metered electricity consumption is not settled in the NEM.

Instead, total consumption for the entire embedded network is metered and settled in the NEM based on the metered consumption at the parent connection point.

This is currently the arrangement for the majority of embedded network customers.

On-market arrangements

Under the second arrangement, customers in the embedded network purchase their electricity from the NEM retailer of their choice. Retail and metering arrangements are regulated by the NERR and NER.

The **NEM retailer** for the customer is registered as the FRMP with AEMO at the 'child connection point' and appoints a metering coordinator in relation to the child connection point and the metering services.

The **metering coordinator** (which is a registered market participant) appoints an accredited metering provider and metering data provider to provide installation, maintenance and meter reading services.

An accredited **embedded network manager**, amongst other things, allocates a NMI to the **child connection point** which is registered in AEMO's market systems.

Under this arrangement, a LNSP's network charges are 'passed through' to the NEM retailer embedded network customer either through the NEM retailer or the exempt network service provider. These two alternatives are explained in further detail below, under 2.5.3.

Source: AEMC.

2.4 Evolving embedded network business models

As discussed above, the exemptions framework was originally established for parties such as caravan parks, office buildings, shopping centres and apartment complexes to on-sell electricity as part of their operations, but where it was incidental to their core business activity.

The Commission has found that a range of incentives generated by the exemptions framework and trends in high density residential building have combined to drive a proliferation of embedded network related businesses that provide a range of services. While there continue to be large numbers of 'traditional' embedded network operators such as caravan parks and retirement villages, in recent years installing and operating embedded networks has now evolved into a 'business model'.

As the data above suggests, the establishment of greenfields embedded networks are being driven by the construction of high density residential developments, in particular. As a result, embedded networks are becoming an increasingly common alternative to standard supply arrangements in the NEM, reflecting this shift in preferences for housing towards higher-density living within 'smart cities' and 'smart communities'.³³ Technologies such as distributed generation and energy storage are also being leveraged into the design of many embedded networks to promote these 'smart' developments.

In the traditional model, property developers would build the electricity network infrastructure assets (such as the consumer metering and power transformers) under the direction of the LNSP whilst meeting all applicable Australian laws, standards and codes. The developer would typically then recover these costs through the sale of the development. The developer would then 'gift' these assets back to the LNSP, who then becomes the responsible party for the maintenance and servicing of the asset. The asset then would be included on the LNSP's regulated asset base.

In contrast, the Commission understands developers now often choose to avoid the cost of establishing internal networks and metering by contracting a third party to fund and supply the infrastructure and the metering throughout an apartment complex. In return, the embedded network business is sometimes contracted to provide power to the whole building, which can tie a future owners corporation to lengthy contracts. These contracts are initially established before completion of construction and before strata schemes have been registered. Box 4 below provides a case study on the issues that can be faced by incoming owners corporations.

Once established, an embedded network often effectively becomes a monopoly electricity provider given the practical impediments to switching to a retailer of choice. In jurisdictions which have retail market competition and de-regulated electricity prices, an exempt seller can on-sell electricity at a price up to the local retailer's standing offer. This provides significant headroom for the exempt seller to purchase electricity at the parent meter at a bulk rate on a market offer and on-sell this at a profit without any threat of a customer switching to a NEM retailer.

Some property developers are choosing to generate an ongoing revenue stream from embedded network customers. As such, the developer chooses to retain ownership, operation and/or control of the network infrastructure in the property development. Some of

³³ Smart cities and communities refers to an urban development vision to better integrate information technologies into long-term investment and coordinated planning decisions to promote positive outcomes in environment, employment, housing, and transport. See: Department of the Prime Minister and Cabinet website, Smart cities plan webpage, <https://cities.dpvc.gov.au/smart-citiesplan>.

these developers, or their subsidiaries, register as exempt sellers and engage with consumers in embedded networks directly with, or on behalf of, the owners corporation.

Embedded network business models are also marketed to established owners corporations and shopping centres by embedded network businesses on the basis that they can provide price and other benefits. Some of these embedded network businesses will manage all aspects of the retrofit and ongoing service including engineering, construction, regulatory advice and exemptions process management, customer management functions such as billing, metering, customer calls and complaints, and other related services.

One of the primary incentives for an owners corporation or shopping centre to convert an existing building or site into an embedded network is the opportunity to purchase electricity at a parent meter in bulk at a lower tariff. Eighty five percent of end users in the embedded network must agree to a brownfield conversion which the Commission understands provides an incentive to offer favourable prices for end users even where there is a high proportion of tenants.

Many developers and 'utility businesses' are also now providing bundled services in embedded networks, including the provision of hot water, chilled water for air conditioning, gas for cooking, water and space heating, and telecommunications, in addition to electricity for lighting and power. On-site (or embedded) generation such as solar PV, co- or tri-generation gas turbines for energy and/or heating and cooling is increasingly being utilised by developers.

Some of these embedded network businesses are now choosing to, or being required to, apply for retailer authorisations from the AER. A further evolution in the industry has been the entry of conventional NEM retailers, such as Origin into providing embedded network services.³⁴ The Commission understands that where authorised retailers are providing retail services, this is sometimes done as an 'agent' to an exempt seller.

³⁴ See <https://www.originenergy.com.au/for-home/electricity-and-gas/embedded-electricity-networks.html>.

BOX 4: CASE STUDY ON APARTMENT OWNERS CAPTURED BY UTILITY CONTRACTS DRAWN UP BY A PROPERTY DEVELOPER

A committee member of an owners corporation relayed to the AEMC their experience in a new apartment building in New South Wales. There are on-selling and network exemptions that were registered with the AER under the name of the owners corporation for the apartment building. At the first annual general meeting, the committee for the owners corporation was formed and told by the property developer they were required to sign ten-year fixed term contracts with a company arranged by the property developer for utilities, including electricity. The committee was told it would get very competitive electricity rates from the company arranged by the property developer. The electricity rates turned out to be higher than the standing offer. Apartment owners were very unhappy with the rates and amounts they are being billed but were unsure if the billing company or the owners corporation is responsible for not complying with the exempt seller conditions. At the time, they were seeking legal advice about how to resolve the matter.

Source: AEMC, *Review of regulatory arrangements on embedded networks*, final report, 28 November 2017, p. 41.

2.5 Findings - 2017 Review

The 2017 Review found that while the purpose of the current embedded network exemptions framework was to reduce the regulatory burden on embedded network owners, the number and scope of embedded networks has grown and the current framework is no longer fit for purpose.

The underlying rationale for the exemptions framework is to reduce the regulatory burden where the cost of registering as a network service provider or having a retailer authorisation outweighs the benefits to consumers. In practice, the Commission found that:

- a limited market entry, monitoring and enforcement regime has created consumer protection gaps, growth in the numbers of embedded networks, and diversity in the capacity and resources of exempt network service providers
- embedded network customers receive a lesser level of consumer protections due to regulatory gaps
- there are significant practical barriers to customers in embedded networks accessing retail market competition.

These issues are discussed in further detail below.

2.5.1 Issues with the exemptions framework

The Commission concluded the exemptions framework was no longer fit for purpose given the growth of embedded networks. Although an owners corporation may be the registered exempt party as discussed above, the provision of embedded network and retail services is increasingly being performed by entities for which this is their core business.

As discussed above the current exemptions framework does not require exempt network service providers and exempt sellers to meet any criteria or market entry test in relation to the entities' suitability to provide electricity network and retailing services. This can lead to entities and businesses with insufficient capacity and expertise delivering electricity services to large numbers of customers, including vulnerable customers.

Inadequate compliance and monitoring regime

We found that the current exemptions regime can also result in inappropriate differences in compliance obligations, such as reporting, and enforcement options and consequences for exempt network service providers and exempt sellers. The AER does not place reporting requirements on exempt parties and therefore has no visibility on the compliance of exempt entities with exemption conditions.³⁵ This means that the AER only becomes aware of breaches through customers complaints.

Limited enforcement options

Also, there are limited enforcement options available to the AER under the current exemption framework. A breach of a condition under a retail exemption is a breach of the NERL, and this provision is a civil penalty provision.³⁶ However, a breach of a condition under a network exemption is not a breach of the NEL.³⁷ The only enforcement option available to the AER is to revoke a network exemption if there is a breach of an exemption. However, the AER is reluctant to revoke a network exemption given there is no clear framework in place to transition the embedded network back to standard supply arrangements and to do so would possibly impose high costs on the customers in the embedded network.

Regulatory gaps and complexity

As set out above, the owners and operators of embedded networks are exempt from being required to register as a network service provider and therefore the obligations on network service providers in the NER do not apply. As embedded networks evolve and grow in number and size the Commission found that regulatory gaps are emerging. The AER has sought to address this by applying obligations similar to those found in the NER and NERR through the exemption conditions. However, this is leading to increasingly complex exemption conditions which, as discussed above, the AER has limited ability to monitor and enforce.

Lack of clarity

The review also found that customers, embedded network owners, agents and energy sellers are sometimes unclear as to which regulatory framework applies. This has resulted in instances of authorised retailers undertaking selling activities in embedded networks where a retail exemption is in place. This has introduced complexity for customers, the AER and Ombudsmen when determining:

35 See section 5.1 and section 5.3 of AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017.

36 Section 112 of the NERL.

37 Section 2.4.8 of the AER's Network Exemption Guideline provides that an exemption can be revoked if there is a breach of any condition of the exemption. Section 11(2) of the NEL then makes entities liable to a civil penalty if they operate a distribution system if they are not registered or exempt. A civil penalty would only apply if the embedded network continued operating following the revocation of an exemption.

- the party that is responsible for the supply and sale of electricity and any breach in obligations
- whether the obligations in the NERR or the AER retail exemption conditions apply
- which party should apply for Ombudsman membership.

2.5.2 Lesser consumer protections

The Commission found that the exemption conditions are increasingly replicating electricity and retail rule requirements for embedded networks that serve residential and small business customers. This is consistent with the principle set out in the NERL that regulatory arrangements for exempt sellers should not necessarily diverge from those applying to retailers.³⁸ Exemption conditions are therefore as onerous for exempt parties to meet as the retail rules.

While the AER is seeking to replicate consumer protections for customers in embedded networks, some gaps in consumer protections remain. These gaps particularly affect the smaller and more vulnerable consumers. Also, as discussed above, the Commission found there was no monitoring of compliance with exemption conditions and limited enforcement options available to the AER.

It is also more difficult for embedded network customers in some jurisdictions to access concessions and Ombudsman schemes.³⁹

Box 5 below provides a case study illustrating the significant impact on vulnerable customers that arise from the regulatory and practical barriers to obtaining assistance provided by jurisdictions if you are the customer of an exempt seller.

38 Section 114(1)(a) of the NERL.

39 For further details see section 9.2.1 and section 9.2.2 of AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017.

BOX 5: CASE STUDY ON QUEENSLAND GOVERNMENT'S HOME ENERGY ASSISTANCE SCHEME

The Queensland Government's Home Energy Emergency Assistance Scheme is for Queensland households experiencing problems paying their electricity or gas bills as a result of an unforeseen emergency or a short-term financial crisis. It involves a one-off emergency payment of up to \$720 to assist in paying energy bills. Customers are eligible if they hold a current concession card, or have an income equal to or less than the Australian Government's maximum income rate for part-age pensioners, or are part of a retailer's hardship program or on a payment plan.

While this scheme is technically available to customers in embedded networks, we understand from our discussions with stakeholders that it is very difficult for embedded network customers to access these payments in practice. The NEM retailer or exempt seller must agree to participate in the scheme in order to deliver the payment. We understand from stakeholders involved in administration of the scheme that they encounter strong resistance to participating in the scheme from exempt sellers in embedded networks and their billing agents due to the perception that it will involve some administrative work, and it is not possible to compel exempt sellers to participate.

As a result, we understand that a large number of customers in embedded networks are unable to access these payments. This resistance to participating in concession schemes occurs despite the fact that the assistance payment will not only provide a substantial benefit to the customer, but will also benefit the exempt seller as the payment will reduce the customer's debt to the exempt seller.

Exempt sellers also do not have the same requirements as authorised retailers to have hardship policies to assist customers that are having payment difficulties.

Source: AEMC.

Note: The information for this case study was provided in a meeting with the Queensland Government and consumer groups on 29 November 2017.

Consumer protection gaps also exist where embedded network customers are supplied by an authorised retailer. This is because the NERL and NERR contemplate a tripartite relationship between a customer, the retailer and the distributor. There is currently no flexibility in this tripartite relationship to incorporate exempt network service providers. Consumer protection gaps include protections such as de-energisation and re-energisation obligations, obligations to provide connection services, life support arrangements, information provision and retailer of last resort (RoLR) arrangements.⁴⁰

2.5.3

Impediments to accessing retail market competition

The existing regulatory framework is intended to encourage retail competition for child embedded network customers. The network exemption guideline obliges exempt embedded

⁴⁰ For further detail see chapter 9 of the AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017.

network service providers to facilitate access to competitive market offers where it is available in a jurisdiction and the AER does not permit an exempt embedded network service provider to impose any measures on a customer, either directly or indirectly, which would impede or penalise a customer seeking access to retail competition.

However, the Commission found NEM retailers face significant practical difficulties in accessing embedded network customers. Where barriers to embedded network customers accessing retail market offers exist, some exempt network service providers face limited incentives or obligations to pass those savings on to customers because the customers cannot source energy from an alternative provider and the exempt network service provider is able to charge a price up to the local retailer's standing offer price. Under the AER's retail exemption guideline, exempt network service providers may charge up to the standing offer price for small customers and any price for large customers.

The specific barriers the Commission found included:

- NEM retailers are unable to quote and transfer customers using the usual market mechanisms due to an inability to discover information on an off-market embedded network customer and their metering installation in AEMO's MSATS system⁴¹
- metering infrastructure must generally be replaced due to compliance and access issues
- bespoke embedded network tariffs and embedded network billing arrangements that require NEM retailers to adapt product offerings and implement manual processes to manage transactions with large numbers of exempt network service providers.

These barriers are discussed in more detail below.

Customer discoverability and transfer

The Commission found that the absence of standard market systems and processes to discover and transfer exempt customers from exempt sellers to NEM retailer customers posed a significant barrier to retail market competition in embedded networks.

In order for a NEM retailer to provide an accurate quote to a consumer it requires access to NMI standing data. NMI standing data is the information related to a customer's connection point. The information is about the physical location and properties of the meter, which includes the applicable network tariff and the consumer's consumption threshold bands. It does not include the customer's consumption data. This data is held in AEMO's MSATS system.

Off-market embedded network customers do not 'exist' in MSATS i.e. there is no NMI standing data available for an off-market embedded network customer in MSATS. For embedded networks with an ENM, the ENM is responsible for assigning a NMI to a child connection point after an embedded network customer has obtained a retail market offer from a NEM retailer. Therefore, customers face a chicken and egg situation. Customers have faced difficulties in finding a NEM retailer that will make a retail market offer and commence the transfer process unless they can be easily found in MSATS.

⁴¹ See sections 5.2, 7.2 and 7.3.3 of AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017.

Access to NEM compliant metering

For a customer in an embedded network to go on-market with a retailer of choice, a metering coordinator must be appointed and a NEM compliant metering installation be in place. The 2017 Review identified access to NEM compliant metering infrastructure as being a significant barrier to embedded network customers accessing retail market competition.

Metering infrastructure in embedded networks was only required to meet requirements under the NER from 1 January 2012. In addition, the current AER network exemption guidelines do not require that metering installed by exempt networks be subject to the same testing and auditing requirements. There is also no public register of information on the metering infrastructure for individual customers or process in place for retailers to negotiate access to metering if it is NEM compliant.

Retailers considering providing 'on-market' offers to embedded networks customers therefore generally face the cost of installing NEM compliant metering. The Commission understands that where NEM retailers are prepared to make offers to embedded network customers it is on the basis that the customer pays for the meter up-front which is prohibitive for many customers, particularly for tenants.

Network billing

Where an embedded network customer goes on-market with a NEM retailer, the DNSP's network charges that could be attributed to this customer continue to be paid by the exempt network service provider to the NEM retailer at the parent connection point.

The network exemption guidelines permit an exempt network service provider to recover a DNSP's charges from either the NEM retailer or the embedded network customer directly. There is also some flexibility in the AER network exemption guideline on the network tariff that can be charged.

These bespoke network tariffs and billing arrangements make it costly for NEM retailers to serve embedded network customers because they must adapt product offerings and implement manual processes to manage transactions with large numbers of exempt network service providers. The Commission found the costs and risks related to network billing act to deter NEM retailers from serving embedded network customers.

2.6 Recommendations - 2017 Review

The Commission concluded the exemptions framework was becoming increasingly complex, giving rise to regulatory gaps and was no longer fit for purpose given the growth of embedded networks. Although an owners corporation may be the registered exempt party as discussed above, the provision of embedded network and retail services is increasingly being performed by entities for which this is their core business.

The Commission has been of the view that, as suppliers of an essential service the exempt network service providers (to be ENSPs or exempt ENSPs under the proposed framework) and on-sellers that serve small customers should meet market entry tests for technical and financial capability. The Commission considers that small customers in embedded networks

should also be able to expect a similar set of consumer protections and that compliance with obligations under the law would be monitored and enforced just as if they were a similar customer in a multi-tenanted premises under a standard supply arrangement.

The Commission also considered that embedded networks should be opened to effective retail market competition. The Commission was of the view that opening embedded networks to effective competition would improve outcomes for embedded network customers through promoting innovation, consumer choice and placing downward pressure on prices in embedded networks.

The Commission considered the most effective way of achieving these objectives would be through elevating the regulation of embedded networks into the national framework and regulating the services currently provided by the majority of exempt network service providers and on-sellers to off-market small customers under the national energy laws and rules rather than the exemptions framework. The Commission recommended updating the national framework to:

- improve retail market competition in embedded networks by making embedded network customers accessible in MSATS and establishing standardised network billing arrangements between ENSPs and exempt ENSPs, and NEM retailers
- elevate new embedded networks into the national regulatory framework by requiring registration of ENSPs, requiring on-sellers to hold a retailer authorisation and extending metering coordinator, metering provider and metering data provider responsibilities to embedded networks
- narrow the network service provider and selling exemption frameworks to apply to circumstances where the costs of registration as an embedded network service provider and retailer authorisation would outweigh the benefits to consumers and the need for regulatory oversight is low
- enhance consumer protections through improving the AER's ability to monitor and enforce exemption conditions, address gaps in the NERL and NERR for embedded network customers supplied by an authorised retailer and improving the information provided to consumers entering embedded networks or involved in a conversion of a property to an embedded network.

This draft report's proposals give effect to the findings and recommendations of the 2017 Review, and provide background to the proposed amendments to the NEL and NERL and recommended drafting in the NER and NERR.

3 REGISTRATION AND AUTHORISATION REGIME FOR EMBEDDED NETWORKS

3.1 Introduction

This chapter discusses the current framework for embedded networks, which relies on the exemptions regime that is administered by the AER for both electricity networks and exempt sellers. The discussion highlights the findings of the 2017 Review in relation to issues with the current framework.

This chapter then details the recommended framework for embedded networks as follows:

- overview of recommended arrangements, and roles of the ENSP and off-market retailer
- recommended regime for electricity network registration and exemption, which includes an overview of the current network registration and exemption framework
- recommended regime for energy seller authorisation and exemption, which includes an overview of the current retail authorisation and seller exemption framework
- recommended provisions to enhance compliance with the new framework
- approach to legacy embedded networks.

3.2 Current framework for embedded networks

3.2.1 Introduction

This section sets out the following:

- participants and roles in the current framework for embedded networks
- current framework for embedded networks, which relies on AER deemed, registrable and individual network and selling exemptions
- overview of compliance with current arrangements.

3.2.2 Overview of current framework

The NEL currently defines a network service provider as a person registered by AEMO who owns, controls or operates a transmission or distribution system that forms part of the interconnected national electricity system.⁴² An entity that is performing such activities without being registered requires an exemption from the AER, be that party a legal person, corporation, government department or statutory body of any kind.⁴³

Similarly, a person must not sell energy to a person for premises unless the entity is a retailer authorised by the AER, or has a seller exemption from the AER.⁴⁴ The concept of the 'sale of energy' covers a wide range of activities, from energy retailing through to landlords recovering energy costs from their tenants. Energy sales do not necessarily have to be for profit – simply passing on energy costs to another person is considered to be a sale. Nor are

⁴² Section 2 of the NEL.

⁴³ Section 11(2)(b) of the NEL.

⁴⁴ Section 88(1) of the NERL.

energy sales limited by the parties involved. For example, they include sales to residential homes or other places of residence (for example, a caravan park where residents permanently reside), shopping centres and commercial sites.

Currently, electricity network services in embedded networks are provided under **network registration exemptions** and parties that on-sell energy to off-market customers inside embedded networks generally sell energy under **retail authorisation exemptions**.⁴⁵ The broad requirements for registration (in respect of network services) and authorisation (in respect of the 'sale of energy') have resulted in the broad application of a network and retail exemption framework to exempt network service providers and exempt sellers.

Box 6 summarises the participants and roles in the current embedded networks framework.

BOX 6: PARTICIPANTS AND ROLES IN THE CURRENT EMBEDDED NETWORKS FRAMEWORK

Exempt Network Service Provider

Currently, all network service providers within an embedded network are subject to the exemption framework administered by the AER, and treated as exempt network service providers. An exempt network service provider is an entity that owns, controls, or operates an embedded network under an exemption granted or deemed to be granted by the AER.^[1]

Exempt Seller

An exempt seller is an energy seller that has been exempted by the AER from the requirement to hold a retailer authorisation.^[2] For an embedded network, an exempt seller on-sells energy purchased at a parent connection point to the off-market customers in the embedded network.

Embedded Network Manager

An ENM is accredited and registered by AEMO.^[3] An ENM (which an exempt embedded network service provider must either appoint or act as, unless the AER exempts them from this requirement, or if the embedded network is located where a right to a choice of retailer is unavailable) manages the market interface for child connection points within embedded networks. For new embedded networks, the ENM applies for a NMI for every metering installation and maintains metering information.

Note: [1] Chapter 10 of the NER, definition of 'exempt embedded network service provider'. [2] Section 2 of the NERL, definition of 'exempt seller'. [3] ENM meets the requirements listed in Schedule 7.7 of the NER. Chapter 10 of the NER, definition of 'embedded network manager'.

The effect of the current exemption framework administered by the AER is that the activities of exempt parties sit outside the national regulatory framework in the NER and NERR. Therefore, the sale and supply of electricity to customers is regulated under a 'two-tiered' framework, where:

⁴⁵ These parties could be NEM retailers, but are not necessarily required to be authorised.

- standard supply customers are supplied by registered DNSPs and NEM retailers that are regulated under the NER and NERR
- the majority of embedded network customers (a growing number of energy consumers) are supplied by exempt network service providers and exempt sellers that are regulated under various AER exemption conditions.

NEM retailers can sell energy to embedded network customers as well. The arrangements introduced by the *Embedded Networks* Rule were intended to make it easier for embedded network customers to go on-market and be supplied by a NEM retailer. Some energy on-sellers selling only to off-market customers in embedded networks have retail authorisations from the AER as well.⁴⁶

3.2.3

Current exemptions regime

The NEL does not stipulate the kinds of network service provider exemptions that the AER can grant or the criteria that the AER should consider when assessing an application for a network exemption. The NERL includes policy principles the AER must take into account when exercising its exemption functions and powers in relation to sellers of both electricity and gas.⁴⁷ The NERL also provides the AER with guidance on the exempt seller and customer related factors it may wish to consider. However, the NEL and the NER do not guide the AER regarding the conditions that apply to each class of exemption.

Under these limited constraints and guidance, the AER develops and applies two exemption guidelines:

- Electricity Network Service Provider Registration Exemption Guideline (Network Exemption Guideline)
- (Retail) Exempt Selling Guideline (Retail Exemption Guideline).

The AER has discretion whether to grant an exemption and the kinds of exemptions it can grant. Once exempted from being registered as a network service provider or holding a retail authorisation, exempt network service providers and exempt sellers must comply with the terms and conditions of these exemptions under the AER's network exemption guideline and retail exemption guideline.⁴⁸

The AER's network and retail exemption guidelines outline three categories of network and retail exemptions - deemed, registrable and individual.⁴⁹

The AER has developed different classes of exemptions under the deemed and registrable categories. The majority of exemptions provided by the AER fall into the deemed and registrable categories, which are not assessed or approved by the AER. Within the deemed

⁴⁶ For example, OC Energy is an embedded network seller that has obtained a retail authorisation from the AER.

⁴⁷ Part 5, Division 6 of the NERL.

⁴⁸ For embedded networks that require an individual exemption, the terms and conditions are set out in the individual exemption specific to the exempt network service provider instead of the AER's Network and Retail Exemption Guidelines.

⁴⁹ These categories are set out in the NERL for retail exemptions, and the AER applies them to both network and retail exemptions through its guidelines. The *Electricity Network Service Provider - Registration Exemption Guideline* and the *(Retail) Exempt Selling Guideline* are available on the AER website, www.aer.gov.au. A full list of deemed and registrable retail exemptions and conditions can be found in the AER's Network and Retail Exemption Guidelines.

and registrable types of exemptions, the different classes of exemption allow the AER to assign different conditions to networks with different characteristics.

Deemed exemptions

Parties eligible for deemed exemptions are not required to register with AEMO (for network operation) or with the AER (for the sale of energy).

Small networks and small scale selling arrangements are generally eligible for a deemed exemption. Deemed network and retail exemptions apply automatically to certain types of networks and energy sellers, respectively. These do not require application or registration with the AER, but the exempt party must still comply with the conditions of the exemption, which vary depending on the type of embedded network and selling activities. Deemed exemptions apply, for example, to persons that sell energy to fewer than 10 small businesses or residents.⁵⁰

Registrable exemptions

Parties eligible for registrable exemptions are required to register the exemption with the AER (that is, advise the AER that they are covered by the exemption).

Larger networks (networks with typically more than ten customers) are required to register a registrable exemption with the AER. Similarly, for retail exemptions, registrable exemptions are usually required where the scale of energy selling is larger. Similar scale criteria apply to network exemptions. The AER publishes these registered exemptions on its website but it does not assess or approve them. Examples of energy sellers that are required to register an exemption include parties that sell to ten or more small tenants or residents within an embedded network.⁵¹

Individual exemptions

Networks that do not fit within one of the specified classes of deemed or registrable exemptions must seek an individual exemption from the AER. An individual exemption usually applies to the supply or sale of energy at a particular site and/or to a particular customer or group of customers. Individual exemptions apply to more bespoke or one-off arrangements and allow the AER to tailor the conditions of the exemption.

3.2.4

Compliance under the current arrangements

A breach of a condition under a retail exemption is a breach of the NERL, and this provision is a civil penalty provision.⁵² However, a breach of a condition under a network exemption is not a breach of the NEL.⁵³ The AER also has the power, in certain circumstances, to revoke exemptions.⁵⁴

50 Refer to class ND1, AER, *Electricity Network Service Provider - Registration Exemption Guideline*, p. 29.

51 Refer to class D1, AER, *(Retail) Exempt Selling Guideline - version 5*, March 2018, p. 27.

52 Section 112 of the NERL.

53 Section 2.4.8 of the Network Exemption Guideline provides that an exemption can be revoked if there is a breach of any condition of the exemption. Section 11(2) of the NEL then makes entities liable to a civil penalty if they operate a distribution system if they are not registered or exempt. A civil penalty would only apply if the embedded network continued operating following the revocation of an exemption.

The AER has no visibility of embedded networks operating under deemed exemptions and limited visibility of embedded networks operating under registrable and individual exemptions. Unlike registered network services providers and authorised retailers there are no compliance reporting requirements on exempt network service providers or exempt sellers.

3.3 Overview of roles in the recommended framework

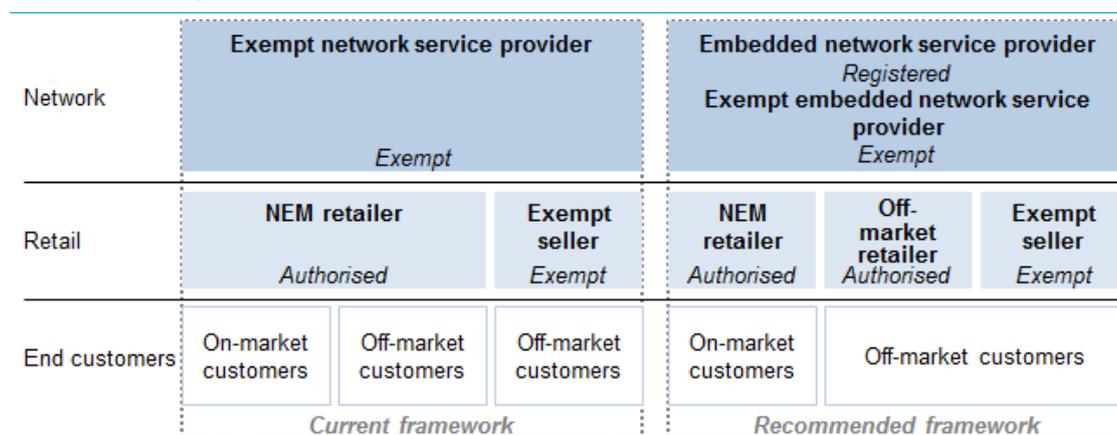
In the 2017 Review, the Commission set out a recommended framework for embedded network operation and on-selling with the following main features:

- establishment of the ENSP as a network service provider class with specified rights and obligations in the NEL and NER
- establishment of an off-market retailer as a class of retailer for embedded network customers of off-market retailers in the NERL and NERR
- application of the exemption framework to a smaller sub-set of exempt network service providers and energy sellers.

The proposed changes to the exemption framework will apply to electricity distribution network service providers (which includes embedded network, distribution network exemptions, but not gas embedded networks) and to all retailers including dual fuel, gas and electricity retailers.⁵⁵

Figure 3.1 summarises the current and proposed frameworks for embedded networks.

Figure 3.1: Proposed framework for embedded networks



Source: AEMC.

Note: This diagram simplifies the relationships for illustration. The NEM retailer can also serve off-market customers in the recommended framework.

54 Section 111 of the NERL.

55 The review will progress policy on gas embedded networks on a separate track. The NGL and NGR do not include a framework for gas network exemptions. The development of a framework for gas embedded networks requires further consideration of current jurisdictional arrangements. This is further discussed later in the report and in Appendix C.

The below Box 7 summarises participants and roles under the new framework.⁵⁶

BOX 7: PARTICIPANTS AND ROLES UNDER THE PROPOSED EMBEDDED NETWORKS FRAMEWORK

Embedded Network Service Provider (ENSP)

The ENSP will be a person that engages in the activity of owning, controlling or operating an electricity embedded network - and does not hold a network exemption.

The ENSP will be required to register with AEMO. The entity that registers as an ENSP may also be authorised as an off-market retailer.

Exempt Embedded Network Service Provider (exempt ENSP)

A small number of network service providers will continue to be eligible for exemptions from the AER. An exempt ENSP is an entity that owns, controls or operates an electricity distribution system that is an embedded network under an exemption registered with the AER (as all exemptions will now be registered with the AER).

The AER may still require the exempt ENSP to appoint an ENM.^[1]

Off-market retailer

An off-market retailer will be a retailer authorised by the AER that on-sells electricity purchased at a parent connection point from a NEM retailer to customers in an embedded network. The off-market retailer will be required to appoint a metering coordinator, and obliged to make an offer to all off-market and new customers in the embedded network that it operates in.

The off-market retailer will be authorised by the AER. At least one off-market retailer[s] will be nominated by the ENSP for a specific embedded network area with AEMO.^[2] The entity that is nominated as an off-market retailer may also register as an ENSP.

Exempt seller

A small number of sellers in embedded networks will continue to be eligible for exemptions from the AER.

An exempt seller on-sells energy purchased at a parent connection point to exempt customers in an embedded network. An entity seeking to become an exempt seller will be required to register with the AER to obtain a retail exemption.

Note: [1] The AER's network exemption guideline includes appointment of an ENM as an exemption condition for some classes of exempt networks based on metering requirements and capabilities. [2] The embedded network area is the physical area covered by the embedded network that is served by the ENSP.

⁵⁶ Appendices A and B detail the roles and responsibilities for the ENSP and off-market retailer.

3.4 Recommended network registration and exemption regime

3.4.1 Introduction

This section sets out the following:

- overview of the current network registration and exemption regime
- the Commission's analysis and draft recommendations on network registration for new embedded networks
- the Commission's analysis and draft recommendations on network exemptions that would apply to new networks.

3.4.2 Current regime: network registration and exemption

The NEL currently defines a network service provider as a person registered by AEMO who owns, controls or operates a transmission or distribution system that forms part of the interconnected national electricity system.⁵⁷

Under the NEL and NER, a person that owns, operates or controls a distribution system must either be:⁵⁸

- registered with AEMO as a network service provider, or
- exempted by the AER from the requirement to register in accordance with its network exemption guideline.

The NEL does not stipulate the kinds of network service provider exemptions that the AER can grant or the criteria that the AER should consider when assessing an application for a network exemption. The NER only provides that:⁵⁹

The AER may, in accordance with the guidelines issued from time to time by the AER exempt any person or class of persons who is or are required to register as a Network Service Provider from:

- (1) the requirement to register as a Network Service Provider; or
- (2) the operation of Chapter 5,

where (in the AER's opinion) an exemption is not inconsistent with the national electricity objective.

All exempt network service providers currently rely on an AER exemption from the requirement to register with AEMO as a network service provider. The AER's network exemption regime currently covers deemed, registrable and individual exemptions. The AER has discretion over the conditions it attaches to the different exemptions (network exemption conditions). The network exemption conditions cover access to retail competition, distribution loss factors, network pricing, appointment of ENMs, information provision and conversion of existing sites (brownfield conversions).

⁵⁷ Section 2 of the NEL.

⁵⁸ Section 11(2) of the NEL and clause 2.5.1(d) of the NER.

⁵⁹ Clause 2.5.1(d) of the NER.

The following Box 8 summarises the findings of the 2017 Review in relation to the network exemptions framework.

BOX 8: FINDINGS OF THE 2017 REVIEW IN RELATION TO THE ELECTRICITY NETWORK EXEMPTION FRAMEWORK

The AEMC's 2017 Review found that:

- very high growth in exemptions for embedded networks has meant that they were no longer a minor exception to the standard supply model for networks with a small number of customers like caravan parks
- there seems to be confusion among exempt network service providers about whether they need to apply for a network service provider exemption, as there are some embedded networks that should obtain an AER exemption but have not
- the current framework with deemed exemptions makes it very difficult to obtain accurate information about the number and location of embedded networks and assess whether the operators of those networks are complying with their obligations
- the rapid growth in exemptions has undermined the efficacy of the compliance framework and placed increasing pressure on the AER's regulatory capacity to enforce compliance with exemption conditions.

The 2017 Review recommended the following:

- creation of an ENSP sub-category of network service provider, which would provide for an appropriate sub-set set of rights and obligations legislated in the NEL and NER
- narrowing the framework for the AER to exempt embedded network service providers from the sub-set of rights and obligations as follows:
 - introduce a principles-based exemption framework that restricts exemptions to where the cost of registration would be high compared to the benefits to consumers and the requirement for regulatory oversight is low
 - restrict exempt distribution systems to those that supply particular classes of customers, such as large customers, large corporate entities, customers in temporary accommodation, and infrastructure classes, such as rail.

3.4.3

Commission analysis and draft recommendations: network registration

As discussed in the previous section, the proposed framework sets out a new ENSP class in the NEL and NER, with requirements in the NERL and NERR as well.

The ENSP will register with AEMO. To do so, the ENSP will be required to satisfy AEMO that it is eligible to classify its distribution system as an embedded network.

As the ENSP's functions and obligations will be limited to the embedded network that it owns, controls, or operates, the recommended framework proposes the introduction of an

embedded network area.⁶⁰ The ENSP registers with AEMO along with a corresponding embedded network area. This mirrors the site-specific exemption that the AER currently issues to exempt network service providers in the current framework. The embedded network area also frames and clarifies the ENSP's functions and obligations under the proposed framework, particularly in relation to new connections. The Commission recommends that the ENSP register as follows:⁶¹

A Network Service Provider wishing to classify a distribution system as an embedded network must apply to do so [...] by submitting a notice to AEMO in the form prescribed for this purpose by AEMO. The Network Service Provider must in its application:

- (1) provide sufficient evidence to satisfy AEMO that the *distribution system* is appropriately classified as an *embedded network*;
- (2) include a description of the *embedded network area* for the *embedded network*, including information reasonably required by AEMO for this purpose; and
- (3) nominate a *retailer* to be the *local embedded network retailer* for the *embedded network* for the purposes of the *NERL* and include evidence satisfactory to AEMO that the *retailer* has consented to the nomination.

The AER will not economically regulate the ENSP (i.e directly make a determination about the revenue that the ENSP may earn), but will regulate the ENSP in performing its functions, including:

- provision of market interface services, that are currently performed by the ENM in some exempt networks
- connections policy and charging
- network billing for on-market customers
- customer obligations, including life support.

The following Box 9 summarises the key functions and obligations of the ENSP under the proposed framework.⁶²

60 The ENSP may from time to time and by application to AEMO, amend details of its registration, including the embedded network area.

61 Refer to draft clause 2.5.4(b) of the NER.

62 Appendix A outlines the role and responsibilities of the ENSP in further detail. The following chapters of the report (4-7) also discuss in further detail the key functions of the ENSP under the proposed framework.

BOX 9: ENSP FUNCTIONS AND OBLIGATIONS

Any person that engages in the activity of owning, controlling or operating an electricity embedded network will be required to register as an ENSP. However, where this would capture multiple entities, only one need register as an ENSP; the others may nominate the ENSP as an intermediary acting on their behalf.

The ENSP will be required to register with AEMO. The entity that registers as an ENSP may also register as an off-market retailer.

Each ENSP registers at least one embedded network area, which sets out the site boundary for the ENSP's functions and obligations.

The ENSP, for the embedded network area that it registers, will have a set of responsibilities that include the following:

- provide NEM retailers and off-market retailers in the embedded network with NMI standing data upon request
- comply with metering data provision requirements in relation to retail customers (clause 7.14 of the NER), including NEM retailer customers and off-market retailer customers
- fulfil market interface functions of a DNSP (Chapter 7 of the NER)
- implement network billing and settlement in line with AEMO procedures (including charging retailers of on-market child connection points network charges)
- provide connection services according to s. 66 of the NERL and Chapter 5A of the NER
- comply with requirements for supply interruption notifications, and other requirements for life support customers in the NERR
- disclose specified information on a website and report to the AER as required.

The Commission considers that the creation of the ENSP class achieves the following:⁶³

- creates certainty around the role and responsibilities of the ENSP
- offers appropriate customer protections through setting out the obligations and requirements of ENSPs in the national frameworks
- reduces the burden on the AER in managing discrete exemption applications, and exemption classes and conditions, for large sets of exempt embedded network service providers.

As such, this would promote the long term interests of consumers consistent with the NEO and would be consistent with the development and application of consumer protections under the NERO.

⁶³ The final report of the 2017 Review includes a further discussion of this (pp. 111-113).

3.4.4 Commission analysis and draft recommendations: network exemptions

Overview

As set out in the first section, the NEL does not currently stipulate:

- whether deemed exemptions should be provided for in the framework
- whether networks should register to be exempt with the AER or apply for an exemption
- the criteria that the AER should consider in determining whether to grant exemptions.

The AER has set out network exemption classes, criteria and conditions in network exemption guidelines.

The Commission proposes that the NEL and NER be amended to set out an exemption framework for electricity networks that is consistent with the level of detail of the proposed exemption framework for energy retailers in the NERL and NERR.⁶⁴ The Commission recommends that the NEL be amended to state that the NER may include provisions for a process to grant network exemptions.

The Commission considers that the creation of the ENSP class reduces the need to grant individual exemptions. The Commission recommends that individual exemptions be subsumed through the process of registering ENSPs. That is, a network service provider for an embedded network that would, under the current framework, require an individual exemption would be required to register with AEMO as an ENSP under the proposed framework.

In line with its objectives for recommending the creation of an ENSP class, the Commission considers that the network exemption framework should balance the administrative burden placed on the AER with the benefit of reduced ambiguity of the regulatory framework.

The Commission also considers it appropriate to make consequential amendments to the rules to permit the AER to grant network exemptions for transmission systems as under the current framework.⁶⁵

As such, the Commission's recommendations in relation to the network exemption framework are as follows:

- disallow new deemed exemptions for electricity distribution networks, and update the definition of a distribution system to exclude some supply activities from being defined as an electricity network and as such requiring a deemed exemption
- disallow new individual exemptions, and require ENSPs to register with AEMO
- provide for registrable exemptions only, under limited circumstances.

The Commission recommends that its proposed regime for network exemptions apply to new networks. The Commission also recommends that current deemed network exemptions transition to become registrable exemptions.

⁶⁴ The next section discusses the proposed exemption framework for energy sellers in detail.

⁶⁵ Which reflects current clause 2.5.1(f) in the NER, and the AER's general obligation to consider the NEO in performing its functions under the NEL, including in performing its economic regulatory functions.

These recommendations are discussed further below.

Proposed changes to definition of distribution system

The Commission notes that the definition of network service provider covers a broad range of activities.⁶⁶ As such, not only are network exemptions necessary to address the regulatory burden, but registering all network exemptions with the AER would be unreasonable.⁶⁷

The Commission also considers that the limited oversight of the number and nature of exempt networks has been exacerbated by the deeming of some network exemptions without registration with the AER. In these cases, the AER does not have oversight of these networks as they are created or as they evolve into networks with characteristics that could be potentially different from those under which they were deemed exempt.

The Commission has examined the electricity distribution networks that the AER deems exempt through its guidelines, and considers that they fall under one of the following categories:⁶⁸

- networks that currently fall under the definition of distribution system, but where there is no net benefit in regulating under the national frameworks
- networks that should be exempt from the Network Service Provider and ENSP obligations and requirements.

The following section discusses each of these in turn.

The current definition of an electricity distribution system is very broad, and covers 'networks' that may not be thought of as such. The Commission recommends that electricity network activities where there would be no net benefit in regulating be explicitly excluded from the definition of distribution system in the NER for the purposes of regulation under the national framework.

The Commission recommends that the definition of distribution system exclude examples such as a home-owner providing a socket for a vacuum cleaner operated by a cleaning company or supplying energy to facilitate telecommunications services.⁶⁹

The Commission recommends that the definition of **distribution system** in Chapter 10 of the NER be amended by adding the following text in bold:

A distribution network, together with the connection assets associated with the distribution network, which is connected to another transmission or distribution system.

Connection assets on their own, and dedicated connection assets in respect of which a Primary Transmission Network Service Provider is registered, do not constitute a

66 The current definition of network service provider covers owning, operating or controlling a transmission or distribution system, which includes equipment used to convey electricity to customers. See Chapter 10 of the NER, definitions of 'network service provider', 'distribution system', 'distribution network' and 'network'.

67 The Commission considers that the concept of the sale of energy is not as broad. This is discussed further in the next section.

68 Refer to AER's Network Exemption Guideline, deemed network exemption classes (pp. 29-30).

69 These circumstances are currently covered by the AER's network deemed exemption classes ND5, ND6 and ND9.

distribution system.

The following do not constitute a *distribution system*:

(a) a *network* forming part of a *metering installation*, but not including incoming sub-mains or outgoing service wiring;

(b) a *network* forming part of a facility for broadcasting television or radio signals;

(c) a *network* forming part of, or used in conjunction with, or ancillary to, or that is primarily used to facilitate the functioning of, infrastructure for the provision of telecommunications services, data centre services or other services provided by means of communications technology, including infrastructure for the provision of internet, telephone, mobile phone, fibre optic, hybrid fibre cable, television, radio or wi-fi services;

(d) a *network* within a construction site or on a site adjacent to the construction site, but only where and for so long as the *network* is used to provide a temporary supply during the construction and commissioning phases of new facilities on the site; and

(e) a *network* forming part of plug-in or rack mounted equipment when in use in any premises including National Broadband Network equipment in any premises with an input current rating not exceeding 3 amps AC.

These exclusions are based on the AER's current deemed network exemption classes.

The Commission considers that this proposed amendment would enhance the robustness of the regulatory framework in excluding from the definition of distribution system those networks that it is not efficient to regulate. They would also reduce the regulatory burden on the AER in creating and updating exemption classes to address these instances.

Registrable network exemptions

The Commission recommends that all new electricity networks that continue to fall within the scope of the term 'distribution system' (as revised), and are eligible for a network exemption, be required to register that exemption with the AER.

The Commission recommends that the NER be amended to include network exemption factors that would make examples of 'networks' such as electric vehicle charging stations and wiring from back up generators eligible for registrable exemptions.

The Commission proposes the following drafting for exemption criteria that the AER should consider in defining network activities that could be eligible for network exemptions:⁷⁰

(1) an activity specified under *jurisdictional electricity legislation* as one for which an exemption from the obligation to hold a distribution licence or equivalent instrument

⁷⁰ Refer to proposed new clause 2.14.2(b) of the NER.

issued under the legislation is available;

(2) the supply of electricity by a person in the class to a related body corporate of the person or to an entity controlled by, or under common control with, the person (where “related body corporate” and “control” have the meaning in the *Corporations Act 2001* of the Commonwealth);

(3) the *supply* of electricity to occupants of holiday accommodation (including caravans and like accommodation) on a short-term basis;

(4) the *supply* of electricity by means of an electric vehicle charging station;

(5) the provision of electric traction systems for passenger or freight vehicles and associated infrastructure (such as rail networks) but not including *supply* for commercial or retail activities associated with the provision of passenger or freight services;

(6) owning, controlling or operating a *generating system* where the person so doing is exempt from the requirement to register with AEMO under clause 2.2 [of the NER] in relation to that activity, is not supplying services under a *network support agreement* or demand management services, and is not otherwise required to be registered with AEMO;

(7) the *supply* of metered or unmetered energy to non-residential customers, including public and private educational institutions, but only where the person providing the *supply* is a Government agency other than a housing authority; and

(8) an activity incidental to an activity in subparagraphs (2) to (7).

The above criteria would:

- cover the AER’s current network deemed exemption classes that are not excluded from the electricity network definition as discussed above⁷¹
- preclude exemption of some of the current classes of registrable exemptions that compromise NEO outcomes for small customers, such as embedded networks in high rise apartment complexes.

It should be noted that these criteria are derived from the AER’s existing Network Exemption Guideline, and the Commission intends to give further consideration to any required changes, for example whether it would be appropriate to explicitly recognise joint ventures under the criterion referring to related bodies corporate.

The AER will continue to have discretion in defining exemption classes and attaching different conditions to the classes. However, the proposed amendments are intended to reduce the decision-making burden on the AER by reducing the discretionary factors the AER is to consider when determining network exemptions.

⁷¹ Current deemed network exemption classes that would be covered by factors for registrable exemptions under the proposed framework include ND06, ND1, ND2, ND3, ND8 and ND9.

Electricity networks eligible for network exemptions under the current framework may incur minor additional costs in preparing applications for network registration with AEMO or exemption registration with the AER as a result of the removal of deemed exemptions and narrowing of eligibility for registrable exemptions. However, this is an up-front, one-off cost for both the network and the AER. Network exemption registration is currently done through a short online form that the Commission considers to be low cost for both a network registering an exemption and the AER.

The Commission also recommends that the AER publish a register of exempt network operators, which includes names and addresses for all registered exempt embedded networks by class - in addition to other exempt distribution and transmission systems.⁷²

Consistent with the NEO and NERO, the Commission considers that these minor additional costs are outweighed by benefits arising from:

- reduced upfront costs of the administration currently required by the AER in respect to monitoring and enforcement
- enhanced oversight over embedded and exempt electricity networks for all stakeholders.

3.5 Recommended retail authorisation and exemption regime

3.5.1 Introduction

This section sets out the following:

- overview of the current retail authorisation and exemption regime
- Commission's analysis and draft recommendations on retail authorisation
- Commission's analysis and draft recommendations on selling exemptions.

3.5.2 Current regime: retail authorisation and exemption

The concept of the 'sale of energy' covers a wide range of activities, from energy retailing through to landlords recovering energy costs from their tenants.

Under s. 88 of the NERL, if a party wishes to sell energy to a person for premises, it must:

- hold a retailer authorisation from the AER, or
- be exempted by the AER from the requirement to hold a retailer authorisation.

The NERL includes entry criteria for obtaining a retailer authorisation, in addition to obligations and requirements for energy retailers.

⁷² Refer to proposed new clause 2.13.3 of the NER that sets out the obligation to maintain and update a register of all exempt network operators.

Figure 3.2 summarises the retailer authorisation framework.

Figure 3.2: Current retail authorisation framework

Retail authorisation framework <i>For dual fuel, gas and electricity sellers</i>		
Entry criteria	Obligations	Conditions
<ul style="list-style-type: none"> ▪ Organisational and technical capacity (energy market experience, business plans, compliance and risk management strategies, agreements with market participants) ▪ Financial capacity ▪ Suitability (for example, ROLR instances) 	<ul style="list-style-type: none"> ▪ NECF obligations ▪ Information and reporting requirements 	<ul style="list-style-type: none"> ▪ <i>Only imposed if entry criteria not met upon application</i>

Source: NERL, NERR and AER (Retail) Exempt Selling Guideline.

The exemption framework in the NERL as it currently stands:⁷³

- sets out the AER’s power to issue and revoke exemptions, and impose exemption conditions
- establishes three kinds of exemptions (deemed, registrable and individual)
- stipulates the policy principles that the AER must take into account in exercising its exemption functions and powers over gas and electricity sellers
- includes a range of exempt seller related factors and customer related factors the AER may take into account in exercising its exemption functions and powers.

The policy principles that the AER must take into account are:⁷⁴

- the regulatory arrangements for exempt sellers should not unnecessarily diverge from those applying to retailers
- exempt customers should, as far as practicable, be afforded the right to a choice of retailer in the same way as comparable retail customers in the same jurisdiction have that right
- exempt customers should, as far as practicable, not be denied customer protections afforded to retail customers under the NERL and NERR.

⁷³ Part 5, Division 6 of the NERL.

⁷⁴ Section 114(1) of the NERL.

The **exempt seller related factors** that the AER may take into account in performing or exercising its exempt selling functions are as follows:⁷⁵

- whether selling energy is or will be a core part of the exempt seller's business or incidental to that business
- whether the exempt seller's circumstances demonstrate specific characteristics that may warrant exemption
- whether the exempt seller is intending to profit from the arrangement
- whether the amount of energy likely to be sold by the exempt seller is significant in relation to national energy markets
- the extent to which the imposition of conditions on an exemption, or to which the requirements of other laws, would allow appropriate obligations to govern the applicant's behaviour rather than requiring the applicant to obtain a retailer authorisation
- the likely cost of obtaining a retailer authorisation and of complying with the NERL and the NERR as a NEM retailer compared to the likely benefits to the exempt customers of the exempt seller
- any other seller related matter the AER considers relevant.

The **customer related factors** that the AER may take into account in performing or exercising its exempt selling functions are as follows:⁷⁶

- whether the characteristics of the exempt customers or the circumstances in which energy is to be sold to them by the applicant are such as to warrant exemption
- the extent to which the imposition of conditions on an exemption, or to which the requirements of other laws, would allow the exempt customers access to appropriate rights and protections rather than requiring the applicant to obtain a retailer authorisation
- any other customer related matter the AER considers relevant.

Notwithstanding these additional constraints and guidance, the AER has considerable discretion in developing and applying the *(Retail) Exempt Selling Guideline*. The AER also has discretion to set the exemption conditions in the guideline. The retail exemption conditions are for both electricity and gas selling and relate to five key areas: information provision; dispute resolution; pricing; access to retail competition; and consumer protections.

75 Section 115(1) of the NERL.

76 Section 116 of the NERL.

Figure 3.3 summarises the retail exemption framework.

Figure 3.3: Current retail exemption framework

Retail exemption framework <i>For dual fuel, gas and electricity sellers</i>			
Exemption criteria	Factors	Classes	Conditions
<ul style="list-style-type: none"> scope, whether sale of energy is 'incidental' to main business relationship between energy seller and customer, whether sale of energy is a community service or at cost scale, whether sale of energy is to a defined customer group at one site 	<ul style="list-style-type: none"> seller related factors customer related factors 	<p>Deemed nine deemed classes (D1-D10)</p> <p>Registrable eight registrable classes (R1-R8)</p> <p>Individual</p>	<ul style="list-style-type: none"> "core" conditions: obligation to supply, information provision, billing and payment arrangements, disconnection and reconnection, concessions and rebates deemed and registrable class conditions variation of conditions for individual exemptions
	<ul style="list-style-type: none"> each class has criteria matched to the exemption criteria 		

Source: NERL, NER, AER (Retail) Exempt Selling Guideline.

Box 10 summarises the findings of the 2017 Review in relation to the network exemptions framework.⁷⁷

BOX 10: FINDINGS OF THE 2017 REVIEW IN RELATION TO THE ENERGY SELLING EXEMPTION FRAMEWORK

The 2017 Review found that the retail authorisation framework was no longer fit for purpose for embedded networks. In relation to the exemption framework, the Review found that the seller related factor relating to whether the selling of energy is a core part of the exempt seller's business or is incidental to that business is problematic. Energy supply is an essential service that requires sector-specific consumer protections. As such, the identity and business model of the energy seller should not impact whether those consumer protections should apply to the seller's customers. Therefore, it is a problem that commercial entities essentially providing the same service face different regulatory obligations and are subject to different degrees of regulatory oversight. The two tiered framework has enabled regulatory arbitrage that has distorted investment decisions and created a bias towards specific operating models.

The 2017 Review recommended the following:

- creation of a sub-category of off-market retailer that would provide for an appropriate sub-set of NEM retailer's rights and obligations to be legislated in the NERL and NERR
- narrowing the framework for the AER to exempt sellers as follows:
 - remove the exempt seller and customer related factors in the NERL and replace them with clear principles that restrict exemptions to where the cost of authorisation would be high compared to the benefits to consumers and the requirement for regulatory oversight low
 - consider how the proposed retailer authorisation framework could be adapted or extended to other non-traditional sellers
 - include in the NERR exemption criteria that would continue to exclude, for example, unmetered energy sale, energy sale to customers in short term accommodation or energy sale to related entities on the same property.

3.5.3

Commission analysis and draft recommendations: retail authorisation regime

The Commission's recommended framework for embedded networks sets out an off-market retailer class in the NERL and NERR, with requirements in the NEL and NER as well.

The Commission's draft recommendation for the off-market retailer is that its obligations and requirements under the NERL and NERR very closely mirror those of a NEM retailer.

The off-market retailer will not need to be a participant in the wholesale electricity market. However, the off-market retailer will be authorised by the AER and needs to register with AEMO.

⁷⁷ These findings were informed by submissions to the consultation paper for the 2017 Review: AER, p. 7 and ATA, p. 2; and submissions to the draft report for the 2017 Review: EnergyAustralia, p. 2 and Energy Networks Australia, p. 2.

The Commission is interested in stakeholder views on whether:

- a class of off-market retailer should be included in the NERL and NERR; or
- given the limited proposed differences between the rights and obligations of NEM retailers and off-market retailers, whether off-market retailers in embedded networks should simply be required to obtain a NEM retailer authorisation.

As discussed in the previous section, every ENSP will register an embedded network area and nominate a retailer to be the local embedded network retailer.⁷⁸

Box 11 summarises the key functions and obligations of the off-market retailer under the proposed framework.⁷⁹

BOX 11: OFF-MARKET RETAILER FUNCTIONS AND OBLIGATIONS

An off-market retailer on-sells electricity purchased at a parent connection point from a NEM retailer to customers in an embedded network. The off-market retailer will be required to appoint a metering coordinator, and where it is the registered local embedded network retailer (and the designated retailer under the NERL), it is obliged to have available an offer to all off-market and new customers in the embedded network area that it operates in.^[1]

To be an off-market retailer, an entity will be required to be authorised by the AER. The off-market retailer that is a local embedded network retailer will be nominated by an ENSP for an embedded network area with AEMO as part of the ENSP's registration. The entity that is nominated as an off-market retailer may also register as an ENSP. An entity may also be authorised as an off-market retailer without being registered for an embedded network area.

The off-market retailer, for the embedded network area that it is nominated against, will have a set of responsibilities that include the following:

- as local embedded network retailer, make a retail offer to all off-market and new child connection points in the embedded network
- any offer to sell electricity must include network charges and connection service charges
- appoint the metering coordinator for the off-market child connection point and ensure that the connection point has a NMI
- comply with requirements for supply interruption notifications, and other requirements for life support customers
- maintain a 24-hour telephone line
- disclose information on website and report as required.

The retailer obligations that the Commission proposes not to apply to the off-market retailer are publication of a retail offer in a newspaper and the requirement that prices should not be modified within six months.

⁷⁸ Refer to draft clauses 2.5.4(b)(2) and (3) of the NER.

⁷⁹ Chapter 7 and Appendix B list the requirements and obligations for off-market retailers in further detail.

Note: [1] Proposed NERL s. 2 change to definition of *Note: designated retailer* Note: to include the registered local embedded network retailer, which under existing s. 22 of the NERL, is obligated to make an offer to small customers within the embedded network area for which it is the designated retailer. It is noted that the local embedded network retailers can be a NEM retailer or an off-market retailer.

As discussed above, the current approach whereby the exemption framework has, in effect, replaced the authorisation framework in many cases is no longer appropriate. The Commission considers that the authorisation of electricity on-sellers at off-market child connection points in embedded networks achieves the following:⁸⁰

- creates certainty around the role and responsibilities of the off-market retailer as the on-seller of energy
- offers appropriate consumer protections
- reduces the burden on the AER in managing discrete exemption applications, and exemption classes and conditions, for large sets of exempt sellers.

The Commission recommends that the retailer authorisation process subsume individual exemptions such that:

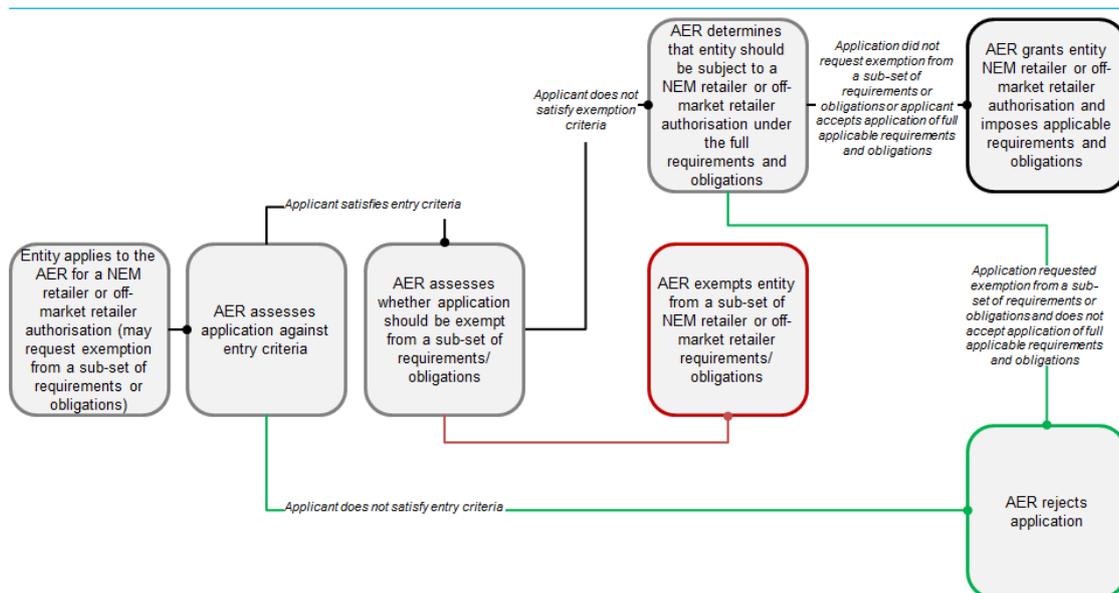
- energy sellers that are eligible for registrable exemptions under the criteria discussed above register for a retail exemption with the AER⁸¹
- all other energy sellers apply to the AER for an authorisation as a NEM retailer or off-market retailer, and be assessed under the entry criteria of the NERL
- for these energy sellers, the AER may decide to exempt them from a sub-set of requirements and obligations.

⁸⁰ The final report of the 2017 Review includes a further discussion of this (pp. 123-125).

⁸¹ The Commission's recommended retail exemption regime covers registrable exemptions only, and is discussed in the next section.

Figure 3.4 summarises the Commission’s recommended regime for retail authorisation with the AER.

Figure 3.4: Proposed framework for NEM retailer and off-market retailer authorisation



Source: AEMC.

Note: This figure illustrates the retail authorisation framework only.

In summary the Commission recommends a single entry test for entities planning to sell energy to obtain one of the following:

- NEM retailer authorisation (for sellers of electricity and/or gas)
- NEM retailer authorisation, with exemption from some requirements or obligations (for sellers of electricity and/or gas)
- off-market retailer authorisation (electricity sellers)
- off-market retailer authorisation, with exemption from some requirements or obligations (electricity sellers).

Unless a seller clearly meets the criteria for a registered exemption,⁸² using a single entry test for authorising retailers inside and outside embedded networks means that only parties that are able to meet the obligations of an authorisation can sell energy to customers. Such parties are better able to manage any associated risks, including the management of third parties and agents. The Commission also considers that this recommendation enhances certainty for stakeholders, and enables appropriate supervision of energy sellers.

The recommendation grants the AER discretion in relieving an applicant from some conditions, which substitutes for the current individual exemption regime. The Commission

⁸² The recommended retail exemption regime is discussed in detail in the next section.

considers that the AER may, for example, determine to exempt some NEM retailers or off-market retailers from a sub-set of obligations based on their customer type or size.

The Commission's recommendation reflects its position that entities that are currently on-selling energy in embedded networks are selling embedded network customers an essential service. As such, the Commission considers that these entities should satisfy the entry criteria as much as NEM retailers and that embedded network customers should be offered the same customer protections as they would have if they were not in an embedded network.⁸³

The recommended framework includes a separate class of off-market retailer authorisation. This feature stems from the Commission's recommendation in the 2017 Review. However, the Commission has determined through this latest work that it would be appropriate to subject off-market retailers to virtually all the existing obligations imposed on NEM retailers. As such, the Commission would welcome feedback as to whether a separate authorisation class is justified, or whether any differences could be more efficiently handled through a single authorisation process and by exempting off-market retailers from any unnecessary obligations on an individual basis.

3.5.4

Commission analysis and draft recommendations: retail exemption regime

Overview

As discussed above, the Commission considers that the current retail exemption framework permits the deeming, registration and granting of individual exemptions to energy sellers that may be inconsistent with the National Energy Retail Objective (NERO) and the underlying rationale for the exemption framework.

The Commission considers that an energy selling exemption framework remains necessary to address limited circumstances where the costs of retail authorisation under the process outlined above would outweigh the benefits to customers, and the need for regulatory oversight is low.

The Commission recommends that the NERL and NERR be amended as follows:

- discontinue deemed retail exemptions
- require all entities that sell electricity to customers in embedded networks that are eligible for a retail exemption to register the exemption with the AER.

The Commission recommends that its proposed regime for retail exemptions apply to new sellers. The Commission also recommends that current deemed retail exemptions transition to become registrable exemptions.

For the avoidance of doubt, there would be no change to the definition of the sale of energy. This means that, where the costs of energy are included in a broader charge such as rent, no retailer authorisation or exemption would be required.

⁸³ This is discussed in further detail in chapter 7.

Registrable seller exemptions

The Commission recommends that all on-sellers eligible for a retail exemption register that exemption with the AER.

The Commission also recommends that the exempt seller related factors and customer related factors be transferred from the NERL to the NERR in order to facilitate their updating or modification based on rule change requests from stakeholders.

The Commission further recommends the simplification of these factors so that they cover the following activities:

- sale of energy to temporary accommodation customers or temporary construction sites, or to related entities
- sale of electricity as a supplementary supply through power purchase agreements
- exemption under jurisdictional instruments.⁸⁴

The Commission proposes the following drafting for registrable exemption factors to capture the above:⁸⁵

(a) selling metered energy to occupants of holiday accommodation (including caravans and like accommodation) on a short-term basis;

(b) temporarily selling energy on construction sites;

(c) selling energy to a related body corporate of a person in the class or to an entity controlled by, or under common control with, the person (where “related body corporate” and “control” have the meaning in the *Corporations Act 2001* of the Commonwealth);

(d) selling energy as a supplementary supply through power purchase agreements to customers connected to the national grid (as defined in the NER) and where (in the case of a retail customer) the agreement has a term of 10 years or shorter and may be terminated by the customer before the end of the term; or

(e) selling energy to customers for premises in circumstances where the person is exempt under jurisdictional energy legislation from the obligation to hold a retailer authorisation or equivalent instrument in relation to the sale.

The above criteria would:

- cover the AER’s current seller deemed exemption classes⁸⁶
- preclude some of the current classes of registrable exemptions that may compromise outcomes for small customers.

84 This would for example cover state-based exemptions such as sale of unmetered electricity to residential customers in Queensland under the *Residential Tenancies and Rooming Accommodation Act 2008 (Qld)*.

85 Refer to draft rule 150 of the NERR.

86 AER, (*Retail*) *Exempt Selling Guideline*, version 5, March 2018, pp. 27-30.

Again, this would remove some of the AER's discretion in the exemption framework. However, it would remove ambiguity around the interpretation and application of the exempt seller and exempt customer related factors. The AER will continue to have discretion in the following:

- defining the exemption classes, and requiring different exemption conditions for each class
- exempting NEM retailers and off-market retailers from some conditions, as discussed above.

As with the criteria for network exemption, the Commission intends to give further consideration to those criteria derived from the AER's existing Retail Exemption Guideline, for example the appropriateness of the criterion relating to jurisdictional energy legislation.

One of the main additional costs to energy sellers will be the costs of preparing applications for registration or authorisation as an off-market retailer as a result of the removal of deemed exemptions and narrowing of eligibility for registrable exemptions. However, this is an up-front, one-off cost for both the energy seller and the AER which the AEMC considers reasonable in order to demonstrate capacity and suitability to provide a 'sale of energy' service. It will also reduce the administration required by the AER in respect to monitoring and enforcement.

As such, consistent with the achievement of the NEO and NERO, the Commission considers that these costs are outweighed by the benefit from:

- reduced costs of the ex-ante administration required by the AER in respect to monitoring and enforcement
- enhanced oversight over exempt energy sellers for all stakeholders.

3.6 Compliance under the recommended framework

ENSP

The proposed amendments to the NEL and NER include requiring most service providers servicing embedded network customers to register as ENSPs.⁸⁷ The ENSP will be treated as a type of registered participant under the NEL and NERL, and required to comply with provisions applicable to network service providers where rules expressly provide so.⁸⁸ This includes being subject to the AER's monitoring, investigation and conduct powers, general information gathering powers,⁸⁹ AER made or jurisdictionally applicable distribution service standards for ENSPs,⁹⁰ AER reporting,⁹¹ the Ombudsman scheme requirements in the NERL,⁹² and obligations not to prevent or hinder access to electricity network services.⁹³

87 Refer to the previous section.

88 Refer to proposed new clause 2.5.4 and in particular clause 2.5.4(g) of the NER.

89 The Commission has proposed amendments to this effect to NEL Part 3 Division 1, Division 2, Division 3 but not Division 4 (which relates to regulatory information notices and general regulatory information notices which apply to regulated network service providers).

90 Proposed amendment to s. 2 of the NEL, definition of 'distribution service standard'.

91 Proposed amendments to Part 4, Division 5 of the NEL.

92 Proposed amendments to NERL Part 4 – Small customer complaints and dispute resolution.

93 Proposed amendment to s. 157 of the NEL.

In order to improve accountability, all entities involved in an embedded network will be liable for the conduct of ENSPs as follows:

- Each of the entities that owns, operates or controls an embedded network must either register as an ENSP or appoint an intermediary to act on its behalf with regard to the embedded network (and in turn, obtain an exemption from AEMO from registering as an ENSP).
- An entity that would otherwise be required to be registered will be exempted from this requirement if it appoints an intermediary (registered with AEMO) to act in its place. For example, if the operator registers as an ENSP, the owner of the embedded network could be exempted by appointing the operator as its intermediary. A range of existing provisions relating to intermediaries will apply in that case, including joint and several liability of the intermediary and the original entity for the acts and omissions of the intermediary.⁹⁴

Off-market retailer

The proposed amendments to the NERL and NERR include requiring the majority of entities that would previously have previously been eligible for an exemption to register under the NERL and NEL as off-market retailers, and generally become subject to the provisions applicable to NEM retailers. This includes being subject to the NERL compliance framework applicable to NEM retailers. This compliance framework includes the AER's monitoring, investigation, enforcement⁹⁵ and information gathering powers,⁹⁶ obligations to establish arrangements to monitor compliance,⁹⁷ AER reporting,⁹⁸ the Ombudsman scheme,⁹⁹ and the *AER Compliance Procedures and Guidelines* and information provision requirements.¹⁰⁰

The proposed amendments also extend energy marketing rules to off-market retailers and their associates,¹⁰¹ and obtaining explicit informed consent for transfers of customers from exempt sellers.¹⁰²

Exempt seller and ENO

Under the recommended framework, the AER is to maintain a register of ENOs as well as exempt sellers for transparency purposes.¹⁰³

Under the exemptions regime, the AER is able to set, modify and revoke conditions on ENOs and exempt sellers on an individual or class basis. Exempt sellers are also subject to compliance audit provisions¹⁰⁴, whilst ENOs are subject to general information gathering

94 Proposed amendment to clause 2.9.3 of the NER.

95 Proposed amendments to NERL Part 13 - Enforcement.

96 Proposed amendments to NERL Part 12 – Compliance and performance.

97 Proposed amendment to s. 273 of the NERL.

98 Proposed amendments to Part 4, Division 5 of the NEL.

99 Proposed amendments to NERL Part 4 – Small customer complaints and dispute resolution.

100 Proposed amendments to s. 274 of the NERL.

101 Section 53 of the NERL; Division 10 of the NERR. These are discussed in further detail in chapter 7.

102 Section 38 of the NERL.

103 Proposed s. 13F of the NEL; current s. 119 of the NERL.

104 Proposed amendment to s. 276 of the NERL.

powers. Any breaches of exemption conditions¹⁰⁵ or a condition on an exempt seller,¹⁰⁶ will be enforceable by the AER as part of their monitoring, investigation and enforcement procedures under the NERL and NEL, with breaches of those exemption conditions or network exemptions enforceable under the law.¹⁰⁷

105 Proposed amendment to s. 2 of the NEL.

106 Proposed amendments to s. 112 of the NERL.

107 Proposed amendments to NEL Part 3 Division 1, Division 2, Division 3 but not Division 4 (which relates to regulatory information notices and general regulatory information notices); proposed amendments to Part 12 and Part 13 of the NERL.

4 MARKET AND SYSTEM INTEGRATION

4.1 Introduction

The Commission recommended in the 2017 Review that the regulation of embedded networks should be elevated into the national framework and into the NEM. In part this would be achieved by extending the metering framework in the NER to new embedded networks, further integrating embedded networks into AEMO's market systems.¹⁰⁸

The Commission considered that elevating embedded networks into the national framework will be in the long term interests of consumers consistent with energy objectives. Extending the NER metering framework and integrate embedded networks into the NEM are key to providing customers in embedded networks improved access to retail market competition and important consumer protections. These consumer protections include keeping customer metering data secure while also providing customers the rights and ability to easily access their electricity consumption data so that they can make more informed decisions about their energy consumption if they wish and to shop around different retailers for a better deal.

The remainder of this chapter sets out the current arrangements, analysis and recommendations and recommended amendments to the energy laws and rules in relation to:

- extending the metering framework in the NER to new embedded networks
- the appropriate party to fulfil market interface functions in new and legacy embedded networks
- the arrangements for access to data in new embedded networks
- incorporating the new roles of ENSP and off-market retailer into the B2B framework
- allocating distribution loss factors for new embedded networks.

The majority of this chapter relates to updating the regulatory framework for new embedded networks with the exception of section 4.3. Section 4.3 also considers legacy embedded networks in relation to the performance of market interface functions such as assigning a NMI to customer connection points and maintaining NMI standing data.¹⁰⁹

4.2 Extending the metering framework

4.2.1 Introduction

Metering services are a key component of the electricity supply system. Electricity meters measure a customer's electricity consumption which is important for accurate billing and wholesale market settlement.

¹⁰⁸ For a detailed discussion on this recommendation see chapter 8 of AEMC, *Review into regulatory arrangements in embedded networks*, final report, 28 November 2017.

¹⁰⁹ NMI standing data is the information related to a customer's connection point. The information is about the physical location and properties of the meter, which includes the applicable network tariff and the consumer's consumption threshold bands. It does not include the customer's consumption data. Schedule 7.1 in the NER sets out what information must be contained in the meter register. The meter register is contained in MSATS which AEMO maintains. AEMO also maintains standing data for MSATS procedures. See https://www.aemo.com.au/-/media/Files/Electricity/NEM/Retail_and_Metering/Market_Settlement_And_Transfer_Solutions/2017/Standing-Data-for-MSATS.pdf.

Technological innovation has meant that meters can now do much more than just measure the flow of electricity. The range of services that will be enabled by advanced meters will evolve over time as new benefits are identified and the technology develops. The additional services supported by advanced meters can enable:

- consumers to monitor, manage and adjust their use of electricity to suit their lifestyle and budget
- retailers to offer different pricing options and more efficiently operate their businesses, by reducing costs for remote meter reading and connecting customers more quickly
- DNSPs to better manage the operation of their electricity networks with access to more detailed outage and power quality information
- third party services including energy management services.

Given the importance of metering as an enabling technology which links customers to the NEM the Commission is of the view that customers in embedded networks should have the same metering standards and arrangements as standard supply customers. For this reason, the Commission recommended, in the 2017 Review, extending the metering framework in Chapter 7 of the NER to new embedded networks.¹¹⁰

This section sets out:

- the current metering arrangements for standard supply customers under Chapter 7 of the NEM and embedded network customers under the AER's Network Exemption Guideline
- analysis and recommendations on extending the metering framework to **new embedded networks**
- details on how to implement these recommendations in the energy laws and rules.

The recommendations in this section do not apply to legacy embedded networks.¹¹¹

4.2.2

Current arrangements

Current arrangements in the NEM

Prior to the commencement of the *Competition in metering* Rule in 2017, DNSPs were generally responsible for the provision, installation and maintenance of a small customer's meter, as well as the collection and delivery of metering data.

In making the *Competition in metering* Rule, the Commission considered that metering services can be more effectively provided by entities that are operating competitively with each other. The rule therefore ended the effective monopoly of DNSPs over the provision of metering services for small customers by allowing any party that meets certain registration requirements to provide those metering services. This was achieved by transferring responsibilities for metering services to the 'metering coordinator'.¹¹²

¹¹⁰ AEMC, *Review into regulatory arrangements in embedded networks*, final report, 28 November 2017, p. 94.

¹¹¹ Legacy embedded networks will be addressed as part of the final report.

¹¹² AEMC, National Electricity Amendment (*Expanding competition in metering and related services*), 26 November 2015.

Under the NER arrangements that now apply, NEM retailers are responsible for arranging metering services for small customers.¹¹³ Retailers must appoint a metering coordinator for each of their small customer's connection points¹¹⁴ and obtain a NMI for each meter.¹¹⁵ In general, the retailer provides instructions to the metering coordinator for any metering work needed by the customer.

The metering coordinator has overall responsibility for all issues related to the metering installations for which it has been appointed. The metering coordinator appoints a metering provider for each connection point to provide, install and maintain the meter installation.¹¹⁶ The metering coordinator also appoints a metering data provider who is responsible for the collection and processing of metering data.¹¹⁷

Any person can perform one or more of these three metering roles provided that they are registered and accredited by AEMO for the relevant roles. In practice, most metering coordinator businesses are also registered and accredited as metering providers and metering data providers.

NEM retailers may negotiate 'churn agreements' with a variety of metering businesses so that when they win a new customer from another retailer, they can access the metering services from the previous retailer's appointed metering coordinator. It will usually be in the incoming NEM retailer's interest not to have to replace the existing meter.

These arrangements, in combination with retail competition, act to put downward pressure on the cost of metering services while providing incentives to NEM retailers and metering businesses to provide the types of services that customers want.

Chapter 7 of the NER sets out the regulatory framework for the provision of metering services in the NEM. It outlines arrangements relating to matters including the:

- roles and responsibilities of a FRMP at a connection point (the FRMP is the NEM retailer for a small customer), metering coordinator and AEMO
- provision, installation, accuracy and maintenance of a metering installation
- collection and provision of metering data
- security of, and rights of access to, metering data and energy data
- the minimum services that all new and replacement meters must be capable of providing¹¹⁸
- obligations relating to managing access to services provided by advanced meters, including remote reconnection and disconnections services

113 This is part of their responsibility as the FRMP.

114 Clause 7.2.1(a) of the NER. Under clause 7.6.2(a)(3) of the NER a large customer may appoint its own metering coordinator.

115 Clause 7.8.2(c)(1) of the NER. This involves applying to the distributor for a NMI and providing it to the metering coordinator within five business days of receiving it.

116 Clauses 7.3.2(a), 7.8.1(c) and 7.8.2(a) of the NER.

117 Clauses 7.3.2(d) and 7.10 of the NER

118 The minimum services specification, set out in Table S7.5.1.1 in the NER, includes the following services: remote disconnection service; remote reconnection service; remote on-demand meter read service; remote scheduled meter read service; metering installation inquiry service; and advanced meter reconfiguration service.

- the appointment of, standards of performance and accreditation requirements of metering providers and metering data providers.

Current arrangements in embedded networks

Exempt network service providers are currently responsible under the AER's Network Exemption Guideline for metering installations and services in embedded networks.

Over subsequent versions, the AER's Network Exemption Guideline have included additional requirements to increase the standards of metering arrangements in embedded networks.

Under the current Network Exemption Guideline, the exempt network service provider must (with regard to metering):¹¹⁹

- comply with National Measurement Act 1960 (Cth) requirements¹²⁰ for electricity meters installed from 1 January 2013 and other applicable Australian standards
- for electricity meters installed from 1 December 2017, where a jurisdiction has adopted the AEMC Power of Choice reforms, comply with the minimum specification for advanced metering in schedule 7.5 of the NER.

However, the Network Exemption Guideline do not require the same reading, testing and inspection standards as the NER. For example, exempt network service providers are only required under the Network Exemption Guideline to test meters for accuracy in the event of a billing dispute.¹²¹

NEM retailers selling to on-market child embedded network customers need access to child embedded customer metering which is both NEM compliant and compatible with the parent meter for the purpose of the settlement by difference process. The lesser requirements applicable to exempt network service providers regarding metering services in embedded networks means that NEM retailers in many cases will need to replace a meter in order to take an embedded network customer on-market. This cost can make it uneconomic for a NEM retailer to make an offer to an embedded network customer unless the customer is willing to pay for the meter up-front. This cost can be a disincentive for embedded network customers wishing to switch to a competitive market offer.

The lesser requirements placed on exempt network service providers, including the shortcomings in the compliance and enforcement framework discussed in chapter 2, also raise consumer protection issues for customers in embedded networks relating to safety and the accuracy of metering and billing in embedded networks.

4.2.3

Analysis and recommendations

In the 2017 Review, the Commission recommended that the authorised on-selling retailer (which under the proposed framework is referred to as an off-market retailer) appoint a

119 Section 2.1.1 of the Network Exemption Guideline as accessed on March 2018 from <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/network-service-provider-registration-exemption-guideline-march-2018>.

120 For further information, see www.measurement.gov.au.

121 Clause 4.2.2.5 of the network exemption guideline, version 6 dated March 2018.

metering coordinator to provide metering services at off-market child connection points within each embedded network to which the proposed registration framework applies.

As set out in detail in chapter 3 of this report, the Commission has recommended a new category of retailer, an off-market retailer, be established in the NERL and the NERR. In embedded networks, the off-market retailer will be the party which is purchasing electricity at a parent connection point from a NEM retailer and on-selling that electricity to customers at off-market child connection points. Consistent with its recommendation in the 2017 Review, the off-market retailer will be the party responsible for appointing a metering coordinator at its off-market connection points.

Application of the metering framework in Chapter 7 of the NER to embedded networks was discussed during the round table discussions at the AEMC's stakeholder workshop on 23 October 2018. Embedded network businesses at the round table questioned the requirement to adopt NEM roles for the management of metering installations. Some businesses were of the view that ENSPs should continue to be responsible for the provision and maintenance of metering in embedded networks and that there should be restrictions placed on meter churn.

The Commission remains of the view that extending the metering framework in Chapter 7 of the NER will promote compliance with NEM metering requirements and remove key barriers to retail competition for embedded network customers.

It is in the interests of consumers, whether a child connection is on-market or off-market, that there is regulatory consistency between the two, and adequate oversight that metering installations and metering services are NEM compliant. Applying Chapter 7 to embedded networks will have a number of benefits for embedded network customers including:

- the application of the same reading, testing and inspection standards which will result in more accurate bills for customers
- metering installation security requirements and restrictions on access to data will apply which protect the security of a customer's energy and metering data
- consumers will have rights and processes to access information about their energy consumption to assist them to manage their electricity use if they wish or shop around for a better deal
- consumers will be more readily able to switch between off-market retailers to NEM retailers.

The roles of metering coordinator, metering provider and metering data provider are highly specialised roles which require registration and accreditation with AEMO. Requiring these services to be provided by those registered and accredited with AEMO means only appropriately qualified parties can perform these important roles. The Commission is of the view that the additional costs incurred in appointing a metering coordinator, metering provider and metering data provider will be outweighed by the benefits to customers described above.

Should ENSPs wish to provide metering services they can choose to apply for registration as a metering coordinator and/or accreditation as a metering provider and metering data provider.

Reallocating responsibility for metering from the ENSP to the metering coordinator also removes key barriers to embedded networks customers being able to access retail market competition. NEM retailers can be confident that the metering installation will be NEM compliant and can negotiate agreements for metering services from metering coordinators serving embedded networks.

This is likely to reduce the number of potential counter-parties with whom a retailer would be required to negotiate in order to supply electricity at a child connection point and will significantly reduce transaction costs for retailers, including by facilitating the use of existing churn agreements with metering coordinators.

Introducing the NEM metering roles also mitigates the need for a retailer to negotiate with an ENSP for access to metering in circumstances where the ENSP may have an incentive to frustrate competition and maintain the end user's connection as an off-market connection.

In summary, the Commission recommends that the off-market retailer appoint a metering coordinator to provide metering services at off-market connection points within each embedded network to which the proposed registration framework applies. The metering coordinator in turn would have an obligation to appoint a metering provider and metering data provider.

Metering coordinators, metering providers and metering data providers would have the same responsibilities at an off-market child connection point as they will have in relation to a standard supply customer's connection point or an on-market child connection point.

These arrangements would not prevent the ENSP and off-market retailer (which will often be the same party in any case) from cooperating to appoint a metering coordinator that provides the services each require to provide retail and network services within the embedded network.

4.2.4 Law and rules implementation

The proposed changes in the NER include amending the definitions of a 'registered participant' and what a FRMP is in Chapter 7 of the NER so as to extend these terms to apply to off-market retailers that are selling electricity to off-market child connection points.¹²² This in turn extends obligations to appoint the metering coordinator, metering provider and metering data provider within embedded networks to off-market retailers (so that these appointments are necessary before an off-market retailer can sell to an off-market connection point).¹²³

4.3 Market interface functions in new and legacy embedded networks

4.3.1 Introduction

Customers must be market facing to participate in the NEM and be able to choose and transfer to a retailer of choice. DNSPs perform the market interface functions for standard

¹²² Proposed clauses 7.1.2(a) and (b) of the NER.

¹²³ Proposed clause 7.2.1(d), which in turn extends clauses 7.3, 7.4 and other provisions applicable to metering coordinators, metering providers and metering data providers in Chapter 7 of the NER to apply to off-market connection points.

supply customers connected to their distribution network. These services link customers to the NEM systems that allow them to purchase electricity from NEM retailers. These services include providing NMIs to customers, maintaining NMI standing data (for example, a customer's address) within AEMO's MSATS and facilitating transfers between NEM retailers.

This section outlines:

- current arrangements for performing market interface functions in the NEM and in embedded networks
- analysis and recommendations for allocating the market interface function in the updated regulatory framework for **new and legacy embedded networks**
- details of how these recommendations can be implemented in the energy laws and rules.

4.3.2 Current arrangements

As described above, DNSPs perform the market interface functions for standard supply customers connected to their distribution network.

The *Embedded Networks* final rule determination found the NER did not allocate responsibility for performing the market interface functions required to link embedded network customers to retailers in the national electricity market systems.¹²⁴ This rule change addressed this barrier by creating a new accredited provider role of the ENM, who is to perform the market interface functions that link embedded network customers with the national electricity market systems.

The rule set out the detailed functions, responsibilities, and governance arrangements for ENMs and specifies the circumstances under which exempt network service providers are required to appoint an ENM, or otherwise exempt from this requirement. Where an embedded network customer goes on market, an ENM has clear responsibilities to perform the market interface functions, including assigning the customer a NMI.¹²⁵ The Rule also triggered changes in the relevant AEMO procedures and the AER's Network Exemption Guideline.

Since the *Embedded Networks* Rule commenced on 1 December 2017, 25 ENMs have been accredited by AEMO as at 12 December 2018.¹²⁶

4.3.3 Analysis and recommendations

New embedded networks

The 2017 Review recommended that ENSPs be required to appoint an ENM for all new embedded networks to perform the market interface functions for embedded network customers.¹²⁷

¹²⁴ AEMC, National Electricity Amendment (Embedded Networks) Rule 2015, 17 December 2015.

¹²⁵ Chapter 7, clause 7.8.2(ea) of the NER as introduced as part of the *Embedded Networks* Rule.

¹²⁶ For a list of accredited ENMs, see: <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Accreditation-and-Registration>.

¹²⁷ AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017, pp. 95-96.

The Commission has considered the allocation of roles and responsibilities further and considers that it would reduce regulatory complexity to subsume the market interface functions into the new role of the ENSP (and not require ENSPs to appoint an ENM as a requirement under the proposed rules). This would not prevent the ENSP from sub-contracting these functions. However, it would be accountable for the delivery of these services under the NER.

As discussed in chapter 7 of the 2017 Review, in order for customers to benefit from competition they require access to competitive market offers without the need to incur substantial search costs, and the ability to readily move from one provider to another. Registering and maintaining information on off-market connection points in MSATS makes these customers visible to NEM retailers and provides the information these retailers require to make an offer to a customer and then request this customer be transferred. This is achieved through registering a NMI for a connection point in MSATS and maintaining NMI standing data for the connection point in MSATS.

Consistent with the recommendations made in the 2017 Review, the Commission recommends that for new embedded networks, an ENSP be required to:

- apply to AEMO for NMIs for all child connection points
- register the NMI for connection points with AEMO (i.e. through MSATS)
- maintain information in the metering register (i.e. NMI standing data kept in MSATS).

Advice on implementing these recommendations in the energy laws and rules is set out below.

Legacy and new exempt embedded networks

In creating the role of the ENM, the Embedded Networks Rule change made in 2015 addressed a specific barrier to customers going on-market. The Commission recommends the role of ENM be retained to provide market interface services to legacy embedded networks (and a role that may extend to exempt ENSPs going forward in the new framework).

However, as discussed above, the Commission found a number of other barriers and practical impediments to customers going on-market, including that off-market embedded network customers are not discoverable in MSATS. This means that NEM retailers cannot request a customer transfer before an ENM is appointed, and a NMI is allocated and registered in MSATS for a customer.

The Commission recommends that the above requirements on ENSPs in new embedded networks relating to applying to AEMO for NMIs, registering NMIs and maintaining NMI standing data continue to be placed on the existing role of ENM in legacy embedded networks in certain circumstances.¹²⁸

In legacy and new exempt embedded networks, it is recommended this requirement continue to be placed on ENMs, which are required to be appointed by exempt ENSPs unless the

¹²⁸ These requirements were introduced as part of the *Embedded Networks Rule*. However, a detailed implementation approach for legacy embedded networks will be addressed as part of the final report.

corresponding embedded network is located in a participating jurisdiction where a right to a choice of retailer is not available, or if the AER determines that this is not necessary.

Advice on implementing this recommendation in the energy laws and rules is set out below.

4.3.4 Law and rules implementation

The proposed amendments to give effect to retaining the ENM function and ensuring NMI's are allocated for all child connection points in new embedded networks include extending Chapter 7 provisions in the NER to off-market retailers to act as the FRMP, and requiring off-market retailers to appoint a metering coordinator and metering provider. This in turn requires FRMPs to apply to the LNSP for a NMI for child connection points within an embedded network.¹²⁹

The proposed amendments do not affect substantive provisions pertaining to the appointment of ENMs by Exempt ENSPs as introduced by the Embedded Networks Rule.¹³⁰

4.4 Arrangements for access to data

4.4.1 Introduction

Access to accurate data of varying types is important to:

- settling the wholesale market by measuring consumption and generation so that NEM retailers can be billed and generators can be paid accurately by AEMO
- providing technical data to network businesses to assist them to manage their networks safely and efficiently
- providing customers accurate bills so that they do not overpay or underpay for the electricity they consume
- providing customers with the information they need to make informed choices about their energy consumption and choice of retailer.

The proposed regulatory frameworks will improve embedded network customers' access to retail market competition. As more embedded customers are likely to choose to go on-market with NEM retailers of their choice and be settled in the wholesale market, it is important to consider the access to data requirements of market participants, embedded network participants and embedded network customers. It is also important to consider the types of protections that are required so that customer data is only accessed by the customer or by a party authorised to do so.

This section sets out the:

- current arrangements for accessing data in the NEM and in embedded networks
- analysis and recommendations regarding access to data arrangements under the updated regulatory framework for embedded networks
- details of how these recommendations can be implemented in the energy laws and rules.

¹²⁹ Proposed amendment to Chapter 7, clauses 7.2.1(d), 7.8.2(c) of the NER.

¹³⁰ Some minor amendments are proposed for Chapter 10 definition 'ENM conditions trigger' to incorporate the term 'connected to the embedded network' for clarity.

The recommendations in this section do not apply to legacy embedded networks.

4.4.2

Current arrangements

Current arrangements for access to data in the NEM

Current arrangements for accessing energy data and metering data have been established to enable parties to obtain the metrology related data they require to support their market and settlement functions.

The current arrangements also provide rights to retail customers, or their authorised representative, to receive metering data, with the objective of providing retail customers the ability to make more informed decisions about their electricity consumption, including making decisions on switching retailers or energy plans.

Types of data referred to in the NERR and NER

Different types of data are referred to in the NERR and NER including: energy data; metering data; NMI standing data; and settlements ready data.

Energy data is data held in the metering installation relating to a consumer's measured consumption of electricity at their premises.¹³¹ Once energy data is collected from the metering installation it becomes metering data.¹³²

Settlements ready data refers to metering data that has been collected and validated by AEMO and used for billing purposes.¹³³

Billing data refers to the electricity or gas usage data, which may be estimated,¹³⁴ and which is used to calculate charges.

NMI standing data is data related to a customer's connection point. The data includes information relating to (amongst other things) the physical location and properties of a customer's meter and the customer's applicable network tariff. It does not include the customer's consumption data.

Who can access data under the NER?

The parties that may currently access or receive metering data, settlements ready data, NMI standing data and data from the metering register for a metering installation are set out in clause 7.15.5(c) of the NER and are (in summary):

- Registered participants with a financial interest in the metering installation or the energy measured by that metering installation which includes a customer's NEM retailer or previous retailer that requires data for a final bill
- the metering coordinator (or previous metering coordinator in certain circumstances)
- the metering provider

¹³¹ See the definitions of 'energy data', 'accumulated energy data' and 'interval energy data' in Chapter 10 of the NER.

¹³² See the definitions of 'metering data', 'accumulated metering data' and 'interval metering data' in Chapter 10 of the NER.

¹³³ Chapter 10 definition of 'settlements ready data' in the NER.

¹³⁴ Rule 9.3 of the NERR.

- the metering data provider (or previous metering data provider in certain circumstances)
- AEMO and its authorised agents
- for metering installations at child connection points, an ENM
- the AER or jurisdictional regulators in certain circumstances.

Certain additional parties may access or receive metering data, including:¹³⁵

- a retail customer (including both small and large customers under the NER) or customer authorised representative in certain circumstances
- a person with the small customer's consent
- a large customer or customer authorised representative in respect of the large customer's connection point
- the energy ombudsman in certain circumstances
- exempt network service providers in relation to child connection point metering installations on their network.

In addition, the NER provides that a retailer (including a retailer who is not the FRMP) may access and receive NMI standing data.

Protections provided by the NER and other relevant laws

The NER provides that (among other things) energy data, metering data, NMI standing data and information in the metering register and passwords are confidential and must be treated as confidential information in accordance with the rules.¹³⁶ However, metering data may be disclosed, used or reproduced with the consent of the NEM retail customer.¹³⁷

The NER also places obligations on metering coordinators and metering data providers to manage the access of authorised parties to services provided by advanced meters. This means no one has access to a consumer's meter, the data it contains or the services it can provide unless the person seeking access:¹³⁸

- has the customer's consent or
- is accessing the service, including data services, for a purpose explicitly allowed under the rules e.g. a NEM retailer seeking to disconnect a move-out customer.

These obligations are civil penalty provisions with financial penalties for non-compliance.

AEMO procedures

The NER also requires AEMO to establish and maintain a number of detailed procedures to facilitate access to data and the provision of data including:

- metrology procedures¹³⁹

¹³⁵ Clause 7.15.5(d) of the NER.

¹³⁶ Clause 7.15.1 of the NER.

¹³⁷ For a more detailed explanation of how clause 7.15.1 and clause 8.62(c) of the NER interact such that metering data may be disclosed, used or reproduced with the consent of the retail customer see AEMC, *Final Determination Expanding competition in metering and related services*, 2015, p. 256.

¹³⁸ Clause 7.15.4 of the NER.

¹³⁹ Clause 7.16.3 of the NER.

- metering data provider service level procedures
- metering data provision procedures.

Current arrangements for access to data in embedded networks

Given embedded networks have generally operated as 'closed systems' and only interacted with the NEM at the parent connection point, there have been limited requirements placed on exempt network service providers regarding access to data. The data from meters behind the parent connection point has not been significant to AEMO or other market participants.

There are no specific requirements setting out the parties that should have access to data or the security of that data. There are only two broad requirements in the Network Exemption Guideline relating to the physical access to a meter including:

- that all meters installed in an exempt distribution network must be in an accessible location with safe, convenient access at no cost to the customer to facilitate meter reading by the network operator and the customer or their respective agents and, where relevant, to permit meter testing and maintenance
- Where security or safety considerations result in limited access to metering, local arrangements must be made that allow customers or their agents ready access to metering on request and at no cost to the customer.

4.4.3

Analysis and recommendations

As embedded networks become integrated into NEM systems and processes and access to retail market competition becomes possible, the requirements under the exemption framework are insufficient to ensure that only authorised parties have access to data and that customers have appropriate rights to access their electricity consumption data. As such, the Commission recommends the access to data arrangements in the NER and NERR be extended to embedded network participants including the ENSP and the off-market retailer.¹⁴⁰

Extending the access to data arrangements in the NER and NERR to embedded networks would support retail market competition by providing:

- customers access to their data to be able to make informed decisions on the best retail offers for their circumstances
- retailers access to NMI standing data so that they have the necessary information, including network tariffs, to embedded network customers
- facilitating the provision of metering for network billing of on-market customers.

The access to data arrangements will also provide customers in embedded networks the same protections regarding data security and rights to access their data.

The NER provides that (among other things) energy data, metering data, NMI standing data and information in the metering register and passwords are confidential and must be treated

¹⁴⁰ It should be noted the current access to data arrangements under Chapter 7 of the NER already provide some flexibility which will permit off-market retailers, embedded network and metering businesses to negotiate alternative arrangements regarding the provision of data.

as confidential information in accordance with the rules.¹⁴¹ However, metering data may be disclosed, used or reproduced with the consent of the retail customer.¹⁴²

A key responsibility of the metering coordinator is to ensure only parties authorised to access services from advanced meters under the NER are provided access to these services. The metering coordinator has obligations under the NER in relation to managing access to, and security of, small customer metering installations, services provided by the metering installation and energy data held in the metering installation.¹⁴³

Under the NERR, small retail customers or their customer authorised representative may obtain up to 2 years of historical billing data from their NEM retailer on request, at no charge, up to four times in any 12 month period.¹⁴⁴ NEM retailers and DNSPs are required to comply with minimum requirements under the NER when responding to requests for electricity consumption data from customers or parties authorised by customers so that data is provided in a timely manner, in a standard, understandable format and at a reasonable cost.

The Commission's recommendations for implementing access to data arrangements in embedded networks is set out below.

4.4.4 Implementation in the law and rules

As a consequence of proposed amendments to the NER requiring off-market retailers and ENSPs to register under Chapter 2, the access to data provisions under clauses 7.15.5(a) and (c) will extend to both parties as registered participants. This in turn means that off-market retailers and ENSPs will both have access to metering data, settlements ready data, NMI standing data, and data from the metering register for a metering installation within their corresponding embedded networks. This also extends confidentiality provisions, and security controls for energy data provisions to off-market retailers.¹⁴⁵

4.5 B2B framework

4.5.1 Introduction

Chapter 7 of the NER sets out a framework for B2B communications. The B2B framework provides for a standard form of communications between businesses for certain services related to small customer meters.

The B2B framework which includes an electronic communications platform, the B2B e-hub, provided and operated by AEMO, contributes towards interoperability as participants only need to develop one set of processes in order to interact with other participants in the market.

¹⁴¹ Clause 7.15.1 of the NER.

¹⁴² For a more detailed explanation of how clauses 7.15.1 and 8.6.2(c) of the NER interact such that metering data may be disclosed, used or reproduced with the consent of the retail customer see AEMC, *Expanding competition in metering and related services*, final determination, 2015, p. 256.

¹⁴³ See clauses 7.15.4(a) and (b) of the NER.

¹⁴⁴ Rules 28 and 56A of the NERR.

¹⁴⁵ Proposed clauses 7.15.3(c) and 7.15.5(a) of the NER.

This section sets out how the updated framework will incorporate ENSPs and off-market retailers into the B2B framework including:

- current arrangements for the B2B framework
- analysis and recommendations on including ENSPs and off-market retailers into the B2B framework
- details of how these recommendations can be implemented in the energy laws and rules.

The recommendations in this section do not apply to legacy embedded networks.

4.5.2 Current arrangements

Chapter 7 of the NER sets out a framework for B2B communications including arrangements for the B2B e-hub, accreditation of B2B participants, the content of B2B procedures, the change process for B2B procedures and the Information Exchange Committee (IEC).

The IEC is responsible, amongst other things, for managing the ongoing development of B2B procedures which prescribe the content of, the processes for, and the information to be provided to support, B2B communications. The IEC membership consists of:

- one DNSP member (elected by DNSPs)
- one retailer member (elected by retailers and local retailers)
- one metering member (elected by metering coordinators, metering providers and metering data providers)
- one third party B2B participant member (elected by third party B2B participants)
- one consumer member (appointed by AEMO)
- at least two, and up to four, discretionary members (appointed by AEMO).

4.5.3 Analysis and recommendations

As noted above, the B2B framework facilitates interactions between participants in the market. This should reduce barriers to entry for new participants providing new services, including ENSPs and off-market retailers. It is recommended that ENSPs and off-market retailers become B2B parties under the framework and be permitted to use B2B communications if they acquire accreditation with AEMO. This will not prevent ENSPs and off-market retailers from agreeing with other parties, including each other, to alternative communication methods.

With respect to membership of the IEC, the Commission recommends clarifying that distribution network service provider refers to a regulated DNSP under clause 7.17.6(b)(1) of the NER. This would have the effect of retaining DNSP's existing place for one member on the IEC. However, the Commission anticipates that ENSPs may desire input to the ongoing development of B2B procedures.

The inclusion of one third party member, discretionary members and independent members provides some flexibility in the membership. These positions can be used to bring particular desirable expertise into the decision-making process and also allows the membership to adapt to changing market conditions without the need for a rule change.

This flexibility in the framework could be utilised to provide ENSPs a place on the IEC. As such, the Commission recommends that as part of the implementation of the updated framework, AEMO consider appointing an ENSP as a discretionary member on the IEC.

4.5.4 Law and rules implementation

Proposed amendments regarding network billing¹⁴⁶ include a requirement for AEMO to prepare a shadow network charges procedure applicable to off-market retailers, ENSPs and exempt ENSP for the communication of, and payment of network charges for on-market retail customers in embedded networks. The B2B procedures will also need to be updated to support these communications.

Though network service providers and retailers are able to communicate in any other format other than through the B2B mechanism, the procedure encourages registration and use of B2B to manage network billing for on-market embedded network customers.¹⁴⁷

Furthermore, proposed amendments to Chapter 10 mean that the DNSP member appointed by the IEC will not include ENSPs, with the IEC able to exercise their discretion in appointing an ENSP as a discretionary member under the NER.¹⁴⁸

4.6 Distribution loss factors

4.6.1 Introduction

When energy is transferred from one location to another (i.e. a generator to a customer), some energy is lost in the network elements in the form of heat. Loss factors are used to scale either prices or energy quantities to account for losses in the network when transferring energy from one location to another. The purpose of distribution loss factors (DLFs) is to balance energy being injected into and energy being taken out of a distribution network.

This section sets out:

- current arrangements in the NEM for calculating DLFs for each connection point on the distribution network with respect to the assigned transmission connection point
- current arrangements under the AER's Network Exemption Guideline for calculating DLFs at child connection points in an embedded network
- the Commission's analysis and recommendations for calculating DLFs at child connection points in new embedded networks
- advice on implementing these recommendations in the energy laws and rules.

4.6.2 Current arrangements in the NEM

The NER defines distribution losses as the "electrical energy losses incurred in the conveyance of electricity over a distribution network"¹⁴⁹ and describes DLFs as notionally referring to "the average electrical energy losses for electricity transmitted on a distribution

146 Refer to chapter 6 of this report.

147 Proposed clauses 6B.A1.3 and 7.17.3 of the NER.

148 Proposed amendment to Chapter 10 definition of 'distribution network service provider member'.

149 Clause 3.6.3 of the NER.

network between a distribution network connection point and a transmission network connection point or virtual transmission node for the financial year in which they apply”.

The NER requires that DLFs must be determined by a DNSP for all connection points on its distribution network.¹⁵⁰

DLFs are determined on a site specific basis for connection points for:¹⁵¹

- an embedded generator with actual generation of more than 10 MW, based on the most recent data available for a consecutive 12 month period
- a load or a collection of loads which, in total, is more than 10 MW peak demand or 40 GWh per annum, based on the most recent data available for a consecutive 12 month period
- a connection point for a DNSP
- a connection point between two or more distribution networks.

For smaller loads, DLFs are calculated in accordance with the methodology determined by the AER or the DNSP using predefined criteria set out in the NER.¹⁵² Where a methodology has not been published by the AER for the determination of DLFs, the NER allows every DNSP to have a different methodology, provided the pre-defined criteria are met.

DNSPs must submit DLF calculations to the AER for approval before their DLFs are published by AEMO.¹⁵³

This process occurs every year and the DLFs are provided to AEMO for publication by 1 April for the next financial year.

For historical reasons, DLF calculations are performed by each distributor using a methodology that the LNSP has developed for their own use in their network. Although there is no standard methodology which applies across the NEM, distributors in a state generally share a common approach in that state.¹⁵⁴ However, states differ widely in their approaches.¹⁵⁵

4.6.3

Current arrangements in embedded networks

The AER is of the view that network losses in a small exempt network will generally not be of sufficient magnitude to warrant calculating a DLF for child connection points within that network.¹⁵⁶ To avoid imposing additional costs on exempt networks the AER applies a policy that the losses within the exempt network can be ignored for each individual child connection

¹⁵⁰ This must be done either individually, for all connection points assigned to a single transmission network connection point under clause 3.6.3(c), or collectively, for all connection points assigned to a transmission network connection point or a virtual transmission node and a particular distribution network connection point class under clause 3.6.3(d) of the NER.

¹⁵¹ Clause 3.6.3(b)(2)(i) of the NER.

¹⁵² Clause 3.6.3(h) of the NER sets out criteria for calculating DLFs.

¹⁵³ Clause 3.6.3(i) of the NER.

¹⁵⁴ AER, *Electricity Network Service Provider - Registration Exemption Guideline*, March 2018, p. 57.

¹⁵⁵ Ibid.

¹⁵⁶ AER, *Electricity Network Service Provider - Registration Exemption Guideline*, March 2018, p. 57.

point.¹⁵⁷ This policy means the exempt network service provider must absorb the cost of losses in the exempt network.

The AER refers to this as the 'standard loss factor approach'. Under this approach, in exempt networks which constitute a 'small load' and which serve a number of smaller loads at child connection points, the DLF of each child connection point is the published DLF that would be applied by the LNSP at the metered point of connection if the DNSP was serving the customer directly.

However, if this DLF cannot be readily ascertained, it is the DLF otherwise applicable to the connection of the exempt network to the local distribution network, i.e. at the parent connection point.¹⁵⁸

If the combined loading of an exempt network results in that network becoming a significant load or, if the network contains a significant generation source,¹⁵⁹ the AER requires that the exempt network uses the methodology published by the relevant DNSP for a site-specific load to calculate the DLF at the child connection point.

4.6.4

Analysis and recommendations

As the AER observes in the Network Exemption Guideline, network losses in embedded networks will generally be small.¹⁶⁰ For example, the effect of losses in an embedded network may be less than the normal metering errors that occur. The Commission agrees that in embedded networks under a certain size threshold the losses are not of sufficient magnitude to warrant calculating a DLF for child connection points in an embedded network.

The Commission therefore recommends implementing the AER's current standard loss factor approach to DLFs as a default in embedded networks under the current threshold set in the NER i.e. where there is an embedded generator with actual generation of less than 10MW or a load or a collection of loads which, in total, is less than 10MW peak demand or 40 GWh per annum.¹⁶¹ However, the Commission also recommends providing for the AER to develop and publish a methodology for the determination of DLFs in these embedded networks if it considers it is warranted.

It is currently rare for an embedded network to exceed the threshold set in the NER. However, this may change in the future if, for example, embedded networks are established to serve large precincts. In embedded networks that exceed the threshold set in the NER¹⁶² and have an embedded generator with actual generation of more than 10 MW or a load or a collection of loads which, in total, is more than 10 MW peak demand or 40 GWh per annum, the Commission recommends a site-specific DLF for those loads or generators must be calculated in accordance with:

¹⁵⁷ Ibid.

¹⁵⁸ Ibid. p. 58.

¹⁵⁹ As described in clause 3.6.3(b)(2)(i) of the NER.

¹⁶⁰ AER, *Electricity Network Service Provider - Registration Exemption Guideline*, March 2018, p. 57.

¹⁶¹ Clause 3.6.3(b)(2)(i) of the NER.

¹⁶² Clause 3.6.3(b)(2)(i) of the NER.

- a methodology developed, published and maintained by the AER for the determination of DLFs, or
- where the AER has not published a methodology, the methodology published for this purpose by the relevant DNSP.

The AER will be required to create a guideline to assist ENSPs calculate, apply and comply with DLF calculation provisions in the NER as applicable to embedded networks.¹⁶³

4.6.5 Implementation in energy laws and rules

Proposed amendments to the NER include extending references to DNSPs to include ENSPs in clause 3.6.3 of the NER. This is so that the DLF calculation provisions extend to embedded networks.¹⁶⁴

Provisions in clause 3.6.3 of the NER are to be modified to require that for child connection points in embedded networks, DLFs are to be determined by applying any methodology published by the LNSP for the area for which the parent connection point of the embedded network is located, or a methodology agreed by the ENSP and distribution customer (and as approved by the AER). For larger loads in embedded networks, proposed amendments are to require that the applicable DLF for the child connection point be the DLF applicable as if it were connected to the LNSP's distribution network directly, or where this DLF is hard to ascertain, the DLF applicable to the parent connection point for the embedded network.¹⁶⁵

¹⁶³ Proposed new clause 3.6.2B of the NER on distribution losses on embedded networks.

¹⁶⁴ Proposed new clause 3.6.2B(1) of the NER.

¹⁶⁵ Proposed new clause 3.6.3(g1) and amendments to clause 3.6.3(g)(2) of the NER.

5 NETWORK BILLING FOR ON-MARKET EMBEDDED NETWORK CUSTOMERS

5.1 Introduction

The AEMC's 2017 Review found that while exempt network service providers are required to take reasonable steps to facilitate access to retail competition for on-market embedded network customers, a number of practical impediments to competition remain. These impediments include the need for NEM retailers to use bespoke embedded network tariffs and embedded network billing arrangements thus requiring NEM retailers to adapt product offerings and implement manual processes to manage transactions with large numbers of exempt network service providers.

The 2017 Review recommended that network charging and billing arrangements for new and legacy embedded networks should be standardised. The Commission recommended that the ENSP (registered with AEMO in the case of new embedded networks, or the exempt party in the case of legacy embedded networks) would issue a bill to the NEM retailer for recovery of a portion of the network charges that are paid by the ENSP/exempt parties at the parent connection point. The Commission also recommended that the ENSP be required to charge the NEM retailer no more than the equivalent external network charge that would have been charged by the LNSP if the customer had been directly connected to the LNSP's network (the 'shadow price').

The Commission considered this would promote retail market competition in embedded networks by lowering the cost for NEM retailers to serve embedded network customers. The Commission also considered this would provide certainty to ENSPs regarding the obligations of a NEM retailer to pay the ENSP for network charges for on-market embedded network customers.

This section sets out the detailed amendments to the NER the Commission considers are required to implement its recommendations to standardise network charging and billing arrangements for embedded networks. These recommendations only apply to the network billing arrangements between NEM retailers of on-market embedded network customers and ENSPs. The Commission does not consider it necessary to place these obligations on off-market retailers and ENSPs, which will often be the same entity in relation to shared embedded network customers.¹⁶⁶

In establishing the network billing and payment arrangements for on-market embedded network customers, the AEMC has been guided by the following principles:

- improving consumer choice in energy services and products
- clarity, transparency and predictability for consumers, market participants and embedded network participants
- efficiency and the avoidance of unnecessary administrative burden

¹⁶⁶ The Commission also proposes that off-market retailers are to be restricted from making energy only offers, refer to proposed new rule 3C in the NERR.

- the appropriate allocation of risks and costs leading to:
 - *mitigation of risk* - the consequences of that risk should it materialise (that is, the potential for loss - either in a financial or a physical sense) being avoided or lessened
 - *incentives to improve risk management over time* - this involves allocating risk to a party who can, relative to others, better manage the consequences of that risk.

5.2 Current arrangements

5.2.1 Current arrangements in the NEM

Before considering potential options for the billing and payment of a DNSP's network charges to on-market embedded network customers, it is useful to understand how network billing currently operates in the NEM.

While DNSPs have a deemed contractual relationship with customers connected to their distribution system under the NERR, DNSPs generally bill NEM retailers for a customer's network charges rather than billing the customer directly.¹⁶⁷

The Network Use of System charges (collectively referred to as NUoS charges) that a DNSP levies to a NEM retailer for a customer include several components:

- pass-through charges for the transmission of electricity (Transmission Use of System, TUoS charges)
- charges for the distribution of electricity that generally include a fixed component and variable energy component (Distribution Use of System, DUoS charges)
- other customer specific charges.¹⁶⁸

The remainder of this chapter will refer to these charges as "network charges".

The NER and NERR do not regulate the relationship between network charges and retail prices. A small customer's bill for the supply of electricity to their connection point generally does not separately list retail and network charges.

The AER regulates the total revenue that a DNSP can earn for regulated services and DNSPs must set prices according to the requirements set out in the NER.

Chapter 6B of the NER sets out requirements for the billing and payment of network charges. With the exception of New South Wales (which has B2B procedures for network billing), no detailed procedures apply to network billing and payment.¹⁶⁹ The AEMC understands NEM retailers and DNSPs generally agree to the format and communication of these bills.

5.2.2 Current arrangements in embedded networks

Where an embedded network customer goes on-market with a NEM retailer, the DNSP's network charges that could be attributed to this customer continue to be paid by the embedded network owner to the NEM retailer at the parent connection point.

¹⁶⁷ Large customers above a certain size are billed directly by the DNSP for network charges.

¹⁶⁸ This would include metering charges for legacy type 5 and 6 meters supplied by the DNSP, as well as recovery of various jurisdictional charges.

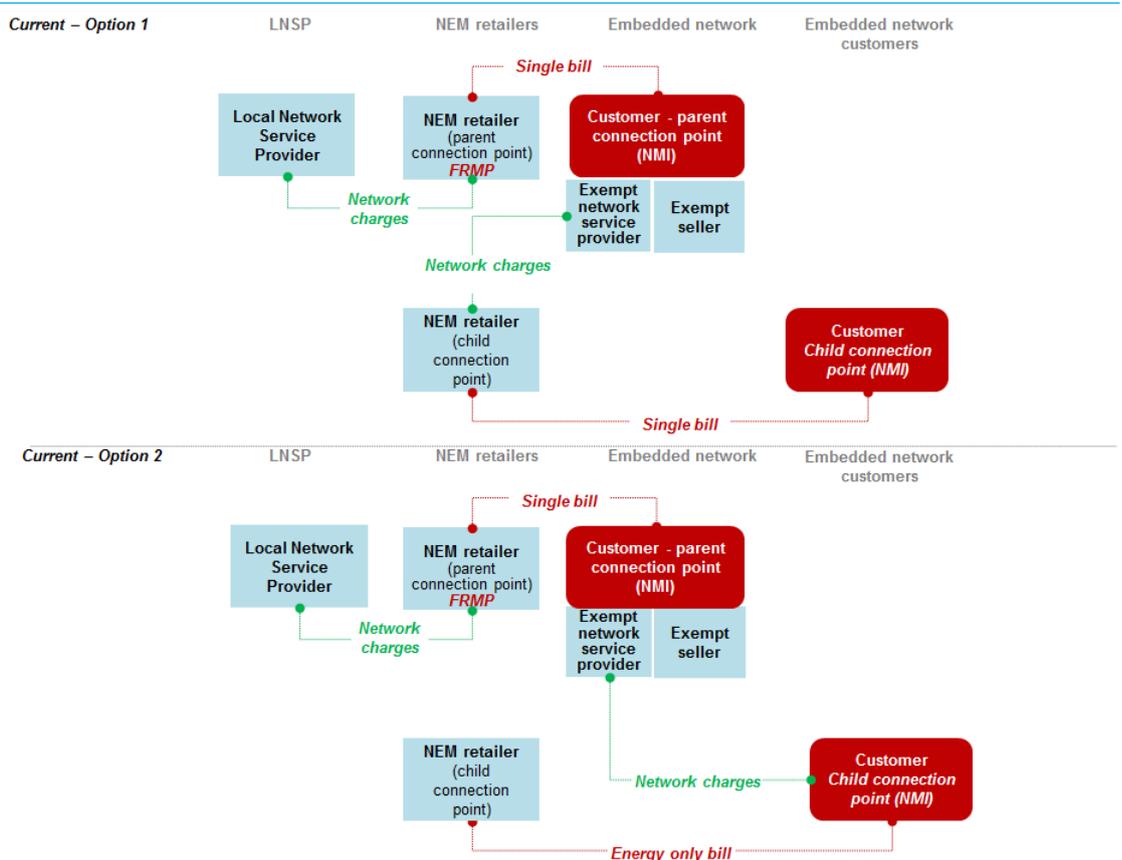
¹⁶⁹ The New South Wales procedures are required under Section 63C of the *Electricity Supply Act 1995 (NSW)*.

A DNSP’s network charges are currently “passed-through” to the on-market embedded network customer through one of two ways:

1. The retailer at the child connection point comes to an agreement with the exempt network service provider to be billed for network services, and the retailer then issues the customer a single bill for both network and energy services.
2. The customer pays two separate bills, one to the exempt network service provider for network charges and one to the retailer at the child connection point for energy services.

Network billing and payment for on-market embedded network customers is illustrated in Figure 5.1 below.

Figure 5.1: Current network billing and payment arrangements in embedded networks



Source: AEMC.

5.3 Analysis and recommendations

This section, up to and including section 5.3.4 sets out the analysis and recommendations for implementing the Commission recommendations to standardise network charging and billing arrangements for **new embedded networks**. Section 5.3.5 sets out how these recommendations will be implemented in **legacy embedded networks**.

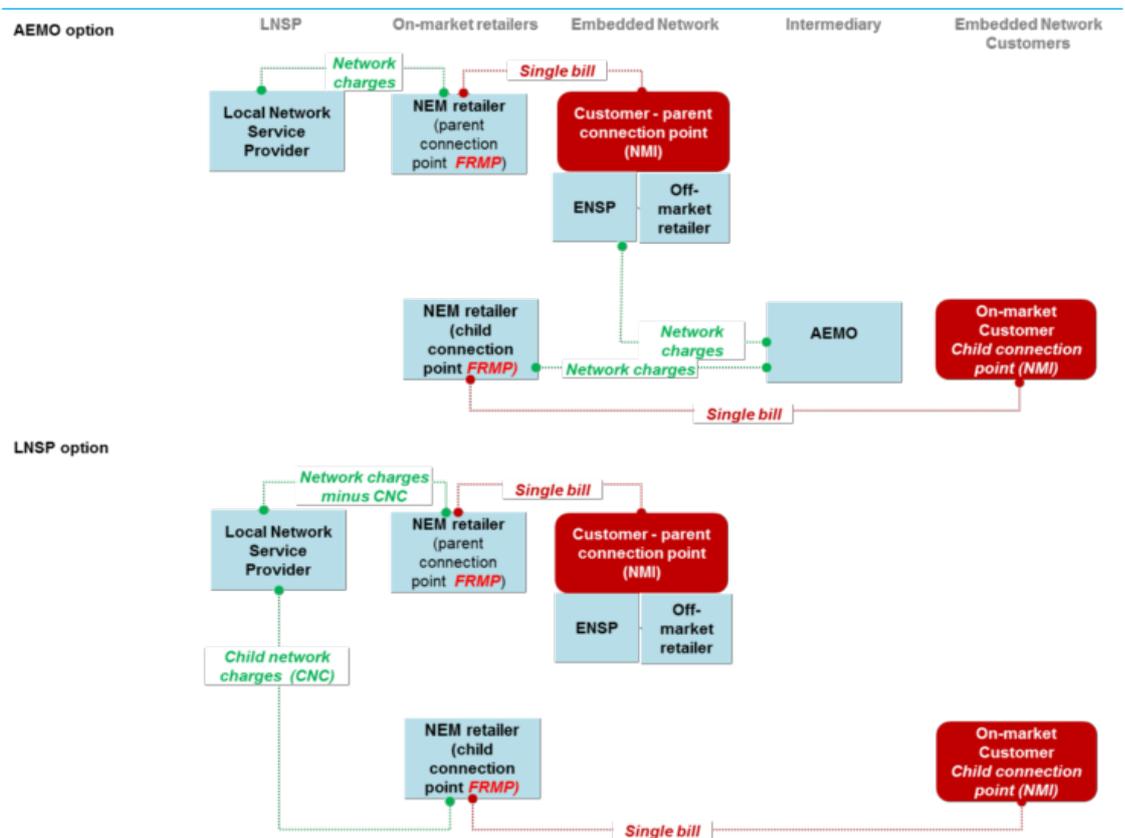
As the above introduction reiterated, the 2017 Review recommended that the ENSP be responsible for network billing in embedded networks, and the Commission continues to hold this view.

However, the Commission is conscious that, unlike DNSPs, there could potentially be a large number of ENSPs undertaking network billing. While a greater level of standardisation in network billing than is currently the case will be helpful in addressing this, the Commission has also considered whether more significant adaptations are required. In particular, the Commission has considered the possibility of assigning the responsibility for network billing to an intermediary and whether this would facilitate transactions between ENSPs and retailers (NEM retailers and off-market retailers), and promote retail competition in embedded networks.

For example, retailers would be able to use this intermediary's network billing and payment system if this was simpler than transacting with ENSPs or opt out and agree with an ENSP on network billing arrangements for on-market child connection points.

Potential parties that have existing capabilities to perform this role include AEMO and DNSPs. AEMO currently performs similar functions in respect to wholesale market settlement and has the capabilities to build a network tariff calculation engine. AEMO will also have access to the relevant metering data and network tariff data. DNSPs already undertake network billing functions for standard supply customers and may be able to perform this function for embedded networks if the cost of providing this service could be recovered.

Figure 5.2: Intermediary options for network billing in embedded networks



Source: AEMC

These alternatives were presented and discussed at the stakeholder workshop held by the AEMC in Sydney on 23 October 2018. Stakeholders generally agreed that greater standardisation was required to promote efficiency and lower costs for both embedded network businesses and retailers.

Some stakeholders considered that unless network billing became seamless for NEM retailers, for example by making DNSPs responsible for network billing for on-market customers in embedded networks and netting these network charges off from network charges billed to the NEM retailer at the parent connection point, then retail market competition was unlikely to emerge in embedded networks.

However, some stakeholders raised a number of concerns with the proposal for an intermediary. Several embedded network businesses raised concerns regarding additional complexity and costs of introducing an intermediary such as AEMO or DNSPs and said they would prefer to retain control of this key function.

DNSPs at the workshop were also concerned, to differing degrees, regarding the complexity of establishing processes for netting off network charges for NEM retailer customers against network charges at the parent connection point, cost recovery implications and how the risk

for non-payment of network charges by retailers would be managed if DNSPs were to assume the role of network billing for these customers.

Embedded network businesses at the workshop emphasised they had established successful network billing processes with some NEM retailers by replicating the data and file format of the LNSP's statement of charges and argued standardisation of the billing format and process was more important than having a single party that issued network bills to NEM retailers on behalf of embedded networks.

Embedded network businesses also indicated during the consultation process for the 2017 Review and at stakeholder workshops that they consider a dispute resolution process should be provided for retailers and ENSPs in the NER.

Given the complexities of assigning an intermediary role to DNSPs, and stakeholder concerns regarding the potential costs of introducing an intermediary, the Commission recommends standardisation be achieved through amending Chapter 6B of the NER to apply to ENSPs (and exempt network operators with on-market customers) and within this Chapter:

- establishing a requirement that ENSPs charge a shadow network tariff which would be the equivalent network tariff that a customer would have been charged by the DNSP if the customer had been directly connected to the DNSP's network
- introducing an obligation for retailers to pay ENSPs for network charges
- placing an obligation on AEMO to establish shadow network charging procedures for the billing, communication and payment of network charges for on-market child connection points to standardise these arrangements between ENSPs.

Applying Chapter 6B to ENSPs also means, amongst other things, that the rules relating to credit support provision by retailers will apply to retailers selling to on-market customers in embedded networks. In addition, clause 6B.A3.3 of the NER will apply to disputed statements of charges between retailers and ENSPs, and this will address concerns raised in regard of a dispute resolution process.

Each of these recommended measures and issues is discussed in the sections below.

The Commission is particularly keen to receive feedback from embedded network operators and retailers on the efficacy of these recommended measures in streamlining network billing arrangements for on-market embedded network customers.

5.3.1 **Transparent and consistent network charges**

It is recommended that ENSPs be required to charge a shadow network tariff which would be the equivalent network tariff that a customer would have been charged by the DNSP if the customer had been directly connected to the DNSP's network. While the Commission considers it important that the shadow network charge tariff provides a predictable default that NEM retailers can base their service offerings on, the draft proposed rules also permit an ENSP and a NEM retailer to negotiate an alternative network tariff. NEM retailers will not be required to unbundle the network and retail charges for on-market embedded network customers and will be able to structure innovative retail pricing structures for on-market embedded network customers just as they can for standard supply customers.

Given the ENSP is likely to be charged less than the shadow network tariff at the parent connection point, this may result in the ENSP profiting from customers even where they choose to go on-market, depending on the costs to the ENSP of supplying this customer. The Commission has not proposed rules to prevent the ENSP from being able to 'over-recover' network charges from on-market customers given the ENSP and off-market retailer will be collectively incentivised to lower their prices to retain and win back off-market customers from NEM retailers.

Implementation of this recommendation will also require AEMO's MSATS procedures to be updated to provide for the assignment of network tariffs for embedded network customers in MSATS.¹⁷⁰

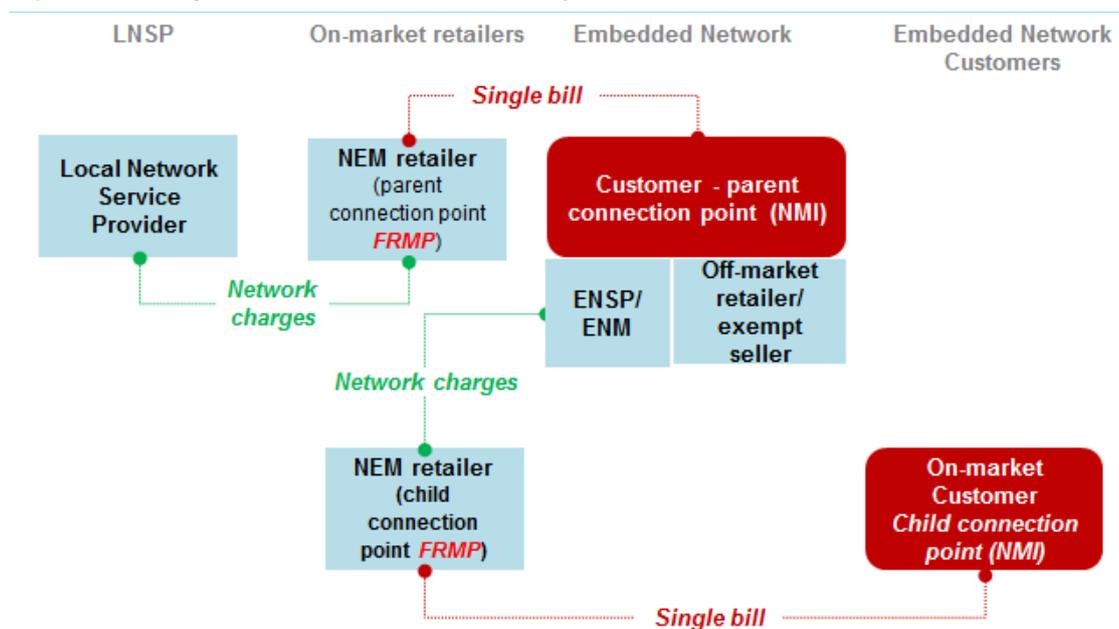
Currently, for standard supply customers, a metering provider assigns and updates the network tariff for the customer by registering this in the metering register which is then checked for accuracy by the DNSP. The AEMC understands that where there are multiple network tariff options for a particular connection point, a network tariff is generally determined by the configuration of the metering installation.

AEMO has indicated it could implement a similar procedure for embedded network customers which:

- requires a metering provider to assign and update the network tariff for an embedded network customer
- permits an ENSP to dispute the network tariff assigned by a metering provider
- permits a retailer to dispute a tariff that has been amended.

¹⁷⁰ Extending Chapter 7 of the NER to embedded network customers means metering providers will assign network tariffs in new embedded networks. However, it is suggested that the procedure be updated to reflect. It is also suggested AEMO consider how network tariffs be assigned for off-market embedded network customers in legacy embedded networks.

Figure 5.3: Proposed model for network billing in embedded networks



Source: AEMC.

5.3.2 Obligation to pay

Under the existing framework, where an embedded network customer goes on-market with a NEM retailer of choice, and the NEM retailer charges the customer for network charges there are currently no provisions regarding a NEM retailer’s obligations to pay the ENSP for network charges.

Under the recommended changes, it will be clear that a NEM retailer in respect of an on-market child connection point now has a statutory obligation to pay an ENSP (or ENO) for network charges.

5.3.3 Introduction of network charging and billing procedures

As set out above, the Commission recommends a requirement be placed on AEMO to establish shadow network charging procedures for the billing and payment of network charges for on-market child connection points to standardise arrangements between NEM retailers and ENSPs or ENOs. Introducing procedures will achieve standardisation and permits a greater level of prescription given the larger number of participants that will be utilising them.

AEMO’s existing role in establishing market operations, administrative and service level procedures is well suited to establishing these procedures. For example, the Commission considers AEMO the appropriate market body to establish the methodology for identifying the appropriate network tariff in a procedure, rather than the AER, as this measure involves

establishing a process for assigning the relevant network tariff used by the LNSP rather than making a pricing determination.

In response to feedback from ENSPs and retailers during the stakeholder workshop in October 2018, the Commission has also included an obligation that AEMO set out the information to be included in a bill for network charges (the 'statement of charges') and the detailed data and file format that this bill should be provided to the NEM retailer of an on-market embedded network customer. ENSPs and NEM retailers indicated that their preference would be for the network bill to be in the same format as the local LNSP. This could, for example, be a Microsoft excel file with specific fields, using specific network tariff codes.

Under the draft proposed rules, AEMO may also consider including other matters that would promote efficient billing and payment of network charges. This may include for example, setting out the method of communicating a statement of charges and credit support requirements. ENSPs and NEM retailers may find that statements of charges are best communicated through the B2B processes, and the Commission may request that the IEC consider what changes may be required to facilitate this.

In summary, it is recommended that the shadow network charging procedures include:

- the approach to be used by AEMO in identifying the appropriate DNSP network charge to be assigned to a child connection point (i.e. the shadow network charge)
- information to be included in a statement of charges
- the detailed data and file format for the statement of charges
- any other matter required for the efficient and timely billing, settlement and secure payment of network charges.

With respect to ENSPs having the relevant data to prepare a network bill, under the recommended approach to access and provision of data set out in section 4.5, metering data providers will be required to provide metering data to ENSPs to enable ENSPs to fulfil their network billing function for on-market embedded network customers.

5.3.4 Credit support requirements

As discussed above, NEM retailers provide retail services for their retail customers and are responsible to pay to the DNSP the network charges incurred by these customers.

A time lag exists between when the network services are provided to these customers and when the payment for those services is made by the NEM retailer. Due to the combination of a time lag and DNSPs not charging customers directly, distributors face the risk of retailer default and the subsequent non-payment of network charges.

The credit support requirements set out in Chapter 6B of the NER and Part 21, Division 4 of the NER serve to limit a DNSP's financial exposure to NEM retailer default.¹⁷¹ While the credit support arrangements in Chapter 6B of the NER will be extended to ENSPs, this would only address credit risk issues in respect to NEM retailers which have a record of failing to pay in last 12 months. As such, where the ENSP is unable to require credit support, and a retailer fails the ENSP, the ENSP will still be required to pay the DNSP for network charges for the child customer.

Joining a general corporate insolvency process is the other option that will be available to an ENSP that is unable to collect unpaid network charges owed to it by an insolvent retailer. The ENSP would join this process as an unsecured creditor under the Corporations Act 2001 (Cth).

The Commission has considered how the risks associated with non-payment of network charges should be allocated in relation to ENSPs and does not recommend any further credit support measures be implemented. As noted above, the credit support arrangements in Chapter 6B would apply (addressing credit risk issues in respect of retailers which have a record of failing to pay in last 12 months), and ENSPs would be able to take further steps to manage any risks arising, such as taking out commercial insurance.

While the Commission acknowledges that some of the measures to manage the risk of NEM retailer default that are available to regulated DNSPs (such as cost pass-throughs) would not be available to ENSPs, the Commission is concerned that allowing ENSPs to place any further credit support obligations on retailers would dampen the prospects for retail competition in embedded networks.

While it might be possible to design additional regulatory solutions that avoid impacting on retail competition (such as the creation of a retailer default fund¹⁷² for ENSP), the implementation of these would best be facilitated through intermediary arrangements.

Alternatively, if the DNSP were responsible for network charges in embedded networks, as was discussed with stakeholders at the stakeholder workshop, this would avoid placing the risk of non-payment from the retailer on the ENSP. This would place the risk of retailer non-payment on the DNSP which has more options available to it to manage this risk. However, as discussed above, DNSPs and ENSPs were largely not in favour of this model.

The Commission would be interested in stakeholder views on this matter.

171 There are also a number of other measures to manage the risk of retailer default which are available to regulated DNSPs:

- The overs-and-unders process is available to distributors whose regulatory revenue determination is based on a revenue cap control mechanism.

- The retailer insolvency cost pass-through mechanism.

- Incorporating some consideration for the risk into a distributor's allowed revenues through the regulatory determination process which would take into the account the costs of commercial insurance and self-insurance.

172 The Commission has previously considered the introduction of a retailer default fund for DNSPs. See: AEMC, *Retailer-Distributor Credit Support Requirements*, Options Paper, 22 October 2015, p. 41.

5.3.5 Legacy embedded networks

The Commission has considered how to implement standardisation of network billing and payment arrangements in legacy exempt embedded networks to promote retail market competition in these networks without imposing obligations on exempt networks they would not have the capabilities to meet.

The Commission recommends that the role of the ENM be expanded by requiring an Exempt Network Service Provider to engage its ENM to provide network billing services. The Commission has concluded that expanding the ENM's market interface functions and capabilities are consistent with network billing functions and will reduce the numbers of parties that NEM retailers would need to transact with. Also, AEMO's accreditation process for ENMs, which will need to be amended to take account of this additional function, will provide the market confidence in the network billing processes will be complied with in legacy embedded networks.

In practice, this will mean existing ENMs will need to develop the capabilities to receive metering data and generate network bills which comply with the network billing procedures and that the exempt embedded network service provider will incur the costs associated with engaging the ENM as a third party to provide this service. However, the Commission considers these costs will be outweighed by the benefits to embedded network customers of increased access to retail market offers and the downward pressure this will place on prices for off-market embedded network customers.

5.4 Implementation in the energy laws and rules

Amendments to Chapter 6B of the NER are proposed to facilitate ENSPs and exempt network operators calculating network charges, and communicating with and receiving network charges from on-market retailers for on-market customers within their network.¹⁷³

These provisions are not intended to apply to off-market retailers, as they are able to manage network charges directly with the local embedded network operator. Instead of requiring an intermediary to manage network charges, AEMO is to prepare the shadow network charges procedure¹⁷⁴ by way of the rules consultation procedure to set out how network charges for embedded networks are to be calculated, payment methodology, and how billing information is to be communicated by the parties by way of standardisation of billing information including settlement communication, form and file formats.

The credit support provisions in Part B of NER Chapter 6B are proposed to be extended to embedded networks.

¹⁷³ Proposed amendments to NER clause 6B.A1.1(a)(1), proposed new NER clause 6B.A1.1(b).

¹⁷⁴ Proposed new NER clauses 6B.A1.3 and 6B.A2.3(b).

6 CONNECTION AND NETWORK CHARGING FRAMEWORK

6.1 Introduction

Electricity is an essential service fundamental to a high standard of living and economic activity. Although the economics of SAPS are becoming more favourable,¹⁷⁵ grid connection is still the most economic option for the majority of consumers in the NEM. It is therefore important to provide consumers with rights to connect to the grid and protect them from unreasonable charges from monopoly network service providers.

As suppliers of an essential service, ENSPs should be subject to appropriate obligations with respect to connection services and charges. The Commission considers customers in embedded networks should enjoy the same or very similar consumer protections as customers connected directly to a distribution network. This requires that the process for new connections and connection alterations is transparent, predictable, proportionate and provides consumers with appropriate protections.

The 2017 Review acknowledged that obligations to provide connection services under Chapter 5A of the NER in relation to making new connections and connection alterations, and Part 3 of the NERL and Part 4 of the NERR, may not be appropriate for embedded networks.¹⁷⁶ The Commission considered that alternative mechanisms may be required to extend rights to receive connection services in embedded networks.¹⁷⁷

The Commission has considered, as part of this review, how the connection framework for retail customers set out in Chapter 5A of the NER should be adapted to be appropriate for embedded networks and whether ENSPs should be permitted to charge NUoS charges.

The following figure outlines the Commission's approach to its recommendations on a connection and network charging framework for ENSPs, namely that this chapter builds on recommendations with respect to:

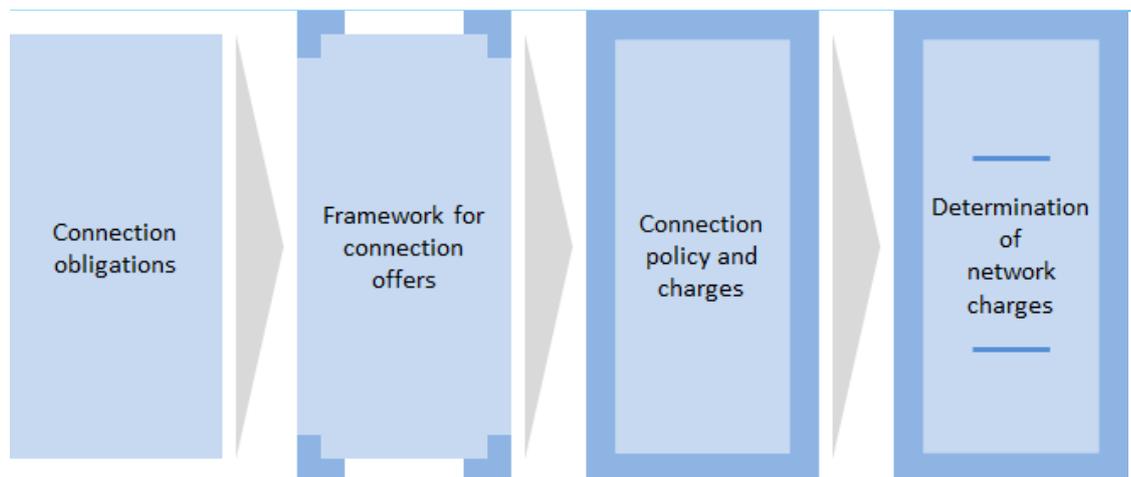
- the obligations that should be placed on ENSPs to provide connection services
- the framework for formulating and making connection offers to connection applicants in new embedded networks
- the framework for establishing connection policies and the regulation of connection charges
- NUoS charging for embedded networks in respect to both internal and external network charges.

¹⁷⁵ See section 2.1 of AEMC, *Review of stand-alone power systems*, draft report, 18 December 2018.

¹⁷⁶ AEMC, *Review into regulatory arrangements in embedded networks*, final report, 28 November 2017, p. 109.

¹⁷⁷ *Ibid.* p. 113.

Figure 6.1: AEMC approach to connection and network charging in embedded networks



Source: AEMC.

Finally, this chapter also outlines the issues to be considered in developing a connection framework for registered embedded generators (i.e. generators that are larger than 5MW and are registered with AEMO and regulated under Chapter 5 of the NER). Further advice on implementing a connection framework for registered embedded generators in embedded networks will be provided following stakeholder feedback on the draft report.

6.2 Obligation to provide connection services

6.2.1 Introduction

ENSPs should be subject to appropriate obligations under the NERL with respect to connections services.

This section sets out:

- the current arrangements for obligations to connect customers to distribution networks in the NEM
- current arrangements for connecting to embedded networks
- the Commission’s analysis and recommendations for placing connection obligations on ENSPs under the updated regulatory framework
- advice on implementing these recommendations in the energy laws and rules.

6.2.2 Current arrangements in the NEM

In jurisdictions that have adopted the NECF, the obligation to provide connection services is imposed on distributors under the NERL. Section 66(1) of the NERL provides that a distributor must, subject to and in accordance with the energy laws, provide customer connection services for the premises of a customer:

1. who requests those services, and

2. whose premises are connected, or who is seeking to have those premises connected, to the distributor's distribution system.

Section 66(2) of the NERL also specifies that the customer connection services must be provided to a customer in accordance with the relevant customer connection contract. The rights and obligations refer to the 'customer', which is the person who enters the contract with the DNSP, e.g. the owner of a premises for which a new connection or connection upgrade is being sought and who then enters into a standard connection contract with the DNSP.¹⁷⁸

Part 4 of the NERR sets out in detail the relationship between distributors and customers in relation to connection services. This Part applies only in relation to:

- customers with an existing connection
- deemed standard connection contracts
- deemed AER approved standard connection contracts.

Part 4 of the NERR also sets out the responsibilities of a NEM retailer in relation to an application for connection services, which is to make an application to a distributor on behalf of the customer where the retailer has a relevant contract with the customer in relation to the premises.¹⁷⁹

A distributor is obliged to provide a deemed standard connection contract for a new connection or a connection alteration within its distribution network.¹⁸⁰ The connection contract commences on acceptance by the customer of the distributor's connection offer for a new connection or connection alteration in accordance with the requirements under Chapter 5A of the NER.

At the same time as the contract for a new connection commences, a standard connection contract is also formed. That contract establishes the terms and conditions upon which the DNSP will provide ongoing connection services once a new connection is established.

6.2.3 Current arrangements in embedded networks

The AER Network Exemption Guideline conditions do not place an obligation on exempt network service providers to connect new customers or provide connection alterations to existing customers. Any new connections and alterations are negotiated with the owner of the embedded network, which is generally the party deemed or registered as the exempt network service provider.

6.2.4 Analysis and recommendations

The Commission acknowledges that many embedded network owners will be incentivised to connect new customers. It is unlikely, for example, that a new tenancy within a building

¹⁷⁸ Regarding the rights of tenants in embedded networks to request a connection upgrade, their rights depend on the respective contractual arrangement between the owner/landlord as the owner of the premises for which an upgrade is being requested, and the tenant.

¹⁷⁹ Rule 79(3) of the NERR.

¹⁸⁰ Part 4, Division 3 of the NERR.

would be established without a connection to the embedded network being provided. However, without an obligation to provide connection services in embedded networks, as embedded networks grow in number and size and evolve into more complex arrangements, embedded network customers may find themselves in a position where they are unable to:

- connect to an embedded network, even though a customer's premises for which a connection is being sought is covered by the area of the embedded network and the customer has no other connection options
- upgrade their existing connection in an embedded network to export electricity from embedded generation behind the child meter, or not be able to upgrade its capacity so that they can install a fast charge station for an electric vehicle.

Stakeholder views

Connection obligations were discussed during round table sessions at the AEMC stakeholder workshop on 23 October 2018 in Sydney. Embedded network businesses asserted that different types of embedded networks face different needs with regard to certain types of new connection services. For example, residential customers in apartment buildings have to date not extensively requested connection alterations. In contrast, in commercial embedded networks, e.g. shopping centres, connection alterations are frequently undertaken, for example if vacant retail space is leased by a large supermarket, requiring increased capacity for cooling and freezing, whereas previous leaseholders were small retail businesses with significantly lower energy needs.

Many stakeholders agreed that the regulatory framework should be 'future proofed', as in the future customers may increasingly request alterations e.g. when seeking to install electric vehicle charging stations, or for future embedded networks that involve free-standing houses.

Extending connection and alteration obligations for embedded networks

The Commission considers that an ENSP should have the same obligations as a DNSP under the NERL and the NERR to:

- make an offer for a new connection or provide a service relating to a connection alteration, if a retail customer seeks a new connection or connection alteration within the embedded network
- provide connection services in respect of the customer's premises as soon as practicable after the retailer (either a NEM retailer or off-market retailer) notifies the distributor of the formation of the relevant contract.

As set out in further detail in chapter 3 of this report, it is recommended that embedded networks are elevated into the national regulatory framework, including introducing definitions of ENSP and embedded network into the NERL and making ENSPs a type of network service provider. Extending connection and alteration obligations to ENSPs will therefore be achieved as a consequence of ENSPs being required to comply with the existing obligations on network service providers to provide connection services in accordance with s. 66 of the NERL.

These recommended amendments to elevate ENSPs and embedded networks into the NERL will also have the effect of placing obligations on off-market retailers as a result of becoming a subset of authorised retailer, including requiring off-market retailers to apply for connection services on behalf of embedded network customers.

However, the Commission recommends these obligations be restricted to a specific location to prevent placing obligations on an embedded network they would be unable to meet. For example, it would be infeasible for an embedded network that served an apartment building to be required to connect a retail customer across a road under which they did not have access to an easement. The Commission recommends this be achieved through linking the obligation to connect to the embedded network area notified by the ENSP to AEMO at the point of registration.

At the time of registration, an embedded network owner will be required to provide details of the embedded network area that the ENSP will be serving (which can be updated subject to an application to AEMO). Supporting information may, for example, include maps, land title information and line diagrams setting out the catchment for the embedded network. The information on the embedded network area will need to be made transparent and publicly accessible, either through AEMO or on the ENSP's website. The registration of a certain area as the embedded network area also needs to comply with any applicable jurisdictional requirements.

Consistent with the connection framework for DNSPs under Chapter 5A of the NER, the Commission also recommends that an ENSP has an obligation to make an offer for a new connection to non-registered embedded generators seeking to connect to an embedded network (i.e. generators under 5MW). Among other things, this will prevent a situation where a small embedded generator's application to connect is rejected for anti-competitive reasons, e.g. if the owner of the embedded network is also an embedded generator and seeks to maintain its local generation monopoly within the embedded network.

Implications for the relationship between the embedded network owner and ENSP

Under the proposed framework, the obligation for new connections and connection alterations will lie with the ENSP. If the ENSP is not the same entity as the embedded network owner, these two entities will need to establish their responsibilities to each other in relation to new connections and alterations through contractual arrangements, including what rights and information the ENSP requires to perform its obligations with regard to connections to the embedded network.¹⁸¹

6.2.5 Implementation in the energy laws and rules

It is proposed that an ENSP has an obligation to provide customer connection services under the NERL, to a customer who requests those services, and whose premises is connected, or who is seeking to have those premises connected to the ENSP's distribution system. This

¹⁸¹ Whether tenants can request an ENSP of an embedded network to provide a new connection or upgrade of an existing connection under s. 66 of the NERL, e.g. if a tenant seeks to install a charging station for electric vehicles, will depend on the tenancy agreement.

obligation is limited to the ENSP establishing a new connection for premises, or providing a service relating to a connection alteration for premises, where the premises are located in the ENSP's embedded network area.¹⁸²

Off-market retailers will, in their capacity as a retailer, be required to request a customer connection service in respect of an existing connection to a customer's premises, on behalf of a customer with the DNSP.¹⁸³

6.3 Types of connection offers

6.3.1 Introduction

A clear, predictable and transparent process for connecting to the distribution network provides customers appropriate protections while maintaining technical standards so the quality, reliability and safety of connections and the distribution network are not compromised.

Standardising connection offers under a certain threshold (defined in terms of capacity of the connection or any other measure the AER considers appropriate) provides benefits to both connection applicants and the DNSP. Connection offers set out both the applicant and distribution network's obligations and form the basis of the connection contract once accepted by the applicant. Standardised connection offers can streamline the process by providing for automatic approval of certain types of common connection applications and remove the costs of formulating and negotiating unique connection contracts for every applicant.

Where standardised offers are inappropriate, a clear and structured negotiation process provides guidance to the applicant and the distribution network and can reduce the costs of negotiation while maintaining flexibility to cater for a range of different types of connections.

This section sets out:

- the types of connection services currently offered by DNSPs in the NEM under Chapter 5A of the NER
- the current connection arrangements in embedded networks
- the Commission's analysis and recommendations on the types of connection offers that should be available in new embedded networks
- advice on implementing these recommendations in the energy laws and rules.

6.3.2 Current arrangements in the NEM

The types of connection services for new and altered connections for NEM retailer customers are outlined in Chapter 5A of the NER. Chapter 5A outlines three types of offers to provide connection services: basic, standard and negotiated.

¹⁸² Proposed amendment to s. 66 of the NERL.

¹⁸³ Proposed new rule 3C of the NERR.

Chapter 5A applies to embedded generator proponents proposing to connect a generating system of less than the standing exemption from the requirement to register as a participant with AEMO (currently 5MW). These are known as:

- micro embedded generators (embedded generator connections that comply with Australian Standard AS4777); and
- non-registered embedded generators (a system of less than 5 MW but larger than a micro-embedded generator).¹⁸⁴

Basic connection services

Basic connection services apply where the provision of connection services involves minimal or no augmentation of the distribution network.¹⁸⁵ In general, these services cover the majority of simple connections by NEM retailer customers, including those customers that are micro embedded generator connections (for example, residential rooftop solar systems and battery storage).

A DNSP *must* submit for the AER's approval and publish on its website a model standing offer for basic connections, on specified terms and conditions.¹⁸⁶ The terms and conditions of the DNSP's proposed model standing offer must cover:¹⁸⁷

- a description of the connection, including a statement of its maximum capacity
- timeframes for commencing and completing the work
- details of the connection charges, or the basis on which they will be calculated¹⁸⁸
- the manner in which connection charges are to be paid by the customer of a NEM retailer
- if the service is a micro embedded generator, the particular requirements regarding the export of electricity into the distribution system.

Standard connection services

Standard connection services apply where the provision of connection services involves augmentation of the distribution network. Offers for standard connection services would typically apply to large multi-occupant developments, large commercial and industrial developments and embedded generators that are not micro embedded generators. A DNSP *may*, but is not obliged to, provide one or multiple model standing offer(s) for different subclasses of standard connection services, on specified terms and conditions (corresponding to the ones for basic connection services).¹⁸⁹

¹⁸⁴ Under clause 2.2.1(c) of the NER, AEMO may exempt a person from the requirement to register a generator in accordance with guidelines issued from time to time. Under AEMO's current guidelines, small generating systems with a combined nameplate rating of less than 5 MW are exempt from the requirement to register.

¹⁸⁵ Part B, Division 1 of Chapter 5A of the NER.

¹⁸⁶ A DNSP can publish different model standing offers for different subclasses of basic connections, e.g. one offer for a basic connection with only load and one offer for a basic connection including micro embedded generation.

¹⁸⁷ The terms and conditions also refer to jurisdictional or other legislation and statutory instruments that impose specific requirements (qualifications of service provider, safety and technical requirements) to be complied with by the provider of a contestable service, in jurisdictions where contestability in connection services exists.

¹⁸⁸ Including the cost of any relevant premises connection assets and necessary extension to the distribution system.

¹⁸⁹ Part 1, Division 2 of Chapter 5A of the NER.

The Commission has observed that the majority of DNSPs do not provide an offer for standard connection services. The Commission understands that this is due to the varied and specific needs of potential connection applicants that would seek a standard connection. There are numerous types of non-registered embedded generators, including co-generation plants, medium-scale solar installations and small hydro plants that may seek to connect to a distribution network and each applicant is likely to have unique connection service requirements. Negotiated connection services may better meet the needs of both the applicant and the DNSP in these cases. If a DNSP develops a model standing offer for standard connection services, it must submit it for approval by the AER.

Negotiated connection services

Negotiated connection services apply where a connection service sought by a connection applicant is neither a basic nor a standard connection service, or the connection applicant elects to negotiate the terms and conditions on which the connection service is to be provided. As most DNSPs do not provide for a model standing offer for a standard connection service, connection applicants seeking a connection service that exceeds a basic connection have to rely on the negotiated connection process. The negotiations between a DNSP and a connection applicant are governed by a set of rules.¹⁹⁰ The negotiation framework represents a structured process, outlining the steps and timeframes to be followed and the information to be exchanged by the parties. The process is designed to be open, flexible and relatively short; yet creates certainty about the obligations of the connection applicant and the DNSP when negotiating a connection contract.¹⁹¹

6.3.3 Current arrangements in embedded networks

As set out above, the AER Network Exemption Guideline conditions do not place an obligation on exempt network service providers to connect. Nor do the guidelines provide a framework for standardising or negotiating connection service offers for new connections or connection alterations.

6.3.4 Analysis and recommendations

The Commission considers that establishing a framework for standardising and negotiating connection services in embedded networks would benefit both connection applicants and ENSPs.

In round table discussions at the stakeholder workshop in Sydney on 23 October 2018, stakeholders generally agreed that, although different types of customers in embedded networks have specific needs and thus request different types of connection services, customers should nevertheless have certainty and transparency with regard to the connection process. Stakeholders suggested that certainty and transparency for small residential customers could take the form of a model standing offer for basic connections, whereas for commercial and industrial customers stakeholders emphasised the importance of a structured

¹⁹⁰ Part C of Chapter 5A of the NER.

¹⁹¹ Non-registered embedded generators that fall under the NER Chapter 5A connection process can also elect to use the connection process under Chapter 5, which applies to registered embedded generators and represents a more detailed process.

and transparent negotiated process for the assessment of applications for new connections and connection alterations.

The Commission proposes that the current connection framework under Chapter 5A of the NER should be adapted to embedded networks. The Commission considers that customers in embedded networks should be provided with similar protections and options for connection services, while reducing the regulatory burden on ENSPs as much as possible so as not to create inappropriately high barriers to entry.

The recommended framework requires that ENSPs:

- provide an offer for basic connection services. As discussed further below, this can be done either using a model standing offer the AER has prepared and provided for all ENSPs as part of the embedded network connection policy (and notifying the AER if this is the case), or by preparing a model standing offer of its own that is consistent with the requirements of Chapter 5A of the NER¹⁹² and approved by the AER
- use the structured negotiated process set out in Chapter 5A of the NER for connection applicants that require a connection that exceeds the specifications of a basic connection service or choose to negotiate a connection contract
- set connection charges in line with an embedded network connection policy which the AER must establish.

Extending basic and negotiated connections services to embedded networks

The Commission recommends that ENSPs *must* have a model standing offer to provide basic connection services to retail customers and publish it on its website. This will provide all connection applicants seeking a connection service under a certain threshold certainty that they can connect under a particular set of terms and conditions.

To reduce the costs for ENSPs of producing a model standing offer, the Commission recommends that the AER be obliged to publish a model standing offer for basic connections in embedded networks, which ENSPs may adopt by notifying the AER. The Commission recommends that the AER:

- have discretion whether to publish one or multiple model standing offers for basic connection services (e.g. one offer for a basic connection with only load and a separate offer for a basic connection including micro embedded generation, or a combined offer)
- be required to set terms and conditions, following consultation, which are consistent with the same NER requirements for DNSPs' model standing offers for a basic connection.¹⁹³

However, the Commission considers an ENSP should also be able to prepare its own model standing offer to suit its specific circumstances if it wishes. As such the Commission recommends that:

- an ENSP may prepare its own model standing offer and submit it to the AER for approval

¹⁹² This includes a requirement that a model standing offer is consistent with the embedded network connection policy.

¹⁹³ Where the terms and conditions refer to jurisdictional or other legislation and statutory instruments that impose safety and technical requirements as well as requirements regarding qualifications for installers to be complied with, the relevant jurisdictional legislation and statutory instruments need to spell out which provisions do not apply in embedded networks, if any.

- the standing offer prepared by an ENSP must be consistent with the NER requirements for DNSPs' model standing offers for a basic connection.

Where connection applicants require a connection that exceeds the specifications of a basic connection service, the Commission recommends that negotiated contracts be permitted under the same process available to DNSPs under Chapter 5A of the NER. This will extend the same flexibility currently provided under Chapter 5A of the NER to connection applicants in embedded networks where a connection application with unique requirements is seeking a connection service.

Applying the proposed connection framework for connection services will also provide clarity, predictability and transparency, including in relation to the process of assessing an application and the subsequent steps of contract formation and contractual performance (in terms of commencing connection works).

Removing standard connection services for embedded networks

To simplify the connection framework for embedded networks and reduce costs, it is recommended that the category of standard connection offers should not apply to embedded networks. Most DNSPs do not provide model standing offers for standard connection services due to the perceived impracticability of accounting for connection applicants' diverse needs. The Commission considers this will make it clearer to connection applications that they may either elect to apply for a basic connection or a negotiated connection.

The Commission also recommends the framework be simplified for ENSPs by requiring the AER to establish a connection policy to be used by ENSPs that sets out the approach to funding connections and network augmentations consistent with the connection charge principles set out in Part E of Chapter 5A of the NER. Standardising the connection policy for embedded networks will reduce costs for ENSPs by removing the burden of preparing a connection policy that is consistent with the connection charge principles and AER guidelines. It will also provide a clear set of policies on which connection charges must be based and provide greater consistency in connection charging between embedded networks.

6.3.5

Law and rule implementation

Under the NER, provisions in Chapter 5A of the NER are proposed to be extended to off-market retailers by subsuming off-market retailers into the definition of registered participants for the purposes of this chapter, and extended to ENSPs by subsuming ENSPs into the definition of DNSP for the purposes of this chapter.¹⁹⁴ As a result, ENSPs will be required to have a model standing offer to provide basic connection services to retail customers (and may do so for different subclasses or classes of customers as currently offered by DNSPs).¹⁹⁵

¹⁹⁴ Proposed new clause 5A.A.1A of the NER.

¹⁹⁵ Clause 5A.B.1 of the NER.

Where an ENSP adopts a model standing offer¹⁹⁶ published in the embedded network connection policy, the ENSP may notify the AER. An ENSP may alternatively, or additionally, submit to the AER for approval its own proposed model standing offer(s),¹⁹⁷ which are subject to the model standing offer content requirements and AER approval provisions currently provided for in the NER.¹⁹⁸

An ENSP is also proposed to be able to offer a negotiated connection contract under the current framework.¹⁹⁹ Further, it is proposed that ENSPs must:

- publish information on applications for connection services (including contact details of the local embedded network retailer for its embedded network, as well as information that a customer has the right to choose a retailer other than the local embedded network retailer)²⁰⁰
- maintain a register of completed embedded generation projects where applicable,²⁰¹ and
- be subject to dispute resolution procedures if disputes are raised by retail customers (that is, end-use customers such as households) or real estate developers.²⁰²

6.4

Connection policies and connection charging

6.4.1

Introduction

When a customer connects to a distribution network (including an embedded network) there may be a number of capital and administrative costs, including those related to:

- site inspection fees if a site inspection is required to assess a connection service
- extending the distribution network to reach the customer's premises
- augmenting the network to permit an additional load or embedded generator to connect, such as installing transformers with a larger capacity
- assessing connection applications and preparing an offer to connect.

As discussed above, obligations are placed on distribution networks to provide connection services under the NERL. As a monopoly network service provider, customers also require regulatory protections from unreasonable charges for connection services.

This section considers connection charging in embedded networks and sets out:

- the current principles and framework that applies to DNSPs in respect of connection charging under the national regulatory framework
- the connection costs that embedded network are permitted to charge under the AER's Network Exemption Guideline

196 Proposed amendments to clause 5A.A.1 of the NER, definition of 'model standing offer'; proposed new clauses 5A.B.2(a1) and 5A.B.8(a) of the NER.

197 Proposed new clause 5A.B.8(b) of the NER.

198 Clauses 5A.B.2(b) and 5A.B.3 of the NER.

199 Chapter 5A, Part C 'Negotiated connection' of the NER.

200 Proposed amendments to clause 5A.D.1(a) of the NER.

201 Proposed amendments to clause 5A.D.1A of the NER.

202 Chapter 5A, Part G of the NER.

- the Commission’s analysis and recommendations for regulating connection charges in new embedded networks
- advice on implementing these recommendations in the energy laws and rules.

6.4.2

Current arrangements in the NEM

The NER sets out the principles and framework that DNSPs must use to determine connection charges. This framework includes:

- the connection charge principles that a DNSP must apply in determining connection charges²⁰³
- a requirement that the AER must develop and publish connection charge guidelines for the development of connection policies by DNSPs, to ensure connection charges are reasonable, based on efficient costs and competitively neutral (if connection services are contestable)²⁰⁴
- a requirement that a DNSP prepare a connection policy that is consistent with the connection charge principles and connection charge guidelines and further specifies the circumstances under which a retail customer may be required to pay a connection charge for the provision of a connection service²⁰⁵
- a DNSP’s revenue determination which will, amongst other things, classify connection services as either standard control services or alternative control services.

Connection charge principles

In determining connection charges, a DNSP must apply the following connection charge principles set out in Part E of Chapter 5A of the NER.

The connection charge principles:

- prohibit retail customers (other than a non-registered embedded generator or a real estate developer) from being required to make a capital contribution towards the cost of augmenting the shared network if the customer’s application is for a basic connection service or under a relevant threshold set in a DNSP’s connection policy
- permit connection charges to include a reasonable capital contribution towards the cost of an extension to the distribution network where this is necessary to provide a connection service,²⁰⁶
- provide that where augmentation of a premises’ connection assets²⁰⁷ at the retail customer’s connection point or an augmentation of the distribution system²⁰⁸ is necessary to provide a connection service that exceeds a basic connection service, connection

203 Clause 5A.E.1 of the NER.

204 Clause 5A.E.3 of the NER.

205 Part DA, Chapter 6 of the NER.

206 A capital contribution may only be required if provision for the costs has not already been made through existing DUoS charges or a tariff applicable to the connection.

207 For the declared transmission system of an adoptive jurisdiction, and a distribution system, connection assets are those components of a transmission or distribution system which are used to provide connection services.

208 An augmentation of the distribution system, may for example, include upgrading the capacity of a substation upstream of a new connection to accommodate a large load.

charges may include a reasonable capital contribution towards the cost of the necessary augmentation of the distribution system to provide the service and to provide efficiently for forecast load growth.

Connection charge guidelines

The AER is required to develop and publish connection charge guidelines for the development of a connection policy by a DNSP under Part E of Chapter 5A of the NER. The purpose of the guidelines is to ensure that connection charges are reasonable, cost-reflective and if the connection services are contestable, they are competitively neutral.

Further, the guidelines must describe the circumstances under which a retail customer may have to make a capital contribution for the provision of connection services, the methodology for determining the amount of any such capital contribution, and establish principles for fixing a threshold below which retail customers are exempt from making a capital contribution for an augmentation (other than an extension) to the distribution network that is necessary to make the connection.

The AER's connection charge guidelines adopt the form of control determined for each component of the connection service in each DNSP's distribution determination.

Connection policy

A DNSP must publish a connection policy under Part DA of Chapter 6 of the NER. The connection policy must be consistent with the connection charge principles and connection charge guidelines and further specify the circumstances under which a NEM retailer customer may be required to pay a connection charge for the provision of a connection service.

AER revenue determinations

Currently, the AER approves a DNSP's connection charges based on its assessment of whether they are consistent with the DNSP's distribution determination.

Connection services are currently classified by the AER as either standard control services or alternative control services.²⁰⁹ Where a connection service is classified as an alternative control service, the full cost of the service can be recovered from the individual customers using that service. The AER decides for the regulatory control period on the prices a DNSP is allowed to charge customers for the provision of alternative control services.

DNSPs are able to recover the costs of providing connection services that have been classified as a standard control connection service through DUoS charges, which are the annual charges paid by all customers who use the distribution network. Standard control services are services that are central to electricity supply and therefore relied on by most (if not all) customers who use the distribution network.

A DNSP is also allowed to include augmentation capital expenditure in its distribution determination proposal to account for forecast augmentation of its network. Such augmentation of the network is considered as a standard control service.

²⁰⁹ Alternative control services are services provided by distributors to specific customers. They do not form part of their distribution use of system revenue allowance approved by the AER for each distributor. Distributors recover the costs of providing alternative control services through a 'user pays' basis.

6.4.3 Current arrangements in embedded networks

Currently, no framework exists for new connections and connection alterations in embedded networks. The AER Network Exemption Guideline conditions permit an exempt network service provider to charge small and large customers actual costs incurred in making metering changes or service capacity upgrades requested by the tenant.²¹⁰

6.4.4 Analysis and recommendations

The current connection framework was designed to apply to DNSPs that cover large numbers of customers and which are subject to AER revenue determinations under Chapter 6 of the NER. ENSPs will have neither the scale of DNSPs nor will they be subject to revenue determinations. Some embedded networks will also be serving very specific sets of customers such as business customers in an industrial park or retailers in a shopping centre.

Despite these differences between DNSPs and ENSPs, the Commission recommends adapting the current connection framework under Chapter 5A and Chapter 6 of the NER. This would ensure customers in embedded networks are provided with similar protections while reducing the regulatory burden on ENSPs where possible so as not to create unnecessary costs that may be passed onto consumers.

Standardising connection policy

As discussed above in relation to connection offers, to reduce the regulatory burden on ENSPs the Commission recommends removing the requirement for ENSPs to each prepare a connection policy for AER approval and instead requiring the AER to establish a connection policy that is suitable to be used by all ENSPs. ENSPs will be required to either use the AER's created connection policy, and/or submit a model standing offer for the AER's approval.

The Commission recognises that it will be necessary for this connection policy to be appropriate for different types of embedded networks that may have different customer profiles.²¹¹ As such the Commission recommends that the AER, in developing its embedded network connection policy, be required to have regard to, amongst other things:

- the connection charge guidelines and the requirements of those guidelines under the NER, to the extent they are relevant to embedded networks
- the differences between various embedded networks and differences between the customers they serve (including historical and geographical differences between embedded networks).

The Commission considers it will be more cost effective for the AER to establish this single connection policy than being required to approve the connection policy of each ENSP. Standardising the connection policy will reduce costs for ENSPs and will also provide greater consistency in connection charging between embedded networks where the standardised connection policy is adopted.

²¹⁰ Section 4.6.4.2 of the AER Network Exemption Guideline.

²¹¹ The draft provisions in Chapter 5A of the NER provide the AER with the ability to create a broad connection policy that can accommodate the needs of various embedded networks as determined by the AER.

The Commission recommends the embedded network connection policy sets out, amongst other things, the circumstances under which a customer is required to pay a connection charge for connecting their premises or make a capital contribution towards the cost of expanding the capacity of the embedded network.

The Commission considers that customers in embedded networks should have certainty regarding the minimum service they can expect to be provided without being required to fund augmentations in embedded networks. As such, the Commission recommends the embedded network connection policy include a threshold below which a retail customer (other than a non-registered embedded generator or a real estate developer) will not be liable for connection charges for an augmentation of the network (other than an extension).²¹²

As set out above, the Commission recommends the embedded network connection policy include one or more forms of model standing offer that may be adopted by an ENSP.

Connection charges

As explained above, the AER approves a DNSP's connection charges based on its assessment of whether they are reasonable in terms of being consistent with the DNSP's distribution determination. However, ENSPs will not be subject to revenue determinations by the AER.

Establishing a framework for new connections and connection alterations raises the questions how the AER should examine whether connection service charges are 'fair and reasonable'. The question thus emerges what should be the basis for ENSPs' calculation of connection charges and who should be charged to appropriately recover the costs for necessary network augmentation.

Setting connection charges

To protect customers from unreasonably high connection charges in an embedded network, the Commission considers ENSPs should be required to set charges based on a set of principles set out in the NER.

The Commission recommends that the NER requires that ENSPs set connection charges that:

- are reasonable, taking into account the efficient costs of providing the connection services arising from the new connection or connection alteration and the revenue the LNSP²¹³ would require to provide those connection services
- provide a user-pays signal to reflect the efficient cost of providing the connection services
- limit cross-subsidisation of connection costs between different classes (or subclasses) of retail customers
- if the connection services are contestable – be competitively neutral.

²¹² For example, under the proposed drafting in Chapter 5A of the NER, a retail customer applying for a connection service for which an augmentation to the embedded network or another network through which the embedded network is connected is required, that retail customer is not intended to bear those costs where the application is for a basic connection service, and does not exceed any relevant thresholds. The 'customer' will be the account holder at the premises.

²¹³ The Commission considers that the LNSP's connection charges would provide an appropriate benchmark for establishing the reasonableness of connection charges.

Should connection charges be approved by the AER?

The Commission considers it would be impractical and costly for the AER to review and approve each ENSP's connection charges. Therefore, the Commission recommends ENSPs not be required to have their charges approved by the AER.

However, the Commission considers that since many connection applicants will have no other connection options other than the monopoly ENSP, embedded network connection applicants should have the ability to bring a dispute on connection charges, or any other terms and conditions, to the AER for a determination.

The Commission recommends that in case there is a dispute between an ENSP and a customer about connection charges or the proposed or actual terms and conditions of a basic or negotiated connection contract, the dispute resolution process under Part G of Chapter 5A of the NER applies.

In determining a relevant dispute about connection charges, the AER may give consideration to the principles outlined above including the charges that the relevant LNSP is permitted to charge its customers (consistent with the DNSP's distribution determination).

6.4.5 Implementation in the energy laws and rules

The AER is to create and publish the *embedded network connection policy* for different classes or subclasses of basic connection services that can apply to embedded networks and be adopted by an ENSP.²¹⁴ ENSPs must comply with this policy.²¹⁵ The policy must specify matters including:

- circumstances in which connection charges are payable to an ENSP
- the types of model standing offers that an ENSP can adopt (including providing guidance on the use of those terms, and how alternatively, the ENSP may submit a model standing offer for the AER's approval)²¹⁶
- circumstances in which connection charges are payable to an ENSP
- the basis for determining the amounts of connection charges.²¹⁷

The policy is required to provide a connection charge methodology that is reasonable²¹⁸ and stipulate when retail customers are not required to make capital contributions towards the cost of network augmentation.²¹⁹ It is also proposed that the existing provisions on DNSP requirements for a connection policy be moved from Chapter 6 into this Chapter 5A for consistency.²²⁰ However, these provisions on DNSP connection policies would not cover ENSPs.

²¹⁴ Proposed new clauses 5A.B.2 and 5A.E.3A of the NER.

²¹⁵ Proposed new clause 5A.E.3A(i) of the NER.

²¹⁶ Proposed new clauses 5A.B.2(a1) and 5A.E.3A(c)(5) of the NER.

²¹⁷ Proposed new clauses 5A.E.3A(a)-(c) of the NER.

²¹⁸ Proposed new clause 5A.E.3A(d) of the NER.

²¹⁹ Proposed new clause 5A.E.3A(e) of the NER.

²²⁰ Proposed new clause 5A.E.3B of the NER, containing the current provisions of clause 6.7A.1 of the NER (which is to be moved from Chapter 6).

6.5 NUoS charging for embedded networks

6.5.1 Introduction

The Commission has considered whether ENSPs should be able to charge embedded network customers for network charges levied at the parent connection meter and for the internal embedded network.

This section sets out:

- current arrangements for NUoS charging in the NEM
- current arrangements set out in the AER Network Exemption Guideline in relation to external and internal network charges in embedded networks
- the Commission's analysis and recommendations in relation to network charging in new embedded networks
- advice on implementing these recommendations in the energy laws and rules.

6.5.2 Current arrangements in the NEM

DNSPs charge customers connected to their distribution network for conveyance of electricity to their connection point. These network charges, NUoS charges, are generally levied to a NEM retailer for a customer of a NEM retailer and include several components:

- pass-through charges for the transmission of electricity (TUoS charges)
- charges for the distribution of electricity to a connection point on the distribution network (DUoS charges)
- other customer specific charges.

The remainder of this chapter will refer to these charges as 'external network charges'.

The AER makes regulatory decisions on the revenues the network businesses can recover from their customers. The AER determines a network business' revenue by an assessment of their efficient costs and forecasts. Their assessment is based on regulatory proposals submitted by the network businesses in advance of a five-year regulatory control period.

As a customer connected to a DNSP's distribution network, an embedded network is levied for NUoS charges at the parent connection point of the embedded network.

6.5.3 Current arrangements in embedded networks

The AER's Network Exemption Guideline sets out the circumstances in which exempt network service providers are permitted to charge external and internal network charges.

External network charges

As explained above, an embedded network will be charged NUoS charges by the NEM retailer at the parent connection point. The AER's Network Exemption Guideline permits such charges to be apportioned to each customer in an exempt network on a 'causer pays' basis in proportion to the metered energy consumption of each customer.

Internal network charges

The AER does not generally allow internal network charges to be charged to embedded network customers. The AER's Network Exemption Guideline sets out the limited circumstances in which it permits an exempt network service provider to charge for the use of the internal network.

Where an exempt network exists within a commercial building, shopping centre, airport, residential apartment building, retirement village or the like, the AER considers the network development costs to have been met in the initial establishment of the facility. The AER considers such costs are capital in nature and are normally recoverable through lease payments, fit-out charges or the like. As such, the AER considers that a charge for internal network services is not appropriate in embedded networks as it may result in the customer being charged twice for the same facility.

Accordingly, under the AER's Network Exemption Guideline no charge is permitted for internal network services except where the parties have entered into an agreement on mutually agreed terms and the network user is a large customer or large corporate entity.

6.5.4

Analysis and recommendations

The Commission is of the view that passing on external network charges should continue to be permitted in new embedded networks under the updated regulatory framework.

Consistent with how NEM retailers under the national framework are currently able to make a bundled offer to customers (i.e. covering wholesale, retail, networks, metering and other related inputs as part of a single service), the Commission does not consider it necessary to stipulate how off-market retailers should pass on external network charges to off-market retailer customers in embedded network. The Commission, however, does not consider that off-market retailers require an ability to make energy only offers to embedded network customers (as is currently an option for NEM retailers in embedded networks), given an off-market retailer will always pass on external network charges.

With respect to embedded network customers that go on-market with a NEM retailer, the Commission recommends in chapter 5 of this report that an ENSP be responsible for billing the retailer using a shadow network tariff which is the tariff that a customer would have been charged by the DNSP if the customer had been directly connected to the DNSP's network.²²¹ Chapter 5 of this report sets out the Commission's recommendations with respect to the standardisation of network billing for embedded network customers of NEM retailers.

With respect to internal network charges, the Commission agrees with the AER that the network development costs should have been met in the initial establishment of a facility. These initial costs are generally recovered through the sale or lease of properties which the embedded network serves. As the AER points out, it would be inappropriate to recover these costs twice through charging embedded network customers for the use of the internal network, and making revenue determinations to set the efficient amount of these charges

²²¹ See sections 5.2.2. and 5.3.3. in this report.

would be a complex process which would be disproportionate to the scale of most embedded networks.

The Commission considers that the owner of the embedded network should also be responsible for the costs of operating, maintaining and replacing the network which has been established. This is consistent with how costs are recovered for internal wiring in buildings that have not been established as an embedded network with a parent connection point. Where an embedded network has not been established, the costs of operating, maintaining and replacing an internal network is the responsibility of the owner and these costs are generally recovered through strata fees or rent.

As such the Commission recommends that the AER's policy on charging embedded network customers for use of the internal network should be maintained and elevated into the NER. This means an ENSP would only be permitted to charge large customers and large corporate entities for DUoS charges for the internal network by mutual agreement.

Further details are provided below on the Commission's proposed amendments to the NER.

6.5.5 Implementation in the energy laws and rules

Off-market retailers are not permitted to make energy only offers.²²² Furthermore, the proposed drafting in the NER requires ENSPs not to charge DUoS charges for the conveyance of electricity in an embedded network unless the network user is a large customer or large corporate entity, and the ENSP and the network user have entered into an agreement regarding the payment of DUoS charges.²²³ This proposed drafting specifies that charges for connection services (under the NER Chapter 10 definition) are not precluded from being able to be charged by an ENSP to a network user in the embedded network.²²⁴

6.6 Connection framework for registered embedded generators

6.6.1 Introduction

Performance standards are one of the principal tools AEMO uses to manage power system security, and are established between AEMO, the network service provider and connection applicant during the connection process set out in Part A of Chapter 5 of the NER.

As part of elevating embedded networks into the national framework, further consideration will need to be given to the connection processes and the performance standards that should apply to registered participants seeking to connect large loads and generators to an embedded network. This has not been undertaken as part of this report.

This section sets out:

- the current arrangements in the NEM and embedded networks
- a summary of the options proposed by AEMO in a stakeholder paper to apply performance standards to a generating system or load in an exempt network

²²² In proposed new rule 3C of the NERR, off-market retailers are subject to a condition that they may not make energy only offers.

²²³ Proposed new clause 6.1.5 of the NER.

²²⁴ Proposed new clause 6.1.5(d) of the NER.

- the Commission’s preliminary analysis on the application of performance standards in embedded networks and the steps we intend to take during the preparation of the final report on updating regulatory arrangements for embedded networks.

6.6.2 Current arrangements in the NEM and embedded networks

Current arrangements in the NEM

The NEL and the NER require a person who owns, operates or controls a generating system connected to the grid to be registered with AEMO, unless exempt from doing so, and have a connection agreement with the relevant network service provider.

The arrangements to assist parties that are registered participants seeking connections to a network service provider’s network are contained in Part A of Chapter 5. Part A of Chapter 5 applies in all jurisdictions in the NEM.

Under the connections framework in the NER, connection applicants are able to negotiate with a network service provider (who is advised on some matters by AEMO) on the level of performance for the equipment they are seeking to connect to the power system. For each technical requirement, the negotiation occurs²²⁵ within a range provided by an automatic access standard (where a connection cannot be denied access on the basis of that technical requirement) and a minimum access standard (below which a connection must be denied access) that are each set out in the NER.

The NER currently allow network service providers and AEMO, in respect of its advisory matters, to refuse to agree to a proposed negotiated access standard if, among other things, the connecting equipment would adversely affect system security or the quality of power supply to other network users.

The access standards for generators connecting to the power system relate to a wide range of technical requirements and are set out in Schedule 5.2 to the NER. These access standards relate to, among other things:

- the requirements for generating systems to be able to control their active and reactive power and reactive current response, which helps to keep the system stable during normal operation of the power system, and also when the system experiences unexpected frequency and voltage disturbances, and
- the requirements for generating systems to be able to maintain operation in the face of these unexpected disturbances (including faults and contingency events) that can lead to cascading failures and blackouts.

These access standards in the NER can therefore be viewed as the reference points used for negotiations between connection applicants, the network service provider and, where relevant, AEMO, to set the specific levels of technical performance of equipment that connects to the power system.

The Commission recently made a rule change, on 27 September 2018, to the way levels of technical performance are negotiated for equipment connecting to the power system, and

²²⁵ Clause 5.3.4A of the NER.

improve the technical requirements for new generating systems.²²⁶ The rule improves and clarifies the negotiating process for new connections. Under the rule, negotiations can occur more efficiently so that each generating system that connects is required to have a level of performance that maintains system security and quality of supply at the lowest cost.

Current arrangements and issues in embedded networks

Given that performance standards are defined by reference to the network service provider, it is unclear whether the performance standards in S.5.2 of the NER applies at the child point of connection of generation or load to an exempt network.

To address the issue in the short-term, the AER amended its Network Exemption Guideline regarding the scope and criteria of certain exemption classes. Where the total generation at the NEM connection point is 5MW or more, an applicant for the relevant exemption needs to confirm with AEMO that all necessary performance standards will apply and the generating system is unlikely to pose undue risk to power system security or reliability, prior to the AER making a decision.

However, there is no process to include the DNSP in this exchange which would permit the DNSP to consider the impact on its distribution network and negotiate the performance standards that should apply.

6.6.3

AEMO's stakeholder paper on emerging generation and storage

The issue of applying performance standards to a generating system or load in an exempt network was recently considered by AEMO in a stakeholder paper, *Emerging Generation and Energy Storage in the NEM*.²²⁷

AEMO has received at least six enquiries regarding connecting generating systems and load in exempt networks and proponent interest continues in early design discussions with AEMO. Given the increasing number of proposed connections to exempt networks, resolving this issue is considered a priority by AEMO.

The stakeholder paper included a number of options to address the issue including:

- amending the NER to ensure that relevant clauses of Chapter 5 (including clauses 5.3.4A, 5.3.4B, 5.7.3) and Chapter 4 (clause 4.14) apply to ensure plant connected to exempt networks by registered participants will have agreed access standards that apply as performance standards for the purposes of the NER
- amending the definition of network service providers to include the owners of exempt networks in appropriate cases, excluding NER Chapter 6A and 6
- amending the definition of connection agreement so it is not restricted to registered networks
- amending the NEL and NER to ensure the AER's exemption only relates to economic and access regulation, rather than the technical requirements of the NER.

²²⁶ AEMC, National Electricity Amendment (Generator Technical Performance Standards) Rule 2018, 27 September 2018, see under <https://www.aemc.gov.au/rule-changes/generator-technical-performance-standards>.

²²⁷ Section 3.1 of AEMO, *Emerging Generation and Energy Storage in the NEM*, Stakeholder Paper, November 2018.

6.6.4 Analysis and next steps

The Commission notes that the issues that currently arise when a large embedded generator seeks to connect to the interconnected system via an embedded network will no longer arise under the Commission's recommended framework.

Under the new exemption framework, new embedded networks which are being established to connect an embedded generator (for on-market energy generation equipment 5MW or larger) will no longer qualify for a network exemption generally, as a result of the formerly exempt network service provider now being required to register as an ENSP,²²⁸ and due to the exemptions framework being streamlined. As the embedded network will not meet the exemption criteria, the embedded network will need to be registered with AEMO as an ENSP and the NER will apply.

However, the Commission has not made any recommendations on how to apply performance standards to registered participants under the NER as part of this draft report. Further consideration needs to be given to how the relevant performance standards should apply to ensure plant connected to ENSPs' distribution networks will have agreed access standards that apply as performance standards.²²⁹

A complexity that will need to be considered is that there are multiple parties that must be involved including AEMO, the DNSP, the ENSP and the registered participant.

The Commission is keen to receive feedback on these issues and will be consulting further with stakeholders, including AEMO before preparing the final report.

228 Clauses of Chapter 5 of the NER, including clauses 5.3.4A, 5.3.4B, 5.7.3.

229 Refer to Chapter 3 with regard to authorisation and exemption framework for ENSPs and retailers, which no longer permits network exemptions NR01 and NRO2.

7 UPDATING CONSUMER PROTECTIONS IN THE NERL AND NERR

7.1 Introduction

The 2017 Review found that customers in embedded networks received a lesser level of consumer protections under the network and retail exemptions framework, compared to customers with standard supply arrangements.²³⁰ The Commission recommended applying NERL and NERR provisions to embedded network customers by requiring that they be supplied by an authorised retailer (either a NEM retailer or off-market retailer). For example, the Commission recommended aligning the life support rules for customers in embedded networks with those for standard supply customers, and aligning the de-energisation and re-energisation rules with those for standard supply customers.²³¹

The approach proposed in the 2017 Review was to elevate embedded networks into the national framework and to provide customers in new embedded networks with greater access to retail market competition and equivalent consumer protections to standard supply customers. The Commission considered this would provide the following benefits to customers in embedded networks:

- continued benefit from greater innovation and choice in products and services from embedded networks in competition with NEM retailers
- off-market retailers would be incentivised to pass on savings from innovation and efficiencies to customers or risk losing customers to NEM retailers
- improved consumer protections and access to dispute resolution
- protections under the NERR relating to life support, disconnection and explicit informed consent
- coverage of existing provisions in the NER and NERR that promote transparency and information provision, for example increased access to information on their electricity consumption
- protections under the NER relating to the confidentiality of data, including metering data and NMI standing data.²³²

Under the recommended framework, customers in new embedded networks (excluding exempt embedded networks) will be retail customers, supplied by either a NEM retailer or off-market retailer working with a registered ENSP.²³³ This enables consumer protections for embedded network customers to be closely aligned with those of standard supply customers.

The framework proposed in the current review extends almost all the consumer protections under the NERL and NERR to customers in new embedded networks, with minor

²³⁰ This is discussed further in chapters 2 and 3 of the draft report.

²³¹ AEMC, *Review into the regulatory arrangements in embedded networks*, final report, 28 November 2017, p. ix.

²³² AEMC, *Review into the regulatory arrangements in embedded networks*, final report, 28 November 2017, p. 65.

²³³ Chapter 3 discusses the recommended framework in further detail.

amendments required to accommodate the multiple parties and broader relationships present in embedded networks.

7.1.1 The National Energy Customer Framework

The NECF is a suite of legal instruments that regulate the sale and supply of electricity and gas to customers, and harmonises most energy consumer protections across participating states and territories.

The main legal instruments of the NECF are the NERL, the National Energy Retail Regulations (Regulations) and the NERR.

The NECF:²³⁴

- establishes the consumer protections and obligations regarding the sale and supply of electricity and natural gas to consumers, with a particular focus on residential and small customers
- defines the rights, obligations and protections relating to the relationship between customers, energy retailers and energy distributors
- complements and operates alongside the generic consumer protections in the ACL²³⁵ and state and territory safety and concession regimes.

The types of consumer protections provided under the NECF can be grouped under a number of themes:

- Energy as an 'essential service': for example the right to access energy services, the ability to enter into a retail contract to energise the connection and obligations towards life support customers
- Empowering consumers: for example, NEM retailers and DNSPs must inform consumers of the risks and their rights in the context of the competitive retail market, including through: informed consent requirements, requiring businesses to have dispute resolution procedures and mandating access to free and independent dispute resolution schemes
- Minimum standards: for example, obligations relating to the pre-contractual duties of NEM retailers
- Billing, tariffs and payment: for example, minimum requirements regarding the contents of bills, notification requirements on tariffs and charges applicable to consumers of NEM retailers, obligations in relation to overcharging and undercharging and payment methods
- Vulnerable customers: for example, NEM retailers must have hardship policies and payment plans.

234 The NECF currently applies, with jurisdictional specific amendments, in Queensland, New South Wales, South Australia, Tasmania and the Australian Capital Territory. The NECF only applies in a limited manner in Victoria.

235 The ACL offers protections for consumers in the areas of consumer rights when buying goods and services, product safety, unsolicited consumer agreements including direct marketing, unfair contract terms, and enforcement remedies, among others. The ACL prohibits misleading, deceptive and unconscionable conduct.

7.1.2 Structure of this chapter

This chapter sets out the current arrangements, analysis and recommendations, and the recommended amendments to the NERL and detailed amendments to the NERR that the Commission considers are required to implement its recommendations to elevate embedded network customers into the NECF. The recommended framework extends most of the consumer protections under the NECF to new embedded networks, while accommodating the roles and relationships particular to such networks.

Section 7.2 sets out the concepts underpinning the recommended framework.

The following key areas are set out in more detail as they require changes to existing obligations in order to appropriately extend the operation of the NECF to embedded networks:

- Notification of planned supply interruptions (section 7.3)
- Life support equipment (section 7.4)
- RoLR (section 7.5).

Other amendments to the consumer protections in the NERL and NERR that the Commission is recommending for embedded networks are detailed in section 7.6.

7.2 Extending the NERL and NERR to new embedded networks

7.2.1 Introduction

The Commission's recommendation in the 2017 Review was to elevate new embedded networks into the national framework, and provide appropriate consumer protections to customers within embedded networks.

In the course of the current review, the Commission has analysed the obligations under the NERL and the NERR. The Commission considers that the overwhelming majority of the obligations contained within the NERL and NERR should apply to ENSPs and retailers (whether NEM retailers or off-market retailers) at child connection points in new embedded networks.

Most obligations within the NERL and NERR will apply to customers within embedded networks if the recommended framework discussed in chapter 3 to register ENSPs and authorise off-market retailers is applied. However, there are a number of concepts within the NECF that raise consumer protection issues for embedded network customers due to the nature of embedded networks. These concepts require further consideration to determine the impacts on customers in embedded networks, and any additional obligations that may be required to facilitate the extension of consumer protections under the NECF to customers in embedded networks.

These concepts are discussed further in this section and are:

- designated retailer
- shared customer
- tripartite relationship.

In order to extend the NECF to new embedded networks, and particularly to extend the three above concepts to embedded network customers, amendments will be required to the obligations relating to notification of planned interruptions, life support equipment and RoLR. These amendments will facilitate the flow of information and reflect the more complex relationships within an embedded network compared to standard supply arrangements. Notification of planned interruptions, life support equipment, RoLR obligations and other smaller amendments are discussed in more detail later in the chapter.

Excluding the differences to particular obligations highlighted in this chapter, all other obligations in the NERL and NERR would apply to ENSPs and retailers (both NEM retailers and off-market retailers) in new embedded networks under the recommended framework.

7.2.2 Current arrangements

Designated retailer

The concept of a designated retailer underpins the NEM retailer - customer relationship for standard supply customers. Section 2 of the NERL defines a designated retailer as either the financially responsible retailer (for existing connections) or, where there is no existing connection, the local area retailer.

The consumer protections built into the standing offer do not currently extend to embedded network customers. Under the NERL a retailer must make an offer to a small customer for the sale of energy in accordance with the retailer's standing offer where the retailer is the designated retailer of the premises. The standing offer is for retail services at the retailer's standing offer prices under the retailer's standard retail contract.²³⁶ As a 'connection' for the purpose of the NERL currently only relates to regulated distribution systems, there is no recognised designated retailer for embedded network customers. Further, s. 22(5) of the NERL states that a designated retailer is not obliged to make a standing offer to a small customer if the customer's premises are not connected to a distributor's distribution system (which currently does not cover embedded networks). The absence of a standing offer means there is no obligation that guarantees supply to an embedded network customer by any party.

This gap is currently addressed by the AER through its Retail Exemption Guideline. The AER requires a core condition that imposes an obligation to supply on an exempt seller, with the exempt seller required to sell energy to a customer who meets the criteria for the relevant exemption class unless the customer's premises have been disconnected for a reason other than failure to pay a bill. If the matter leading to the disconnection has been rectified, the exempt seller must reconnect the premises and offer to sell energy to the customer.²³⁷

Shared customer

The NERL and NERR impose a range of obligations on NEM retailers and DNSPs on the basis that they 'share a customer'. This shared customer concept is a key feature of the retailer-

²³⁶ Sections 22(1), 26, 27 of the NERL.

²³⁷ AER, (*Retail Exempt Selling Guideline*, version 5, March 2018, Condition 1.

distributor-customer tripartite relationship that underpins much of the NERL and NERR. The nature of the electricity sale and supply relationship is such that it is not always appropriate that the obligation should be with a single party, and instead the obligations need to be shared.

Shared obligations ensure that the NEM retailer and DNSP are required to work together in the delivery of electricity, and to resolve customer issues and complaints thereby avoiding regulatory gaps in the delivery of electricity services. The NERR contain provisions requiring both NEM retailers and DNSPs to ensure that the customer does not suffer as a result of the delineation of responsibilities.

There are a number of consumer protections that the shared customer concept relates to:

- obligation on NEM retailers and distributors to give reasonable assistance to each other in relation to shared customers (rule 94 NERR)
- obligation on NEM retailers and distributors to share information regarding shared customers (rule 95 NERR)
- obligation to provide contact details to each other (rule 97 NERR)
- establishment of respective hotline numbers for customers (rule 98 NERR)
- information on planned and unplanned interruptions (rules 99 – 100 NERR)
- mutual obligations with respect to complaints and enquiries (rules 101 – 102 NERR)
- de-energisation and re-energisation of shared customer's premises (rules 103 – 106A NERR)
- billing and payment rules under Chapter 6B of the NER.

Chapter 6B of the NER contains the DNSP and NEM retailer obligations in relation to network charges of shared customers as well as when direct customer billing and electricity-only contracts are permitted. The equivalent is missing and arguably fundamental in the embedded network context. Chapter 6B of the NER is discussed in chapter 6 of this draft report.

The provisions in the NERR requiring both NEM retailers and DNSPs to ensure that the customer does not suffer as a result of the delineation of responsibilities do not currently cover exempt network service providers and NEM retailers or exempt sellers.

There is no equivalent shared customer concept in the NERL or NERR to cover NEM retailers or off-market retailers, DNSPs and exempt network service providers. The effect is that complaints and disputes may not be efficiently resolved and the consumer protections of customers in embedded networks do not align with the consumer protections afforded to standard supply customers.

Tripartite relationship

The NERL and NERR contemplate a tripartite relationship between a customer, the NEM retailer and the DNSP. There is currently no flexibility in this tripartite relationship to incorporate exempt network service providers and exempt sellers. The nature of embedded networks suggests that in some cases, it may not be appropriate to simply substitute an

exempt network service provider for a DNSP as key information and processes may not be able to be properly administered.

For the framework to operate effectively in an embedded network context the relationship needs to be extended to include obligations regarding the relationship between the ENSP, the NEM retailer or the off-market retailer at the child connection point, the NEM retailer at the parent connection point and the DNSP to ensure that all relevant parties are involved where necessary and appropriate.

Relevant NERL and NERR provisions requiring extension of the tripartite relationship include retailers and distributors' obligations in respect to the registration of premises with life support equipment, and retailers' and distributors' obligations in respect to notification of planned interruptions.

7.2.3

Analysis and recommendations

The 2017 Review recommended that embedded networks are elevated into the national framework, including the NERL and NERR, and that the ability for customers within embedded networks to access consumer protections is key. The Commission has carried out analysis on the consumer protections within the NERL and NERR, and considers that the majority of the obligations can be imposed on retailers and ENSPs (a type of distributor) within embedded networks without alteration.

To facilitate the elevation of embedded networks into the national framework, and extend the application of the relevant consumer protections, the Commission is of the view that a number of key concepts that underpin the NERL and NERR will require amendment. Amendments will need to be made to provide a designated retailer for customers in new embedded networks, extend the shared customer concept to embedded networks, and to facilitate the extension of the tripartite relationship to encompass more parties.

These three areas require amendment or extension of the current provisions to make the relevant obligations in the NERL and NERR work, most notably for notification of planned supply interruptions, life support and RoLR consumer protections.

A number of other obligations under the NERL and NERR will require minor amendments, and these are discussed in more detail in section 7.6.

Designated retailer

The consumer protections built into the standing offer do not extend to embedded networks under the NERL currently. Changes proposed to elevate embedded networks into the national framework, and extending the definition of distributor to include ENSPs, and the definition of authorised retailers to include off-market retailers, will assist in extending the concept of a designated retailer to embedded networks.

At a parent connection point of an embedded network, the designated retailer should always be a NEM retailer to enable the settlement of off-market connection points below it. For a new parent connection point that is connected directly to the DNSP's network, the designated retailer for the parent connection point, would be the local area retailer for the relevant

geographical area. For existing parent connection points where a new customer is taking responsibility for the parent connection point, the designated retailer would be the FRMP for that connection point.

Within a new embedded network, the Commission considers that there needs to be a designated retailer for new child connection points. There is currently no local area retailer for child connection points, therefore the Commission has proposed the development of a local embedded network retailer. The local embedded network retailer is a retailer nominated, with the consent of the retailer, by an ENSP to sell electricity in the embedded network it is registered as the ENSP for. Local embedded network retailers may either be a NEM retailer or an off-market retailer and will be the designated retailer within the embedded network for new connection points. Therefore, they will be obligated to sell energy to the embedded network customer at their standing offer prices under a standard retail contract.

For off-market connection points no financially responsible market participant exists as off-market retailers are not market participants. Therefore, the Commission recommends the inclusion of a defined financially responsible retailer for each embedded network customer.

For customers moving into a child connection point in an *existing* embedded network, the Commission considers that the designated retailer would be the financially responsible retailer for that connection point, with the financially responsible retailer obligated to sell energy to the customer at standing offer prices under the standard retail contract (noting that the financially responsible retailer could be a NEM retailer or an off-market retailer, depending on the registered financially responsible retailer for that connection point at the time).

Shared customer

Under the proposed framework in this draft report the shared customer concept will cover ENSPs and retailers (NEM retailers and off-market retailers) at the child connection point. ENSPs will be included in the definition of distributor, with the distributor obligations in the NERL and NERR applying to ENSPs in embedded networks. Similarly, the retailer obligations under the NERL and NERR will apply to off-market retailers at the child connection point in embedded networks.

Consequently, under the proposed framework, the shared customer obligations (including those detailed in section 8.2.2) will be extended to apply between ENSPs and retailers at the child connection point.

Further, Part 5 of the NERR, Relationship between distributors and retailers - retail support obligations, is proposed to be extended to:

- off-market retailers and ENSPs, and
- an exempt ENSP and an exempt seller where they have a shared customer, where the exempt ENSP is required to comply as a condition of its network exemption.

Tripartite relationship

Changes proposed to the definition of distributor and retailer in the NEL and NERL will result in the tripartite relationship contemplated in the NERL and NERR between a customer, the retailer and the distributor encompassing ENSPs and retailers at the child connection point within embedded networks. In this case, the distributor will be the ENSP and the retailer will be the retailer at the child connection point.

In many cases, the substitution of an ENSP for a distributor will be appropriate. Similarly, for many obligations it is appropriate for the retailer at the child connection point to be required to simply perform the retailer functions. However, in some areas the relationship needs to be extended to include obligations on the ENSP, the LNSP, the retailer at the parent connection point, and the retailer at the child connection point. Relevant provisions where this is the case include:

- detailed obligations and requirements for both retailers and distributors in the disconnection and re-energisation of small customers (NERR Part 6)
- retailers' and distributors' obligations in respect to the registration of premises with life support equipment (NERR Part 7)
- allocation of roles and responsibilities for RoLR functions (NERL Part 6)
- detailed obligations and requirements for both retailer and distributors in relation to the notification of planned outages (NERR Part 2 and Part 4).

The Commission's analysis and recommendations for these provisions are discussed in more detail in sections 7.3-7.6 of this draft report.

7.2.4

Law and rules implementation

The proposed changes in the NERL include amending the definition of 'shared customer' to include customers of a retailer and an exempt network operator. An amendment to the definition of 'distributor' and 'retailer' will mean customers of embedded network service providers and retailers (both off-market retailers and NEM retailers) will also be 'shared customers' under the NERL. Retailers will also be required to obtain explicit informed consent from small customers when they transfer from exempt sellers.²³⁸

The proposed change to the definition of 'designated retailer' will deem the local embedded network retailer for an embedded network, the designated retailer for new small customers seeking a connection to the corresponding embedded network (customers connecting to child connection points within the embedded network). The 'local embedded network retailer' in turn is to be the registered retailer for an embedded network as proposed and registered with AEMO by the ENSP as part of its registration process under changes to Chapter 2 of the NER. Similarly, proposed amendments to part (b) of the definition of 'designated retailer' and the definition of 'financially responsible retailer' for a connection to premises will enable the previous retailer (whether it is a NEM retailer or off-market retailer) to be the designated retailer for a pre-existing connection point.

²³⁸ Proposed amendment to s. 38(a) of the NERL.

A summary of proposed law and rule changes relating to disconnection and re-energisation, life-support, RoLR and planned outages is detailed below.

7.3

Notification of planned interruptions in new embedded networks

7.3.1

Introduction

Planned interruptions to power supply are carried out by both distributors and retailers from time to time. Distributors may plan interruptions to supply to maintain or replace aging or faulty components on their network, or to increase network capacity, among other reasons. Retailers may plan interruptions to supply for the purpose of maintaining or replacing the electricity meter.

For standard supply customers, if there is either a DNSP or NEM retailer interruption to electricity supply planned, the party that has planned the interruption to supply has obligations to provide advanced notification to the customers affected by the planned interruption to supply, including details of the planned interruption and a 24-hour phone number for enquiries.

Customers in embedded networks are affected by interruptions to supply, both within the embedded network, and also by interruptions to the power supply at the parent connection point carried out by the DNSP and the NEM retailer at the parent connection point. It is important that information regarding planned outages on the DNSP network connected to the embedded network, or at the parent connection point for the embedded network is provided to the affected customers in the embedded network.

This section sets out:

- the current notification of planned interruptions arrangements for standard supply customers under Part 2 and Part 4 of the NERR and embedded customers under the AER's Retail Exemption Guideline
- analysis and recommendations on extending the notification of planned interruptions arrangement to new embedded networks
- details on how to implement these recommendations in the energy laws and rules.

The recommendations in this section do not apply to legacy (currently existing) embedded networks.

7.3.2

Current arrangements

Current arrangements in the NEM

Notification of planned interruption obligations are in a number of sections in the NERR, with both NEM retailers and DNSPs required to comply with obligations in regard to planned interruptions.

Retailer interruptions to supply

Part 2, Division 9A in the NERR details a NEM retailer's obligation in relation to a retailer planned interruption of supply. A retailer planned interruption is an interruption of the supply

of electricity to the customer that is for the purposes of installing, maintaining, repairing or replacing an electricity meter. It does not include distributor planned interruptions (see below) or interruptions to the supply of electricity to a customer who is not the customer of the retailer arranging the interruption.²³⁹

For both standard retail and market retail customers, if the NEM retailer arranges for a planned interruption, the NEM retailer must notify each affected customer by any appropriate means of the planned interruption at least 4 business days before the date of the interruption.²⁴⁰ The notification must include the details of the interruption including the date, time and duration of the planned interruption, and include a 24-hour telephone number for enquiries, which costs no more than a local call.²⁴¹

In addition to notifying customers, NEM retailers also have obligations under rule 99A of the NERR to notify the DNSP of NEM retailer planned interruptions, and provide the DNSP with the same information that it has provided to affected customers, within the same timeframes. If contacted by a customer about a NEM retailer's planned interruption the DNSP must provide the contact details for the NEM retailer, or provide the customer with the information provided by the NEM retailer if the customer does not wish to contact the NEM retailer.²⁴²

The key parts of these obligations are civil penalty provisions.

Distributor interruptions to supply

Part 4, Division 6 in the NERR details a DNSP's obligations in relation to a distributor planned interruption of supply. A distributor planned interruption is an interruption to the supply of electricity that is for the planned maintenance, repair or augmentation of the transmission or distribution system, or for the installation of a new connection or connection alteration. It excludes retailer planned interruptions. The provisions on distributor planned interruptions apply to its customers with deemed standard connection contracts; therefore they currently exclude embedded network customers.²⁴³

If the DNSP arranges for a planned interruption, the DNSP must notify each affected customer (excluding customers without deemed standard connection contracts) by any appropriate means of the planned interruption at least 4 business days before the date of the

239 Proposed amendment to rule 59B of the NERR provides that a retailer planned interruption will be permitted if the retailer's customer is at the parent connection point of an embedded network, even if embedded network customers are on-market.

240 In the Commission's final rule determination for Metering installation timeframes on 6 December 2018, the Commission made a rule to provide retailers with the flexibility to conduct planned interruptions at shorter notice, as long as the customer explicitly consents. The customer and retailer will be able to agree either a date range of five business days or a specific date for a planned interruption to occur. If the retailer and the customer do not reach agreement (e.g. if the retailer is unable to contact the customer), the retailer will need to provide a minimum of four business days' notice. This rule commences on 1 February 2019. The implications of this rule change for embedded network customers will be analysed in more detail in the final report for this review.

241 Rule 59C of the NERR.

242 Rule 99A of the NERR.

243 Rules 77, 88 of the NERR.

interruption.²⁴⁴ The notification must include the details of the interruption including the date, time and duration of the planned interruption, and include a 24-hour telephone number, which costs no more than a local call.²⁴⁵

In addition to notifying customers, DNSPs also have obligations under rule 99 to notify the NEM retailer of DNSP planned interruptions, and provide the NEM retailer with the same information that it has provided to affected customers, within the same timeframes. If contacted by a customer about a DNSP's planned interruption the NEM retailer must provide the contact details for the DNSP, or provide the customer with the information provided by the DNSP if the customer does not wish to contact the DNSP.²⁴⁶

The key parts of these obligations are civil penalty provisions.

Current arrangements for planned interruptions within embedded networks

Condition 18 of the AER's Retail Exemption Guideline places obligations on the exempt seller in relation to planned interruptions. Under Condition 18, the exempt seller must notify each of its affected customers at least two business days before the date of the interruption.

The notification must include:

- the expected date, time and duration of the planned interruption
- a telephone number for enquiries (the cost of which is no more than the cost of a local call)
- a statement that any enquiries regarding the planned interruptions are to be directed to the exempt seller. The exempt seller must also use its best endeavours to restore the customer's supply as soon as possible.²⁴⁷

There are no conditions in the AER's Network Exemption Guideline that relate to planned interruptions of supply.²⁴⁸

7.3.3

Analysis and recommendations

Notifications of planned supply interruptions are important consumer protections. Customers require notification of planned interruptions to enable them to make alternative arrangements for the period of the interruption. This is especially vital for life support customers.

Notification of planned supply interruption obligations involve the shared customer concept, and are predicated on the tripartite relationship between the customer, distributor and retailer. For planned interruptions within the embedded network planned by the ENSP or the

244 In the Commission's final rule determination for Metering installation timeframes on 6 December 2018, the Commission made a rule to provide DNSPs with the flexibility to conduct planned interruptions at shorter notice, as long as the customer explicitly consents. The customer and retailer will be able to agree either a date range of five business days or a specific date for a planned interruption to occur. If the DNSP and the customer do not reach agreement (e.g. the DNSP is unable to contact the customer), the DNSP will need to provide a minimum of four business days' notice. This rule commences on 1 February 2019. The implications of this rule change for embedded network customers will be analysed in more detail in the final report for this review.

245 Rule 90 of the NERR.

246 Rule 99 of the NERR.

247 AER, *(Retail) Exempt Selling Guideline*, version 5, March 2018, Condition 18.

248 AER, *Electricity Network Service Provider — Registration Exemption Guideline*, version 6, March 2018.

retailer at the child connection point, the current obligations in the NERR would provide the same customer protections as for standard supply customers once embedded networks are elevated into the national framework.

However, information flows regarding planned interruptions by the DNSP, or ENSP in an upstream interconnected embedded network, or a NEM retailer at a parent connection point are either not provided for or not appropriate under the current rules.

- The DNSP to whose network the embedded network is connected has an obligation to inform the NEM retailer at the parent connection point of a planned outage as well as the customer at the parent connection point, but there is currently no information requirement for customers at child connection points in the embedded network
- The NEM retailer at the parent connection point is not able to undertake a retailer planned interruption at the parent connection point, because the interruption would affect customers at all child connection points in that embedded network, and those customers are likely to have different retailers (this restriction would not apply if the retailer at the parent connection point is also the retailer at all the child connection points) .

The Commission recommends that further obligations relating to planned embedded network interruptions are included in the rules. This would include the inclusion of 'embedded network interruptions' which are interruptions within an embedded network, which are caused by supply interruptions outside of the embedded network. That is, interruptions as a result of a distributor planned interruption on the DNSP's network to which that embedded network is connected, or on an upstream embedded network to which the embedded network is connected (pancaking), or as a result of a retailer planned interruption at a parent connection point.

If the ENSP receives notification of a distributor planned interruption or a retailer planned interruption at the parent connection point, that will interrupt the supply of electricity to the embedded network, the Commission considers that the ENSP should have an obligation to notify each affected customer on its embedded network as soon as practicable after receipt of notification of the interruption. Further, the Commission is of the view that ENSPs must provide this notification within one business day of receipt of notification of the interruption. The Commission considers this will provide adequate time for the ENSP to prepare notifications and provide them to customers on its embedded network. The notifications should be in the same form as required for DNSP or NEM retailer planned interruptions, however, the contact number of the notification should be that of the distributor (i.e. DNSP or ENSP) or retailer planning the interruption.²⁴⁹

Additionally, the DNSP or retailer at a parent connection point planning the interruption to supply, which will interrupt the supply of electricity to the embedded network, should be required to provide notification to the ENSP and the retailers at each affected child connection point detailing the area affected by the interruption to supply, the date, time and

²⁴⁹ The Commission will consider the implications of the *Metering installation timeframes* final rule in the next stage of this review, as it is likely not appropriate for a retailer or DNSP to obtain explicit consent from the customer at the parent connection point of an embedded network for an earlier date range or date, as the outage will impact all customers within that embedded network.

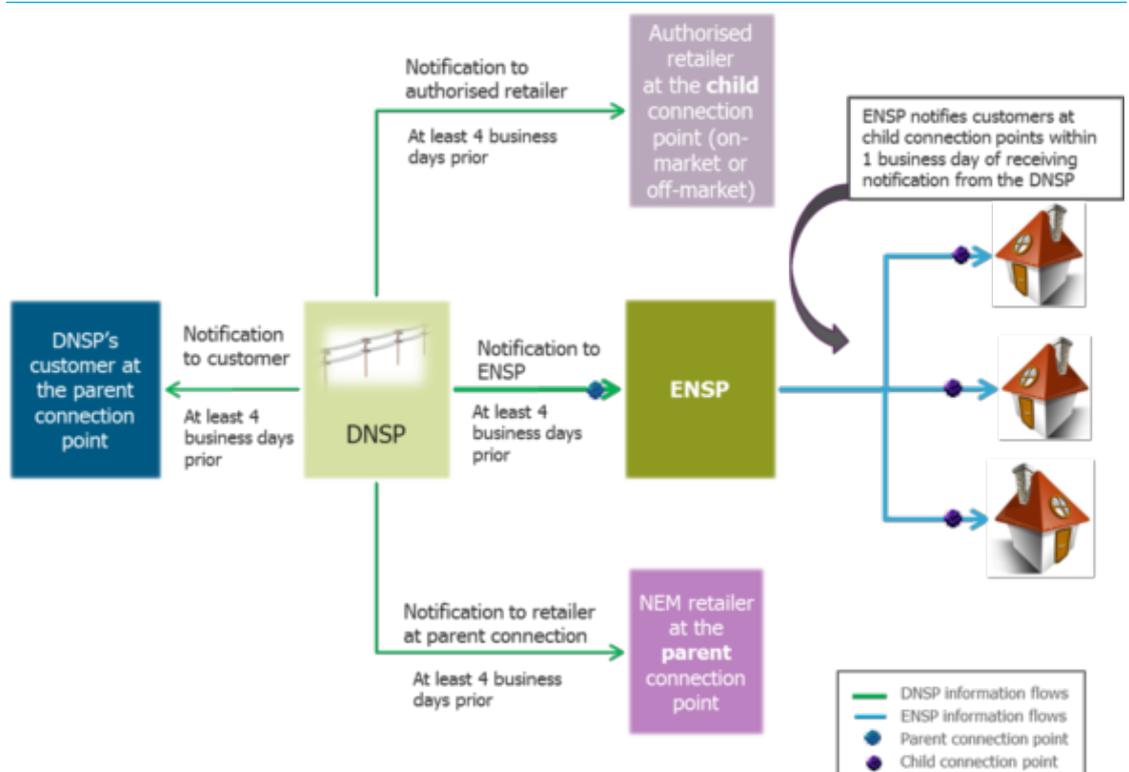
duration of the planned interruption, and contact details for more information on the planned interruption.

The information obligations of a DNSP at a parent connection point, in relation to informing ‘affected customers’ of a distributor planned interruption, should be limited to the customers of that DNSP. This restriction is required as, due to embedded network customers having deemed customer connection contracts under the new framework, the DNSP would otherwise be required to notify embedded network customers of a planned interruption. This is not appropriate as the embedded network customers are not customers of the DNSP.

Changes to the definition of ‘retailer planned interruption’ are also recommended to allow a retailer with a customer at a parent connection point to undertake a retailer planned interruption.

Figure 7.1 shows the information flows required when there is a planned embedded network interruption due to a planned interruption on the DNSP’s network.

Figure 7.1: Notification of planned embedded network interruption due to a DNSP planned interruption



Source: AEMC.

7.3.4

Law and rules implementation

Provisions in Part 5 of the NERR relating to assistance and cooperation that currently apply to retailers and distributors with shared customers are to apply to exempt embedded network service providers and retailers where they have shared customers, or where exempt ENSPs are required to comply as part of an exemption condition.²⁵⁰ This includes requiring distributors and retailers within an embedded network to provide planned interruption notices to all other distributors and financially responsible retailers within the embedded network.²⁵¹ ENSPs are to be subject to information disclosure requirements in the NERR including being required to inform a customer of a relevant distributor's contact information to field enquiries when relevant,²⁵² as well as inform distributors of an issue relating to that distributor's distribution network on receipt of an enquiry from a customer.²⁵³

Proposed amendments to the NERR include provisions regarding the notification of embedded network planned interruptions (an interruption of supply of energy at an embedded network due to a retailer planned interruption, or a distributor planned interruption at or above the parent connection point)²⁵⁴ ENSPs are proposed to be required to notify each affected customer in their network of embedded network planned interruptions as soon as practicable after receiving notice.²⁵⁵

Proposed amendment to the definition of 'retailer planned interruption' will permit a retailer with a customer at a parent connection point, but not within the embedded network, to still be able to undertake retail planned interruptions subject to the NERR interruption notification provisions.

7.4

Life support requirements in new embedded networks

7.4.1

Introduction

Life support requirements are designed to provide additional consumer protections and require retail and distribution businesses to register premises that have a person using life support equipment (for example an oxygen concentrator or kidney dialysis machine) that relies on electricity to operate.

The requirements facilitate the provision of information to parties that need to be aware of life support equipment at a premises, and impose obligations on NEM retailers and DSNPs to provide additional safeguards around de-energisation for consumers using life support equipment that rely on electricity to operate.

This section sets out:

- the current life support arrangements for standard supply customers under Part 7 of the NERR and embedded network customers under the AER's Retail Exemption Guideline

²⁵⁰ Proposed new rules 93(1A) and (3) of the NERR.

²⁵¹ Proposed new rule 99B of the NERR.

²⁵² Proposed new rule 100(3) of the NERR.

²⁵³ Proposed new rule 102A of the NERR.

²⁵⁴ Proposed new definition of 'embedded network planned interruption' in rule 88 of the NERR.

²⁵⁵ Proposed new rule 90A of the NERR, with heading 'Embedded network planned interruptions', requiring ENSPs to notify all affected customers of embedded network planned interruptions.

- analysis and recommendations on extending the life support framework to new embedded networks, and to NEM retailer customers within new exempt embedded networks
- details on how to implement these recommendations in the energy laws and rules.

7.4.2

Current arrangements

Current arrangements in the NEM

Life support obligations are contained in Part 7 of the NERR. Under Part 7, both the distributor and retailer have obligations in relation to life support equipment. These obligations require notification that a person is using life support equipment that relies on electricity at a customer's premises to be provided to both distributors and retailers through a two-way information flow. The life support rules apply to any standard or market retail contract and the key provisions are civil penalty provisions.

Current arrangements for life support customers in the NEM have been established to facilitate the communication of life support information between three parties: the customer, DNSP and the NEM retailer. Customers have a responsibility to provide confirmation from a registered medical practitioner that someone at the premises requires life support equipment. The customer can provide confirmation from a registered medical practitioner to either their DNSP or their NEM retailer.²⁵⁶

The DNSP and the NEM retailer have mirrored obligations, and are required to inform the other party of the existence of a customer requiring life support equipment at the premises and share information about the premises on their life support registers. The NEM retailer (and DNSP as well if they were the party informed by the customer of the existence of a person requiring life support at the premises) is also required to register that a person at the premises requires life support equipment, and the date from which the life support equipment is required. The customer is then mailed a medical confirmation form, along with information on registration and de-registration, general advice that there may be planned interruptions by both the NEM retailer and DNSP, and unplanned distribution interruptions, information to assist the customer prepare a plan of action in the case of an unplanned interruption and emergency contact numbers for both the NEM retailer and the DNSP.²⁵⁷

The NEM retailer and the DNSP have further obligations once the premises is confirmed as requiring life support equipment, and ongoing obligations. Ongoing obligations include maintenance of the life support registration, provision of 4 business days written notification of planned interruptions, and restrictions on de-energisation of the premises.²⁵⁸

Current arrangements in embedded networks

Life support arrangements are a core condition in the AER's Retail Exemption Guideline. This core condition applies to all embedded networks with residential customers. Life support

²⁵⁶ Rule 124 of the NERR. The description of the current arrangements in this section reflects changes to the NERR made in the *Strengthening protections for customers requiring life support equipment* rule change, which take effect on 1 February 2019.

²⁵⁷ Rule 124 of the NERR.

²⁵⁸ Rules 116(1)(a), 120(1)(a), 124-124B of the NERR.

customers are covered by Condition 20. Condition 20 imposes the obligations on the exempt seller, and reflects the more complicated arrangements for customers within embedded networks. Not only do the embedded network customer's direct distributor (i.e. the exempt network service provider), and the customer's direct retailer at the child connection point (i.e. NEM retailer or exempt seller) need to be aware of a person requiring life support equipment at the premises, but the NEM retailer at the parent connection point and the DNSP also need to be made aware of the existence of a customer requiring life support equipment at the premises.

Under Condition 20, where a customer provides an exempt seller with confirmation from a registered medical practitioner that a person residing at the premises requires life support equipment, the exempt seller must:

- Advise the exempt network service provider (if different) that a person at the premises requires life support equipment
- Advise the NEM retailer at the parent connection point and the DNSP that a person at the premises requires life support
- Provide the NEM retailer at the parent connection point and the DNSP with any relevant information about the premises for the purposes of updating their records and registers.²⁵⁹

The exempt seller must maintain records of any exempt customers who have life support equipment that depends on energy for its operation on their premises.²⁶⁰

Condition 20 means that an exempt customer has to tell their exempt seller, and the exempt seller will be responsible for informing the exempt network service provider, the NEM retailer at the parent connection point and the DNSP that the embedded network is connected to. This is key as a supply interruption on the DNSP's network or a NEM retailer interruption at the parent connection point will cause an outage on the embedded network.

Additionally, under Condition 10, an exempt person must not disconnect the exempt customer's premises where a person residing at the premises requires life support equipment that depends on energy for its operation.²⁶¹

7.4.3

Analysis and recommendations

In the 2017 Review, the Commission recommended amending the NERR to align life support rules for customers in embedded networks with the rules for standard supply customers. The recommendation reflected the Commission's view that appropriate information sharing regarding life support customers is crucial, and that life support customers in embedded networks should have similar protections to standard supply life support customers.²⁶²

²⁵⁹ AER, *(Retail) Exempt Selling Guideline*, Version 5, March 2018, Condition 20.1(a)-(c), p. 43.

²⁶⁰ AER, *(Retail) Exempt Selling Guideline*, Version 5, March 2018, Condition 20.2, p. 43.

²⁶¹ AER, *(Retail) Exempt Selling Guideline*, Version 5, March 2018, Condition 10.1(a), p. 39.

²⁶² AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017, p. 151.

Further, it was noted in the 2017 Review that changes to extend the tripartite relationship to cover and provide roles for ENSPs would be required in order to provide those similar protections.

The Commission remains of the view that the life support rules for customers in embedded networks should be aligned with Part 7 of the NERR, as this is important for customers who have a person using life support equipment that relies on electricity at the premises. Further, the Commission remains of the view that changes are required to extend the tripartite relationship to cover the ENSP, and additionally the NEM retailer at the parent connection point.

Current rules in Part 7 of the NERR are designed based on the precondition that a tripartite relationship exists between the customer, DNSP and NEM retailer. Aligning the rules to place equivalent obligations on the ENSP and the retailer (NEM retailer or off-market retailer) at the child connection point would simply place the obligations that would fall on a DNSP in a standard supply situation onto the ENSP and the retailer obligations that would fall on a NEM retailer onto the retailer at the child connection point only.

To ensure that all relevant parties are aware of the existence of a person using life support equipment that relies on electricity at a child connection point within the embedded network, the information exchange and other obligations required between the parties need to extend to cover the DNSP at the parent connection point, and the NEM retailer at the parent connection point.

The Commission considers that the customer should be required to inform either the retailer at the child connection point, or the ENSP, that a person at the premises is using life support equipment that relies on electricity to operate, and provide confirmation from a registered medical practitioner. The current obligations in Part 7 of the NERR in relation to information provision to the customer, and information provision to the DNSP and NEM retailer should apply, i.e they are required to inform the other party of the existence of a customer requiring life support equipment at the premises, the customer must be mailed a medical confirmation form along with information on planned interruptions, information to assist the customer prepare a plan of action in the case of an unplanned interruptions, and emergency contact numbers for both the retailer at the child connection point (NEM retailer or off-market retailer) and the ENSP.

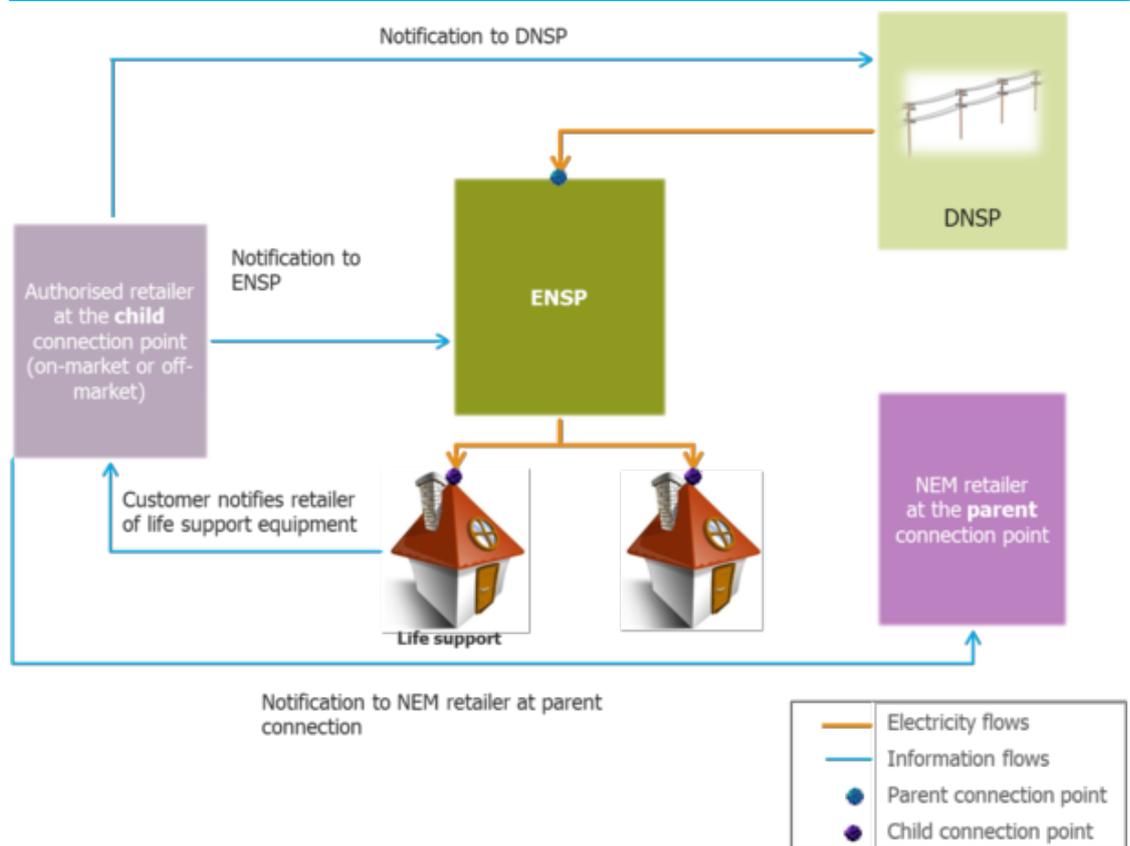
In addition to the current obligations in Part 7 of the NERR, the Commission considers that the retailer at the child connection point, or the ENSP (whomever the customer contacts in relation to life support equipment), should be required to inform both the retailer at the parent connection point, and the DNSP whose distribution network the embedded network is connected to. It is vital that both the retailer at the parent connection point and the DNSP are aware of the existence of a person using life support equipment that requires electricity at a connection within the embedded network, so they can take appropriate precautions when planning supply interruptions, and so the DNSP is aware when responding to unplanned interruptions.

Although the Commission is recommending in section 7.6 that disconnection of parent connection points is prohibited, the Commission also considers it is important that the DNSP

is aware of the existence of a person requiring life support equipment at a connection point within the embedded network in case they are required to de-energise the premises for the purposes of an emergency or another authorised reason.

Figure 7.2 shows the proposed flow of information within an embedded network where a customer has informed their retailer at the child connection point (the equivalent flow of information relating to ENSPs is noted below) that a person at the premises is using life support equipment that relies on electricity.

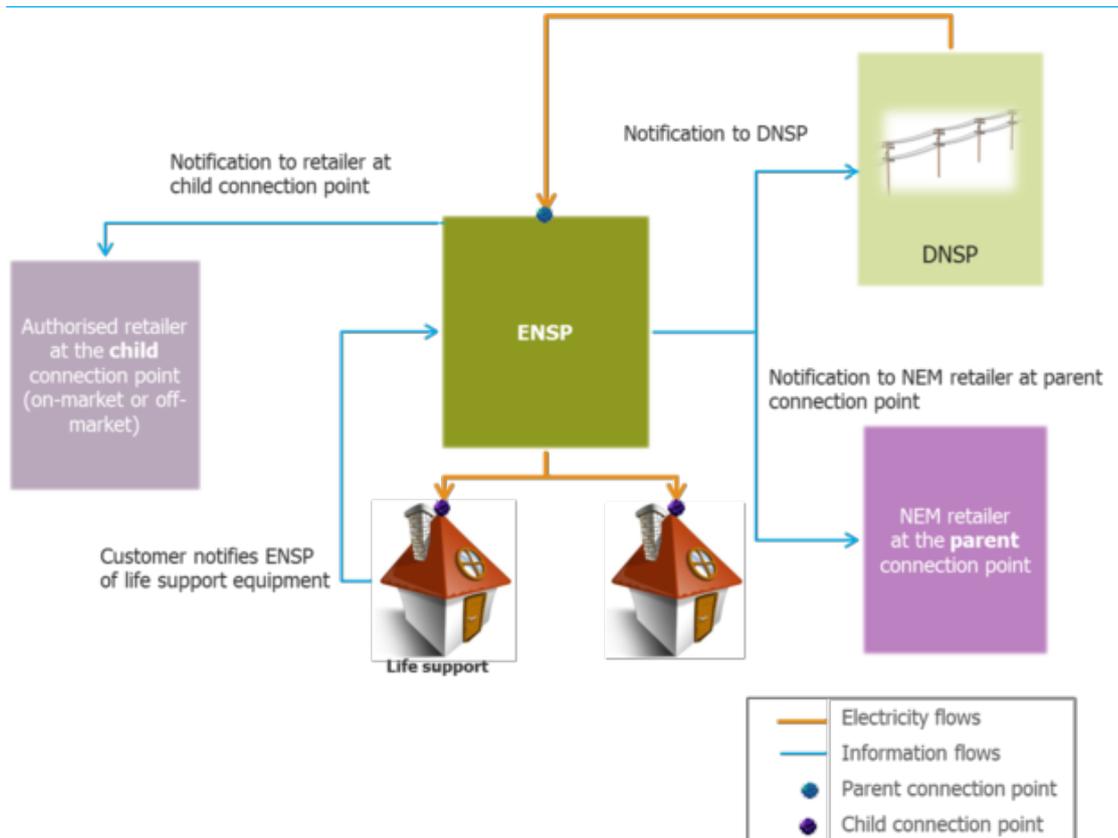
Figure 7.2: Proposed life support information flows in an embedded network – Retailer



Source: AEMC.

Figure 7.3 shows the proposed flow of information within an embedded network where a customer has informed their distributor (the ENSP) that a person at the premises is using life support equipment that relies on electricity.

Figure 7.3: Proposed life support information flows in an embedded network – ENSP



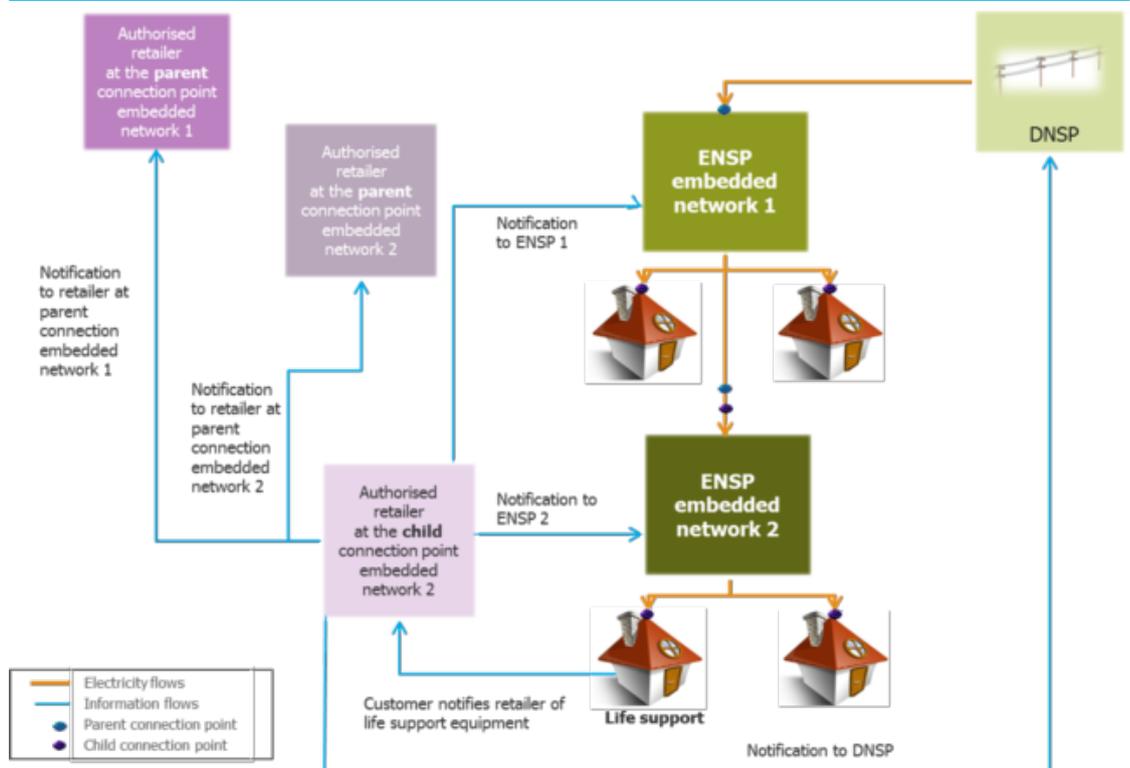
Source: AEMC.

In some cases embedded networks could be ‘pancaked’ with other embedded networks, that is, an embedded network is not connected directly to a LNSP’s distribution or transmission network, rather it is connected to one or more embedded networks which are then connected to a LNSP’s network. If a life support customer resides within a pancaked embedded network, the Commission considers that the ENSP or retailer at the child connection point of the life support customer is required to inform the ENSP and retailer at the parent connection point for that embedded network, and each embedded network through which the embedded network is connected until the DNSP and the NEM retailer at the parent connection point that is connected to the DNSP’s network are informed.

Figure 7.4 below shows the proposed flow of information within an embedded network that is pancaked within another embedded network, and where a customer has informed their

retailer (the retailer at the child connection point in embedded network 2) that a person at the premises is using life support equipment that relies on electricity. If the customer instead informs their ENSP (i.e. the ENSP for embedded network 2) of the life support equipment, the ENSP for embedded network 2 would have the same information obligations as shown below for the life support customer’s retailer, that is to provide this information to embedded network 1 and the DNSP.

Figure 7.4: Proposed life support information flows in a pancaked embedded network



Source: AEMC.

7.4.4

Law and rules implementation

The life support provisions are proposed to be modified to require retailers and distributors (including ENSPs) when notified by a customer that a premises requires life support equipment, to:

- advise those customers that an embedded network planned interruption to supply could occur²⁶³
- notify distributors and the retailer at any parent connection point within an embedded network that there is a customer with life support equipment.²⁶⁴

²⁶³ Proposed new rules 124(1)(b) and 4(b) of the NERR.

²⁶⁴ Proposed new rules 124(1)(d) and (4)(d) of the NERR.

It is proposed that off-market retailers and distributors for life-support customers must give those customers notice of interruptions as soon as practicable after becoming aware of any proposed interruption, and in any event, within one business day of becoming aware of the proposed interruption.²⁶⁵

7.5

Retailer of last resort functions in new embedded networks

7.5.1

Introduction

The RoLR scheme under the NERL is designed to ensure that customers continue to receive electricity and/or gas supply in the event of a retailer failing (that is, being placed into administration or otherwise going out of business). The RoLR scheme protects customers by providing them with a new default retailer if their NEM retailer fails, and protects generators in the NEM by reducing their exposure to non-payment by retailers for energy they sell into the wholesale market.

Under the RoLR scheme each connection point has a default retailer appointed. If a NEM retailer fails, the affected NEM retailer customers will automatically go onto a standard contract with the default retailer for their connection point.

The AER is responsible for overseeing the RoLR scheme, with the AER required to publish RoLR guidelines and the RoLR plan, appoint default RoLRs, maintain and publish a register of RoLRs, appoint a designated RoLR following a RoLR event and make RoLR cost recovery scheme determinations. The RoLR plan sets out the procedures to be followed by participants in a RoLR event, including communication with the customers of the failed NEM retailer.

There is no equivalent scheme to the RoLR scheme in embedded networks. Embedded network customers have no default or designated retailer assigned to their connection point if the exempt seller fails.

This section sets out:

- the current RoLR arrangements for standard supply customers under Part 6 of the NERL and for embedded network customers under the AER's Retail Exemption Guideline
- analysis and recommendations on extending the RoLR arrangement to new embedded networks
- details on how to implement these recommendations in the energy laws and rules.

The recommendations in this section do not apply to legacy embedded networks.

7.5.2

Current arrangements

Current arrangements in the NEM

The RoLR scheme is established under Part 6 of the NERL. This part:

- provides for the registration of RoLRs, including detailing the criteria for RoLRs, the expression of interest process and appointment and registration of default RoLRs

²⁶⁵ Proposed new rules 124B(1)(f) and (2)(a)(v) of the NERL.

- details contingency events, including the AER’s powers under such an event
- covers the designation of a RoLR for a RoLR event, and the development of the RoLR Guidelines and RoLR Plan by the AER
- provides obligations, roles and responsibilities on the declaration of a RoLR event
- details the arrangements for the sales of energy for transferred customers, and the cost recovery schemes for designated RoLRs
- details the information requirements for in connection with a RoLR event.

Under the NERL, if a RoLR event occurs, the customers of the failed retailer become customers of the retailer appointed by the AER as the ‘designated RoLR’. The contractual arrangements for small customers and the relevant designated RoLR are the terms and conditions of the designated RoLR’s standard retail contract.²⁶⁶ The prices that are applicable are the relevant designated RoLR’s standing offer prices.²⁶⁷ That is, the current RoLR arrangements are premised on the basis of the standard retail contract and standing offer framework set out in the NERL.

The designated RoLR has responsibilities to contact the customers of the failed NEM retailer after a RoLR event to inform the NEM retailer customers about what has happened, and the options available to the customer. If the customer remains with the designated RoLR on a deemed arrangement for more than 3 months after the date of transfer, a standard retail contract is taken to have been formed between the small customer and the designated retailer. After that period of 3 months the customer and the designated RoLR can seek to negotiate a market retail contract.²⁶⁸

Current arrangements in embedded networks

The AER is required to appoint and register a default RoLR for each connection point (in the case of electricity), including child connection points for which a NEM retailer is financially responsible.²⁶⁹ This means that embedded network customers that are supplied by a NEM retailer at a child connection point (i.e. NEM retailer customers) are protected by the RoLR scheme. However, embedded network customers that are supplied by an exempt seller are not currently protected by the RoLR scheme.

There are no equivalent RoLR provisions for off-market customers in embedded networks. In embedded networks the retailer may be the same party as the exempt network service provider, so if the retailer fails, the exempt network service provider may fail at the same time.

Although there is no RoLR protection for off-market customers within embedded networks, under Condition 21 of the AER’s Retail Exemption Guideline the exempt person (retailer) must notify its customers and the AER immediately if exempt customers are disconnected (or they

²⁶⁶ Section 145(3) of the NERL.

²⁶⁷ Section 145(4) of the NERL.

²⁶⁸ Section 147 of the NERL.

²⁶⁹ Section 125(1)(a) of the NERL, NER Chapter 10 definitions of ‘connection point’ and ‘child connection point’.

expect to be disconnected), or there is any likelihood they would be unable to continue selling energy.²⁷⁰

This condition provides notification to customers and the AER, however, it does not provide customers with the protection of a default retailer to continue the customer's energy supply.

7.5.3

Analysis and recommendations

The 2017 Review recommended that RoLR protections are appropriate for NEM retailer customers in embedded networks as they are similar to other standard supply customers in the NEM. In the Review it was noted that there may be some difficulty for the designated RoLR to provide a standard retail offer to a NEM retailer customer in an embedded network, however, the Commission's recommendations on network tariffs paid to ENSPs were thought to assist in resolving this issue.²⁷¹

At the time of the 2017 Review the Commission held the view that a RoLR scheme would be less effective for customers being supplied by an exempt seller in embedded networks, as the exempt seller may also be the ENSP and a designated RoLR would likely not be able to take on the ENSP's functions. Additionally, the Commission saw the RoLR scheme's purpose as two-fold. As well as protecting customers when their NEM retailer fails, the scheme is designed to reduce the exposure of generators who sell in the wholesale market to non-payment by NEM retailers. As off-market retailers do not participate in the wholesale market, a RoLR scheme for the purpose of reducing a generator's risks of non-payment is not required.²⁷²

The Commission has given further consideration to these issues in light of other aspects of the draft recommendations in this report that may make it easier to implement a simplified form of RoLR arrangements for off-market customers, and the benefits to customers of such arrangements.

Under the framework for embedded networks proposed in the current review, all child connection points in a new embedded network would be required to have a NMI and be discoverable in MSATS. The new framework also provides for separation of the ENSP role and the off-market retailer role (in practice this function still may be performed by the same party in some embedded networks).²⁷³

The Commission considers there are three embedded network RoLR scenarios that could occur relating to different types of retailers failing:

1. Failure of the NEM retailer at the parent connection point
2. Failure of a NEM retailer at an on-market child connection point within an embedded network

²⁷⁰ AER, *(Retail) Exempt Selling Guideline*, version 5, March 2018, Condition 21.

²⁷¹ AEMC, *Review of the regulatory arrangements for embedded networks*, final report, 28 November 2017, p. 152.

²⁷² AEMC, *Review of the regulatory arrangements for embedded networks*, final report, 28 November 2018, p. 137.

²⁷³ See section 3.3.3 and Appendix A for details on the proposed obligations of a ENSP and the embedded network owner.

3. Failure of an off-market retailer at an off-market child connection point within an embedded network.

Each of these scenarios is discussed in more detail in Box 12.

BOX 12: ROLR SCENARIOS RELATING TO EMBEDDED NETWORKS

Scenario 1: the NEM retailer at the parent connection point fails.

In this scenario, the Commission considers that the standard RoLR provisions in the NERL already apply. The designated RoLR for that failed NEM retailer would become the default retailer for the customer at the parent connection point.

Scenario 2: a NEM retailer supplying electricity to one or more on-market customers at child connection points in the embedded network fails.

As in scenario 1, the Commission considers that the standard RoLR provisions in the NERL already apply. The designated RoLR for that failed NEM retailer would become the default retailer for all child connection points supplied by the failed NEM retailer.

Scenario 3: an off-market retailer supplying electricity to one or more off-market customers at child connection points within the embedded network fails.

In the third scenario, as the retailer is off-market there would be no designated retailer for the child connection point under the current RoLR provisions in the NERL. The Commission considers that, the NERL should be amended so that the RoLR scheme applies by making the retailer at the parent connection point become the designated retailer for all off-market child connection points.

The NEM retailer at the parent connection point is the retailer participating in the wholesale market, buying the energy that the off-market retailer is on-supplying to customers at the child connection point. If the off-market retailer fails, the NEM retailer at the parent connection point risks not being paid for the energy it has supplied to the off-market retailer. Designating the NEM retailer at the parent connection point as the designated RoLR for all off-market child connection points therefore helps to mitigate the risk of non-payment for the NEM retailer at the parent connection point. It will become the retailer for the off-market connection points, and can recover the costs of the portion of electricity used by the off-market customers directly from the off-market customers.

Source: AEMC.

In all scenarios, aside from the allocation of the registered or designated RoLR for off-market customers, the obligations under Part 6 of the NERL should apply. Therefore, the same responsibilities, contractual arrangements, terms and conditions of the designated RoLR's standard retail contract would apply in the case of a RoLR event for a standard supply customer and an embedded network customer.

The Commission considers that as the child connection point has a NMI and is discoverable in MSATS, extending the RoLR scheme to off-market customers would involve minimal

additional costs. The benefits of extending the RoLR scheme to off-market customers in embedded networks are in providing protection for the off-market customer if the off-market retailer fails, and additionally providing some protection to the NEM retailer at the parent connection point who bears the risk of not being paid if the off-market retailer (who would generally be the customer at the child connection point) fails.

To facilitate the extension of the RoLR scheme for off-market customers as recommended in scenario three, amendments to the NERL would be required. The Commission recommends amendments to the NERL to include default arrangements for a child connection point supplied by an off-market retailer. The recommended default arrangements are that the default RoLR for an off-market connection point should be the FRMP at the primary parent connection point.

The framework proposed in this chapter considers extending the RoLR scheme for the provision of retail services in new embedded networks only. In the case of ENSP failure, the owner of the embedded network will be responsible for either registering itself, or appointing an intermediary as the ENSP for the embedded network.²⁷⁴

7.5.4 Law and rules implementation

Amendments to the RoLR provisions are being proposed to apply to embedded networks specifically. These include providing that the default RoLR for an off-market connection point is the NEM retailer at the parent connection point, but where that retailer becomes a failed retailer, the default RoLR becomes the default RoLR as appointed by the AER at the parent connection point under Division 6 of the NERL.²⁷⁵ The registration requirements for RoLRs are proposed not to apply to off-market connection points.

The default RoLR in an embedded network will also be required to appoint a metering coordinator and to assume contracts with pre-existing metering coordinators as between the previous failed retailers and those off-market connection points.²⁷⁶

7.6 Other NERL and NERR protections in new embedded networks

7.6.1 Introduction

In addition to the larger amendments to the NERL and NERR set out in sections 7.2 to 7.5, there are some other amendments to the NERL and NERR required to reflect the differences between standard supply and supply via an embedded network.

These amendments relate to:

- de-energisation of a parent connection point
- the use of pre-paid meters at a parent connection point
- variations to standing offer prices.

This section sets out:

²⁷⁴ Refer to chapter 3 of this draft report.

²⁷⁵ Proposed new s. 122A of the NERL on default RoLR provisions for off-market child connection points.

²⁷⁶ Proposed amendments to s. 140 of the NERL.

- the current arrangements for standard supply customers under the NERL and NERR and embedded customers under the AER's Retail Exemption Guideline in these areas
- analysis and recommendations on the proposed changes to the NERL and NERR to facilitate the extension of NECF to new embedded networks
- details on how to implement these recommendations in the energy laws and rules.

In addition to the amendments discussed in this section there are further amendments in the NERL and NERR relating to obligations to connect, and the exemptions framework. These are analysed in separate chapters of the draft report, with the exemptions framework discussed in chapter 4 and connection and network charging framework discussed in chapter 7.

7.6.2 Current arrangements

Current arrangements in the NEM

De-energisation of a parent connection point

There are de-energisation provisions relating to standard supply customers in the NEM which place prohibitions on disconnections under certain circumstances, and detail NEM retailer and DNSP obligations before a premises can be de-energised. De-energisation, or disconnection, obligations are contained in Part 6 of the NERR.

Under the NERR, NEM retailers are only permitted to disconnect customers in specific, limited circumstances, for example where the customer has failed to pay an energy account or a security deposit, or has denied access to the meter, and the NEM retailer has complied with its obligations under Part 6. NEM retailers are prohibited from arranging for the de-energisation of a customer's premises in a number of situations including where:

- the premises are registered as having life support equipment
- there is an unresolved complaint lodged with the NEM retailer or energy ombudsman
- the customer is a hardship customer or a residential customer adhering to a payment plan, or the customer has an outstanding application for assistance
- the amount outstanding is below a threshold set by the AER, or the customer has agreed to repay the outstanding amount
- there is an extreme weather event or it is a protected period.²⁷⁷

Similarly, DNSPs can only de-energise a customer's premises in certain situations, such where the NEM retailer has informed the DNSP that it has a right to arrange for de-energisation or the customer is illegally using energy or interfering with the supply of energy. DNSPs are prohibited from de-energising a customer's premises where the premises are registered as having life support equipment, there is an unresolved complaint lodged with the DNSP or energy ombudsman or if there is an extreme weather event or it is during a protected period.²⁷⁸

²⁷⁷ Rule 116 of the NERR. Under rule 108 of the NERR a protected period is defined as a weekend or public holiday, a Friday or the day before a public holiday, a business day before 8am or after 3pm or between 20 December and 31 December in any year.

²⁷⁸ Rule 120 of the NERR.

The use of pre-paid meters

Pre-paid meter systems are meters that require the customer to pay in advance. Pre-paid meter systems are used only in jurisdictions where permitted under a local instrument of a participating jurisdiction. Under the NERL, pre-paid meter systems cannot be used to supply customers under a standard retail contract, only a market contract.²⁷⁹

If the credit on the pre-paid meter runs out (including emergency credit), the electricity supply will self-disconnect (between the hours of 10am and 3pm on a weekday only). For this reason, if there is a person using life support equipment at the premises a customer cannot be supplied via a pre-paid meter.²⁸⁰

Variations to standing agreement tariffs

Under the NERL, a NEM retailer must publish its standing offer prices on its website. If the retailer varies its standing offer prices the variation must be published on its website and in a newspaper at least 10 days before the variation commences, and the retailer must include details of the variation in the customer's next bill.²⁸¹ In addition, a NEM retailer is not allowed to vary its standing offer prices more often than once every six months.²⁸²

Current arrangements in embedded networks

De-energisation of a parent connection point

A number of conditions under the AER's Retail Exemption Guideline relate to disconnection or de-energisation of premises,²⁸³ covering the disconnection of customers at a child connection point. However, there are no conditions restricting the disconnection of child connection points which are also the parent connection for an additional ('pancaked') embedded network connected to the first embedded network.

The use of pre-paid meters

There are no conditions relating to the use of pre-paid meters in embedded networks in the AER's Retail Exemption Guideline.

Variations to energy tariffs

Frequency of tariff changes is not expressly covered in the AER's Retail Exemption Guideline. Under Condition 7.1 the exempt seller must not charge the customer tariffs higher than the standing offer price that would be charged by the designated retailer for new connections. This may mean that in some cases the tariff could only change with any changes to the standing offer price charged by the designated retailer, however, there are no restrictions on the exempt customer tariff changing more frequently, as long as it remains under the relevant standing offer price.

279 Sections 56-57 of the NERL.

280 NERL Section 59 of the NERL and Part 8 of the NERR.

281 Section 23 of the NERL.

282 Section 23(5) of the NERL. This is reflected in clause 8.2 of the model terms and conditions for standard retail contracts in NERR Schedule 1.

283 AER, *(Retail) Exempt Selling Guideline*, Version 5, March 2018, Conditions 9-10.

Under Condition 7.2 of the AER's Retail Exemption Guideline, the exempt seller must provide notice to the customer of any changes in the exempt customer tariff as soon as practicable, and no later than the exempt customer's next bill. There are no specific publication requirements, such as requiring tariff changes to be published in a newspaper.

7.6.3

Analysis and recommendations

As discussed earlier in this chapter, the Commission considers that the majority of the NERL and NERR provisions should apply to ENSPs and retailers (both NEM retailers and off-market retailers) in embedded networks. Due to the nature of embedded networks being connected to either a DNSP's network (or on occasion a TNSP's network or another embedded network), there are some additional protections the Commission considers are required either to protect customers at child connection points from actions taken at the parent connection point, or to remove an onerous obligation on an off-market retailer.

De-energisation of a parent connection point

If a parent connection point is de-energised,²⁸⁴ all customers at child connection points within the embedded network, as well as any customers in a pancaked embedded network, will also be de-energised. Without a prohibition on disconnections of customers at a parent connection point, customers at child connection points (either on-market or off-market) could pay their energy accounts to their NEM retailer or off-market retailer and still be disconnected due to the local embedded network retailer failing to pay for energy costs at the parent connection point. This is clearly an adverse outcome for those customers at child connection points and the Commission does not consider that this outcome is acceptable.

Consequently, the Commission recommends that retailers and distributors should not be allowed to disconnect parent connection points. If the local embedded network retailer fails to pay the retailer at the parent connection point (or fails to allow access to the meter, etc), the retailer at the parent connection point would be required to pursue avenues other than de-energisation to resolve the situation. This is a commercial risk that will need to be managed by retailers.

Exceptions to the prohibition on de-energisation at the parent connection point would still apply where there are health and safety reasons, an emergency warranting de-energisation, or the distributor has been required to de-energise at the direction of a relevant authority. The Commission considers that ENSPs should be able to request disconnection of the parent connection point in certain circumstances, for example in cases where there are closures of embedded network buildings to carry out extensive renovations and remodelling with no customers residing in the building. For embedded networks that have one or more embedded networks connected through the embedded network's parent connection point, the ENSP would not be able to request de-energisation unless it had the consent of the ENSP or exempt ENSP for each connected embedded network.

²⁸⁴ Note that this is distinct from a temporary interruption due to a retailer planned interruption or distribution planned interruption, as discussed above.

The use of pre-paid meters

For similar reasons to the prohibition on de-energisation of parent connection points discussed above, the Commission considers that pre-paid meters should be prohibited at parent connection points. However, it is very unlikely that any pre-payment meters are currently used at parent connection points in an embedded network.

Pre-paid meters can 'self disconnect' when the credit, including any emergency credit, runs out. Although this is a very unlikely scenario, self disconnection would subsequently disconnect all customers at child connection points, and any other embedded networks connected through the parent connection point. As for disconnection of non-payment at the parent connection point under a traditional metering arrangement, this is clearly an adverse outcome for those customers at child connection points.

Variations to standing offer prices

Currently under the NERR, if a NEM retailer varies its standing offer prices it must publish that variation both on its website and in a newspaper, as well as providing the affected customer with details of the variation in their next bill. Variations of an off-market retailer's standing offer prices will in many cases impact a much smaller number of customers than when a NEM retailer varies its standing offer prices, as they will generally only apply in that embedded network.

While the Commission considers it appropriate that off-market retailers in embedded networks publish details of any variations on their websites, and provide details of the variation in the affected customers' next bills, the Commission does not consider it would provide a proportionate benefit to require an off-market retailer to publish a variation of its standing offer prices in a newspaper. Consequently, the Commission recommends amending the NERL and the model terms and conditions for standard retail contracts in Schedule 1 of the NERR to exclude off-market retailers from the obligation to publish variations to standing offer prices in a newspaper.

Off-market retailers will be required to purchase electricity from a NEM retailer at the parent connection point, likely through a market agreement. The NEM retailer at the parent connection point may vary the prices the off-market retailer is paying more frequently than once every six months under a market agreement. Consequently, the Commission considers it would be appropriate to allow the off-market retailer to vary its tariffs more frequently than once every six months.

7.6.4

Law and rules implementation

A new provision in the NERL is recommended to explicitly prohibiting the use of a pre-payment meter system at a parent connection point.²⁸⁵

²⁸⁵ Proposed new s. 56A of the NERL.

Proposed amendments to the NERR include permitting off-market retailers to vary their standing offer prices more often than once every 6 months, and exempting them from having to publish variations of their offers in newspapers.²⁸⁶

Parent connection points are proposed not to be able to be de-energised by a retailer.²⁸⁷ It is proposed that if a distributor (whether an ENSP or ENO for an embedded network) has requested the de-energisation, and where there are multiple embedded networks within the one parent connection point, the consent of all ENSPs or ENOs within that network is required.²⁸⁸ Distributors are to re-energise premises subject to any applicable distributor service standards.²⁸⁹

286 Proposed amendment to s. 23 of the NERL, proposed amendment to rule 3D of the NERR.

287 Proposed new rule 116(1A) of the NERR.

288 Proposed new rule 120(2A) of the NERR.

289 Proposed amendment to rule 122 of the NERR.

8 OTHER ISSUES AND NEXT STEPS

This draft report discusses the Commission's analysis and policy positions primarily in relation to new embedded networks.

The report's proposals give effect to the findings and recommendations of the 2017 Review, and provide background to the proposed amendments to the NEL and NERL and recommended drafting in the NER and NERR.

In the next stage of the review and leading up to the final report's publication in May 2019, the Commission will further consider:

- which, if any, legacy embedded networks to transition to the new framework, and the framework and timeframe for doing so
- price regulation in embedded networks
- whether to develop a national framework for defining and registering gas embedded networks
- how the national frameworks for electricity embedded networks will interact with jurisdictional arrangements.

This section sets out the Commission's preliminary understanding and views on each of these issues. Stakeholders are invited to provide feedback on these issues in their submission on this report. However, the Commission will also hold themed stakeholder engagement activities during February and March to undertake additional consultation where necessary.

8.1 Legacy embedded networks

The Commission's recommended registration and authorisation framework will apply to new embedded networks, with legacy exempt network service providers and exempt sellers as at the date of implementation of the new framework, to be initially grandfathered, a matter which will be subject to consultation as part of this report.

Under the recommended framework, the owner, operator or controller of an embedded network will be required:

- to register with AEMO as an ENSP, it or have an intermediary registering on its behalf, or
- register as an exempt ENSP where eligible for an exemption according to a narrow set of factors by the AER.

Similarly, a person selling energy to an embedded network customer will be required to obtain a retailer authorisation from the AER, or as an exempt seller if it meets a narrow set of exemption factors.²⁹⁰

Notwithstanding that the updated framework applies primarily to newly established embedded networks, the proposed amendments to the NER include additional obligations on exempt network service providers in relation to the registration of off-market connection points in MSATS and network billing and payment arrangements. These amendments have

²⁹⁰ Chapter 3 sets out the recommended registration, authorisation and exemption frameworks in detail.

been proposed with the objective of improving retail market competition in embedded networks. The framework has also been designed to permit legacy exempt network service providers and exempt sellers to choose to transition to the updated framework by making it simpler to surrender an exemption.

However, given the large number of customers in legacy embedded networks, the Commission considers there may be benefits in requiring certain grandfathered exempt network service providers and exempt sellers to transition to the updated framework.

The potential process and benefits of transitioning certain other exempt network service providers and exempt sellers to the updated framework is discussed in further detail below and the Commission is keen to receive feedback from stakeholders on:

- the costs and benefits of transitioning legacy embedded networks to the new framework
- appropriate criteria for determining which legacy embedded networks should transition to the new framework
- potential impediments to legacy embedded networks transitioning to the new framework
- the appropriate timeframes for transitioning legacy embedded networks.

The Commission also notes that in relation to a specific embedded network, it may be appropriate for the exempt network service provider to transition to the new framework but not the exempt seller, or vice versa.

The Commission further intends to consider whether it would be appropriate to require existing embedded networks and on-sellers subject to deemed exemptions to register their exemptions with the AER in accordance with the new arrangements.

8.1.1

Transitioning exempt network service providers to the new framework

Given the similarities in the proposed responsibilities of the ENSP and ENM's (as exempt network service providers are required to appoint ENM's unless granted an exemption from doing so by the AER), the Commission considers that transitioning certain exempt network service providers to the new framework would streamline regulatory arrangements.

ENMs manage market interface functions in embedded networks. As of 1 December 2017:

- **some** network exemption holders must **immediately** appoint or become an ENM, for example in an embedded network with 30 or more residential customers
- **all** network exemption holders must appoint or become an ENM when a customer within an embedded network **enters into an on-market retail contract**.

In these legacy embedded networks, the Commission recommends in this report that where the AER has required an ENM to be appointed, an ENM be required to continue to perform their current role with some additional responsibilities. In line with our recommendations in the 2017 Review, the Commission has recommended these new responsibilities to improve access to competition and consumer protections for customers in legacy embedded

networks.²⁹¹ The Commission has recommended that the ENM have the following additional responsibilities:

- assigning NMIs to off-market connection points to provide visibility of embedded network customers in MSATS (which expands their previous obligation to assign NMI's only for on-market child connection points)
- performing network billing for on-market embedded network customers in accordance with the shadow network charging procedures to be developed by AEMO.²⁹²

The Commission has also recommended some obligations in relation to outage notifications and life support be placed on exempt network service providers in the NERR.²⁹³

In effect, the exempt network service provider and ENM, in combination, are required to meet a similar set of obligations as the ENSP. However, some of the main differences are that the exempt network service provider and ENM will not:

- have connection service obligations under s. 66 of the NERL and Chapter 5A of the NER
- be a registered participant under the NER and will therefore not be subject to the dispute resolution, confidentiality requirements and monitoring and reporting requirements under Chapter 8 of the NER
- exempt network service providers may be subject to different exemptions under the rules depending on the class of exempt network service provider they are (and as determined by the AER).

An alternative to expanding the ENM role would be to transition exempt network service providers that have met a 'transition trigger' to the updated framework. This trigger could be prescribed in the NER and could, for example, be something similar to the existing trigger which requires an exempt network service provider to act as or appoint an ENM if a small customer in its embedded network enters into a market retail contract.

Under this approach an embedded network owner which has already appointed an ENM or meets the transition trigger would be required to transition to the updated framework by surrendering its exemption and registering with AEMO as an ENSP. Currently, many embedded network owners, such as owners corporations, which hold network exemptions contract with accredited ENMs to perform the ENM functions. In practice, transitioning legacy embedded networks to the proposed ENSP framework would likely involve existing ENMs registering as an embedded network owner's intermediary where an embedded network owner, such as an owners corporation, chooses to contract with a third party to perform these functions.²⁹⁴

It would be open to the AER to exempt ENSPs that have transitioned to the new framework from certain obligations.

²⁹¹ Chapters 4-7 include further detail on these requirements.

²⁹² This is in the cases that customers go on-market with a NEM retailer.

²⁹³ See chapter 7 for further detail.

²⁹⁴ The intermediary arrangements are discussed in more detail in chapter 3.

The Commission considers there would be benefits to transitioning exempt networks to the updated framework. In particular:

- transitioning exempt networks would remove some of the regulatory complexity involved in regulating exempt network service providers under the exemption framework and ENMs under the NER
- where considered appropriate, connection service obligations could be applied
- the transitioned ENSPs would be subject to a stronger compliance and enforcement framework.

8.1.2 Transitioning exempt sellers to the new framework

The Commission also considers transitioning some exempt sellers over to the retailer authorisation framework would provide benefits for customers in some legacy embedded networks.

As discussed in the 2017 Review, there are a growing number of third party agents providing retailing services to embedded networks. These services can include metering, billing and call centre services. In some cases, these third parties are effectively unregulated and their breaches of exemption conditions on behalf of exempt sellers are unenforceable, while in other cases they are authorised or acting under the aegis of an authorised retailer. However, where the owner of the embedded network has selected to use an NEM retailer to provide these services, it is not always clear whether the NEM retailer is providing these services as an agent to an exempt seller, and therefore whether the exemption framework still applies.

The Commission has also recommended some obligations on exempt sellers due to the application of the shared customer concept in the NERR to embedded networks.²⁹⁵

As with network exemptions, the Commission has recommended amending the exemption framework to make it simpler for exempt sellers to surrender their exemption and choose to transition to the new framework. However, the Commission also considers that there may be benefits to *require* some exempt sellers to register as off-market retailers in the new framework.

Exempt sellers, could for example, be required to transition to the new framework where a particular trigger is met such as:

- size or type of customers in an embedded network (i.e. for residential embedded networks)
- a NEM retailer is acting as an agent on behalf of an exempt seller.

The Commission is aware there may be some impediments to transitioning some exempt sellers fully to the new framework, particularly in relation to the feasibility and cost of upgrading metering infrastructure to be NEM compliant. However, consideration could be given to whether metering infrastructure should be upgraded compulsorily within a set period of time and/or provided exemptions from some metering obligations based on:

²⁹⁵ See chapter 7 for further detail.

- the time the building was constructed and metering installations were installed
- where the configuration of an embedded network, including the physical space set aside for metering infrastructure, permits NEM compliant metering to be installed.

The Commission considers transitioning some exempt sellers over to the retailer authorisation framework would provide benefits for customers in some legacy embedded networks. In particular, transitioning exempt sellers under certain circumstances would:

- provide clarity that the retailer authorisation framework applies to exempt sellers in embedded networks
- address gaps in consumer protections with respect to protections that are provided under the NERR including vulnerable customer arrangements, restrictions on de-energisation and re-energisation, life support arrangements, information provision and RoLR arrangements
- where NEM compliant metering is installed as part of the transition, improve access to retail competition
- bring energy sellers in these embedded network under a stronger compliance and enforcement regime.

8.2 Retail price regulation

Price regulation is currently provided for customers in exempt networks through the NERR and the AER's retail exemption guideline.

The NERR specifies that where the AER determines a condition relating to prices is appropriate for exempt customers, the AER must ensure that exempt customers are charged no more than the standing offer price of the local area retailer.²⁹⁶ The retail exemption guideline makes it a core condition of selling exemptions that tariffs are not higher than this standing offer. These price conditions do not apply to customers in embedded networks supplied by a NEM retailer.

The Commission's view at the conclusion of the 2017 Review was that the standing offer price cap was appropriate as a safety net and that it would be appropriate to extend the price cap to all off-market embedded network customers in legacy and new embedded networks. As such the 2017 Review recommended that the NERR be amended to require all retailers supplying existing and new embedded network customers to charge these customers no more than the standing offer price of the local area retailer.

The Commission continues to be of the view that price conditions are appropriate in legacy embedded networks, in particular where workable competition may not emerge due to impediments to transitioning to the new framework. There may also be some new embedded networks where retail price regulation is also necessary. The effectiveness of price controls based on standing offers has been questioned recently, and the Commission will give more thought to appropriate price controls, where required, for embedded networks.

²⁹⁶ A pricing condition set by the AER for exempt sellers must be a maximum of the standing offer of the local retailer with the AER able to impose a lower price cap.

However, the Commission has not made any recommendations in regard to implementing the 2017 recommendation that the NERR be amended to require all retailers (NEM retailers and off-market retailers) to charge customers in embedded networks no more than the standing offer price of the local area retailer, or made any additional recommendations in relation to price regulation in legacy embedded networks. This is because under the new framework, embedded network customers will all have registered NMI's, and have access to retail competition (to the extent available in the corresponding jurisdiction). The Commission will consider this issue in relation the transition, or otherwise, of legacy embedded networks to the updated framework.

8.3 Gas embedded networks

The 2017 Review did not provide a detailed assessment of jurisdictional frameworks for gas embedded networks. The Review considered that there could be benefit in harmonising the national frameworks for both gas and electricity embedded networks, and recommended that COAG consider this.²⁹⁷

Generally, gas transmission and distribution networks (pipelines) operate under licenses granted by jurisdictions.²⁹⁸ Covered pipelines are economically regulated by the AER,²⁹⁹ and pipeline assets are also regulated by state safety regulators.

The NERL and NERR framework for selling exemptions covers dual fuel and gas sellers. On the other hand, and unlike the NEL and NER, the NGL (National Gas Law) and NGR (National Gas Rules) do not set out a national exemptions framework for gas networks. Rather, it is the jurisdictional licenses that form the basis for networks' participation in gas retail markets. Any gas embedded network would consequently need to be exempted from such licensing requirements in order to on-sell gas outside of the auspices of the relevant organised retail market.

The Commission has found that not all jurisdictions have developed exemptions frameworks for gas embedded networks. Moreover, current jurisdictional gas embedded network frameworks vary in their comprehensiveness.

The Commission understands that, where embedded network operators offer gas-related services to residential customers, these are often sold as a "gas cooktop" service rather than a supply of gas per se.³⁰⁰ In such situations, the gas provided is unmetered. The Commission would be interested to hear from stakeholders any examples of gas embedded networks, particularly where gas is sold on a metered basis.

In the next stage of this review, the Commission will discuss with jurisdictions current gas embedded network exemption frameworks. The Commission will seek views from the jurisdictions and other stakeholders on whether they see a benefit in developing a national

²⁹⁷ AEMC, *Review of regulatory arrangements for embedded networks*, final report, November 2017, p. 67.

²⁹⁸ Pipelines that cross multiple jurisdictions are licensed by the Commonwealth.

²⁹⁹ The AER economically regulates covered pipelines in the eastern states, and the Economic Regulatory Authority of Western Australia economically regulates pipelines in Western Australia. Covered pipelines are pipelines that fall under the economic regulation framework of Parts 8-12 of the NGR.

³⁰⁰ See, for example: <https://www.ocenergy.com.au/about-us/>.

framework for gas embedded networks in the NGL and NGR, and what the framework should cover.

The framework could, for example, set out the:

- definition of gas embedded networks and arrangements to register or exempt gas embedded networks and gas ENSPs (and transition current gas embedded networks to the registration and exemptions regime)
- NERL and NERR network provisions that should apply to gas embedded network service providers.

8.4 Jurisdictional arrangements

To provide a complete set of consumer protection and safety regulations to consumers in embedded networks, there are state and territory energy functions that need to be considered. Under the AEMA, state and territory functions include distributor technical and safety requirements, small customer dispute resolution, service reliability standards and the determination of distribution and retail service areas.³⁰¹

The jurisdictional consumer protections and safety regulations that will be further analysed to determine if they should be applied to embedded networks include:

- Access to state and territory concessions and rebates
- Access to independent dispute resolution for both distribution and retail services
- Retail price controls
- Reliability
- Safety requirements and monitoring regimes
- Technical regulation such as equipment and performance standards
- Ability to access land required for the supply of electricity
- GSL payments.

The Commission has carried out a high level analysis of jurisdictional consumer protections and safety regulations, and their application to embedded networks.³⁰² However, the interaction between the national framework for electricity embedded networks and jurisdictional arrangements requires further analysis including engagement with jurisdictional regulators to understand the intricacies of each jurisdictions' differing arrangements.

In the next stage of the review, the Commission will consult with jurisdictions and other stakeholders on each of the state and territory specific arrangements for the areas detailed above. The aim is to provide recommendations for jurisdictions to consider on the application of consumer protections to embedded networks.

301 Annexure 2, AEMA.

302 Appendix C of this report provides an overview of the jurisdictional consumer protections and safety regulations along with the Commission's initial analysis of the application of these to customers in embedded networks.

9 LODGING A SUBMISSION

Written submissions on this draft report must be lodged with Commission by **14 March 2019** online via the Commission's website, www.aemc.gov.au, using the 'lodge a submission' function and selecting the project reference code EMO0036.

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

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

All enquiries on this project should be addressed to Sherine Al Shallah on (02) 8296 7899 or sherine.alshallah@aemc.gov.au.

ABBREVIATIONS

ACL	Australian Competition Law
AEMA	Australian Energy Market Agreement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
COAG	Council of Australian Governments
Commission	See AEMC
DLF	Distribution loss factor
DNSP	Distribution network service provider
DUoS	Distribution use of system charges
ENM	Embedded network manager
ENO	Exempt network operator
ENSP	Embedded network service provider
EWOV	Energy and Water Ombudsman Victoria
FRMP	Financially responsible market participant
GSL	Guaranteed service level
IEC	Information Exchange Committee
LNSP	Local network service provider
MAIFI	Momentary average interruption frequency index
MSATS	Market settlement and transfer solutions
MW	Mega Watt
MWh	Mega Watt hours
NECA	National Electricity Code Administrator
NECF	National Energy Consumer Framework
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National electricity objective
NER	National Electricity Rules
NERL	National Energy Retail Law
NERO	National energy retail objective
NERR	National Energy Retail Rules
NGL	National Gas Law
NGO	National gas objective
NGR	National Gas Rules
NMI	National Metering Identifier
NUoS	Network use of system charges
RoLR	Retailer of last resort

SAIDI

SAIFI

SAPS

STPIS

TUoS

System average interruption duration index

System average interruption frequency index

Stand-alone power systems

Service target performance incentive scheme

Transmission use of system charges

KEY TERMS USED IN THIS REPORT

Network related terms

Embedded network	The NER defines an embedded network as a distribution system, connected at a parent connection point to either a distribution system or transmission system that forms part of the national grid, and which is owned, controlled or operated by a person who is not a regulated network service provider .
Legacy embedded networks	Embedded networks established under the existing regulatory framework, which are operated by exempt network service providers .
Network service provider	Chapter 2 of the NER defines a network service provider as a person who engages in the activity of owning, controlling or operating a transmission or distribution system and who is registered by AEMO as a network service provider. Under the proposed framework, network service provider includes regulated network service providers and embedded network service providers .
Local network service provider	The NER defines a local network service provider (LNSP) as a network service provider to which a respective geographical area has been allocated by the authority responsible for administering the jurisdictional electricity legislation in the relevant participating jurisdiction. A LNSP is a regulated network service provider , which refers to being economically regulated by the AER.
Exempt network service provider	A term commonly used to describe the party that owns, controls or operates an exempt network. In the context of this draft report this term is generally used in reference to the party that owns, controls or operates a legacy embedded network. That party has the benefit of an exemption from registering as a distribution network service provider (DNSP) (under the existing regulatory framework). Generally, the same party also on-sells electricity to customers within that embedded network under an exemption from the AER from holding a retailer authorisation. The term embedded network operator is also commonly used synonymously for exempt network service provider.
Embedded network manager	The National Electricity Amendment (Embedded Networks) Rule 2015 (<i>Embedded Networks Rule</i>) introduced the embedded network manager (ENM) as a new accredited provider role into the NER. The ENM is responsible for

Embedded network service provider (<i>new concept</i>)	performing market interface services for embedded network customers. This rule came into effect on 1 December 2017. A person who engages in the activity of owning, controlling or operating an embedded network and who is registered by AEMO as an embedded network service provider (ENSP).
Embedded network area (<i>new concept</i>)	The geographical area, site or premises served by an embedded network. Upon registration with AEMO, the ENSP must also register the area of each embedded network it operates.
Exempt network operator (<i>new concept</i>)	The exempt network operator (ENO) is a person who owns, operates or controls a transmission or distribution system under an exemption granted or deemed to be granted by the AER. ^[1]
Exempt embedded network service provider (<i>new concept</i>)	The exempt embedded network service provider (exempt ENSP) is a person who engages in the activity of owning, controlling or operating a distribution system by means of an embedded network that has obtained a network exemption from the AER.

Note: [1] Section 13 of the NEL and clause 2.5.1(d) of the NER.

Retail related terms

Retailer	A retailer authorised by the AER under the NERL to engage in the activity of selling energy (electricity or gas) to a person for premises. Under the proposed framework, a retailer authorised by the AER can be a fully authorised NEM retailer or hold a limited authorisation from the AER, denoting the sub-class of off-market retailer .
NEM retailer	An authorised retailer that purchases electricity in the NEM and sells it to a customer, including to an embedded network customer.
Off-market retailer (<i>new concept</i>)	Under the proposed framework, an off-market retailer has a limited authorisation from the AER to sell in an off-market capacity to customers at child connection points in an embedded network. The off-market retailer is not a market participant under the NER (unless also registered in some other category that is a market participant).
Designated retailer	For a small customer's premises where there is no existing connection, the designated retailer under the NERL is the local area retailer for the relevant geographical area, premises or customer. In the proposed framework, the designated retailer for an embedded network is the local

Local embedded network retailer (<i>new concept</i>)	embedded network retailer. The local embedded network retailer is the designated retailer for the embedded network under the proposed framework. The local embedded network retailer is nominated by the ENSP for an embedded network to be the designated retailer for small customers seeking connection to that embedded network. In case where there is an existing connection, the designated retailer is the financially responsible retailer for the child connection point . This could be either the NEM retailer or the off-market retailer .
Exempt seller	The exempt seller is a person who is exempted by the AER from the requirement to hold a retailer authorisation. ^[2]
Market offer	A market offer is an offer by a NEM retailer or off-market retailer to a small customer to provide customer retail services under a market retail contract. ^[3]

Note: [2] Rule 2(1) of Division 1, Part 1 of the NER. [3] Section 2 of the NERL.

Customer related terms

Exempt customer	An exempt customer is a person to whom an exempt seller sells energy. ^[4]
Retail customer	A retail customer is a customer of an authorised retailer. This can either be a NEM retailer customer or an off-market retailer customer . ^[5]
Small customer	A 'small customer' is a customer who is a residential customer; or who is a business customer who consumes energy at business premises below the upper consumption threshold. ^[6]
Standard supply customer	A customer whose electrical supply is connected to a distribution system that is owned and operated by a DNSP and whose retail services are provided by a NEM retailer .

Note: [4] Section 109 of the NERL. [5] Section 109 of the NERL and rule 148 of the NERR. [6] Section 5(2) of the NERL. For electricity, the upper consumption threshold is set by states and territories: in the Australian Capital Territory, New South Wales, Victoria and Queensland the threshold is 100MWh per year, in South Australia it is 160MWh per year and in Tasmania 150MWh per year.

Other terms and definitions

Off-market	Under an off-market arrangement an off-market retailer or NEM retailer on-sells electricity purchased at a parent meter from the NEM to an embedded network customer. This is known as 'off-market' activity because the customer's electricity consumption is not settled in the NEM.
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On-market	Under on-market arrangements within embedded networks, a NEM retailer purchases electricity in the NEM and sells it to the embedded network customer. This type of arrangement is known as 'on-market' activity because the customer's metered consumption is settled in the NEM.
On-selling	On-selling is an arrangement where a person purchases electricity from the NEM, and they, or a person acting on their behalf, sells the electricity to others. On-selling is an off-market activity .
Parent connection point	The agreed point of supply between an embedded network and a transmission or distribution system that is serving an embedded network.
Child connection point	The point of supply between an embedded network and a customer, generating unit or other embedded network connected to that embedded network and served by that embedded network.
Network exemption guideline	The Electricity Network Service Provider - Registration Exemption Guideline (Network Exemption Guideline) that is published by the AER. ^[7]
Retail exemption guideline	The AER (Retail) Exempt Selling Guideline (Retail Exemption Guideline) that is published by the AER. ^[8]

Note: [7] Version 6 is available under <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/network-service-provider-registration-exemption-guideline-march-2018>. [8] Version 5 is available under <https://www.aer.gov.au/retail-markets/retail-guidelines-reviews/retail-exempt-selling-guideline-march-2018>.

A OVERVIEW OF ROLES AND RESPONSIBILITIES OF THE EMBEDDED NETWORK SERVICE PROVIDER AND THE EXEMPT NETWORK OPERATOR

This Appendix summarises the key obligations applicable to the embedded network service provider, exempt network operator and exempt embedded network service provider under the proposed framework.³⁰³

Embedded Network Service Provider (ENSP)

A person who engages in the activity of owning, controlling or operating an embedded network and who is registered by AEMO as an ENSP.

The ENSP is a network service provider that classifies its distribution system as an embedded network and is accepted as such by AEMO. Registration requirements include having to provide sufficient evidence to satisfy AEMO that its distribution network should be classified as an embedded network, provide a description of the embedded network's embedded network area, and nominating a retailer (who consents) to be the local embedded network retailer at registration (which can be a NEM retailer or an off-market retailer).

The entity that registers as an ENSP may also register as an off-market retailer.

Exempt Network Operator (ENO)

A person who owns, operates or controls a transmission or distribution system (which may or may not be an embedded network) under an exemption granted or deemed to be granted by the AER.

The term ENO is to be introduced to refer to a person who is exempt from the requirement to register as a network service provider.

Exempt Embedded Network Service Provider (exempt ENSP)

The exempt ENSP is a person who engages in the activity of owning, controlling or operating a distribution system by means of an embedded network that has obtained a network exemption from the AER.

As introduced as part of the Embedded Network rule change in 2015, the AER may still require the exempt ENSP to appoint an Embedded Network Manager (ENM).

Relationship between ENSP, ENO and exempt ENSP

The ENSP registers the embedded network distribution system that it owns, controls or operates with AEMO.

On the other hand, the ENO owns, controls or operates a distribution or transmission system under an exemption registered by the AER. The exempt ENSP is a subset of an ENO that

³⁰³ Please refer to the draft rules and law change drafting instructions for more detailed information.

engages in the activity of owning, controlling or operating a distribution system by means of an embedded network under an exemption registered by the AER.

Table A. 1: Responsibilities of ENSPs and ENOs

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
<p>Registration and authorisation regime for embedded networks</p> <p>Entities are required to register as either an ENSP or an ENO to own, control or operate an embedded network or an exempt embedded network</p>	<p>Embedded networks are to be registered under the NEL and NER.</p> <p>New embedded networks (a distribution system classified as an embedded network under Chapter 2 of the NER) and ENSPs are required to be registered with AEMO as a network service provider under the national regulatory framework.</p> <p>The AER can grant an exemption from this requirement to register as a network service provider with AEMO (based on certain conditions as specified in the AER Exempt Network Guideline). If granted such an exemption, the party is to register as an ENO with the AER. This also applies to exempt ENSP with respect to an exempt embedded network.</p> <p>An embedded network and an exempt embedded network are both types of distribution systems within the meaning of the NEL. Similarly, an ENSP and an exempt ENSP both own, control or operate a distribution network, and are a subset of distribution system operators under the NEL and the NER.</p> <p>Previously exempted types of distribution systems (i.e. holders of a deemed or registrable network exemption relating to an embedded network), will either be:</p> <ul style="list-style-type: none"> (a) required to register as an ENSP, or (b) apply to be granted a network exemption from the AER and register as an ENO; or (c) operate a system that no longer falls within the definition of a distribution system and as such not be required to register under the NEL and NER (including 	<p>NEL Part 2 - Participation in the NEM, Division 1A and 1B; NER Chapter 2 and Chapter 10</p>

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
<p>Registering with AEMO as an ENSP is subject to application requirements</p>	<p>networks forming metering installations, networks forming part of broadcasting television or radio signals, networks forming parts of telecommunications, internet, wi-fi etc. infrastructure, a network within a construction site, networks forming part of plug-in or rack mounted equipment when used in premises, including NBN equipment).</p> <p>A person who classifies its distribution system as an embedded network must register as an ENSP with AEMO. An ENSP may, from time to time, by application amend its registration details with AEMO including the embedded network area for which it is the ENSP.</p> <p>In order to register with AEMO an ENSP must classify its distribution system as an embedded network for a particular embedded network area, provide a description of the embedded network area and nominate a retailer (either a NEM retailer or off-market retailer, with their consent) who will be the local embedded network retailer for the respective embedded network.</p> <p>AEMO must publish a register that includes the above information for each embedded network, including the identity of the ENSP, description of the embedded network area, identify of the local embedded network retailer and any other information AEMO considers as relevant.</p>	<p>NER Chapter 2, Part A, clauses 2.5.1 and 2.5.4</p>
<p>Entities otherwise required to register as an ENSP can be granted an exemption from this requirement if they register an intermediary to act in their place</p>	<p>A person that owns, controls or operates an embedded network would be required to register as an ENSP. Any entity that performs the other functions that are not performed by the ENSP applies to AEMO for an exemption from the requirement to register, and registers as an intermediary. The intermediary will be the registered participant under the Rules, with the intermediary and the applicant being jointly and severally liable for acts, omissions, statements, representations and notices of the intermediary in its capacity as a registered participant under the Rules.</p>	<p>NER Chapter 2, clause 2.9.3</p>

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
<p>Exemption granted from the AER before being registered as an ENO</p>	<p>The NEL provides the framework for granting network exemptions. The exemption framework is specified in detail under the NER, listing the classes of activities the AER may grant network exemptions to, with those classes to be determined by the AER as part of creating and publishing the AER Network Exemption Guideline.</p> <p>Prior to granting a network exemption, the AER is required to consult with relevant jurisdictional authorities.</p> <p>Further, with regard to transmission system exemptions, the AER has the ability to grant an individual or class of transmission systems exemptions as was already the case.</p>	<p>NEL Part 2, Division 1A; NER Chapter 2, Part B and Chapter 10</p>
<p>AER Exempt Network Guideline are to apply to ENSP and ENO applications</p>	<p>The AER must develop and maintain the AER Exempt Network Guideline in accordance with the Rules consultation process, specifying the procedural requirements for making network exemptions, the conditions applying to a network exemption (which include what rules do or do not apply to classes of network exemptions), and processes for obtaining relief from network exemption conditions as applicable to embedded networks, distribution systems and transmission systems.</p>	<p>NEL Part 2, Division 1, section 13G; NER Chapter 2, Part B, clause 2.13.2</p>
<p>Exemption conditions for ENOs are to be determined by the AER</p>	<p>The AER may impose exemption conditions which will exempt specific ENOs, or classes of ENOs from specific provisions of the Rules, in accordance with the AER Exempt Network Guideline.</p> <p>The AER's investigation and enforcement powers in the NEL will be extended to apply to exemption conditions, with breaches of exemption conditions enforceable as civil penalties.</p>	<p>NEL Part 2, Division 1A, section 13A; NER Chapter 2, Part B, clauses 2.13.2 and 2.15</p>
<p>AER may grant relief or a derogation from exemption conditions</p>	<p>The AER may decide to grant a derogation or relief from exemption conditions to an ENO or class of ENOs given the criteria for the grant of relief in the Rules and the</p>	<p>NEL Part 2, Division 1A, section 13B;</p>

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
AER may revoke or vary a network exemption	AER's Network Exemption Guideline are satisfied.	NER Chapter 2, Part B, clauses 2.13.2 and 2.15.4
AER's ability to monitor, investigate and enforce exemption conditions will apply to ENSPs and ENOs	The AER may decide to vary or revoke a network exemption for an ENO, with the consent of or at the request of the ENO, if the AER is satisfied that an ENO fails to comply with the relevant exemption conditions. The revocation process needs to follow the process set out in the NEL.	NEL Part 2, Division 1A, section 13C, 13D and 13E; NER Chapter 2, Part B, clauses 2.13.2, 2.14.1(c) and 2.15.2
AER is to increase transparency by maintaining a public register of ENOs	<p>ENSPs and ENOs are now subject to the AER's general information gathering powers and compliance regime. Any breaches of exemption conditions are enforceable by the AER as part of their monitoring, investigation and enforcement procedures, with breaches of network exemptions enforceable under the law.</p> <p>The AER will be required to maintain a public register of ENOs where it registers:</p> <ul style="list-style-type: none"> • the names and business addresses of ENOs • a list of the classes of persons to whom a network exemption is available upon registration • the names and business addresses of ENOs who have registered with the AER as belonging to a class of persons subject to a network exemption 	NERL Part 3, Division 1, Division 2, Division 3; NERL Part 12 - Compliance and performance and Part 13 - Enforcement

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
	<ul style="list-style-type: none"> the Public Register of ENOs may include additional information relating to ENOs and associated matters the AER considers as relevant. 	
Market and system integration		
<p>Chapter 7 of the NER will in general apply to embedded networks, with off-market retailers caught as a registered participant, and ENSP's treated as the Local Network Service Provider (LNSP) in this chapter when the provision relates specifically to a child connection point within an embedded network.</p> <p>The relevant NEM retailer or off-market retailer within the embedded network is required to apply to the ENSP for a NMI. Accordingly, the ENSP, must assign a unique NMI for each metering installation on its network.</p> <p>ENOs are still required to act as, or engage an ENM for their embedded network (unless exempted under the NER from being required to appoint an ENM). For exempt embedded networks, the ENM remains responsible for applying to and register with AEMO for a NMI for a metering installation at the child connection points within its embedded network. Further, any off-market child connection points switching from an exempt seller to a market retail contract within an ENO's embedded network, will enliven the ENM conditions which will require the ENO to register as an ENSP.</p> <p>The ENM must maintain and provide information about the types of configuration of metering installations at the connection points within an embedded network to an off-market retailers' metering co-ordinator (where the child connection point is an off-market connection point).</p> <p>To mirror the new arrangements for embedded networks, AEMO's procedure for de-registration of metering providers, metering data providers and ENMs will need to</p>		<p>NER Chapter 7, clauses 7.1.2, 7.4.4 and 7.5A.2; Chapter 2, clause 2.15.3</p>

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
<p>ENSPs and ENOs will be required to provide retailers with NMI data when requested</p>	<p>be updated so that in the event AEMO suspends an ENM, or allows an ENM to continue to operate under constraints, only the ENSP or exempt ENSP is notified.</p> <p>The ENSP, or the ENM acting for an exempt ENSP, must disclose NMI information at the request of the retailer (including an off-market retailer) and within 1 business day of the date of the request, provide the retailer with the NMI and NMI checksum for premises identified in the request.</p> <p>For NMI standing data requests by the retailer, the ENSP, or the ENM acting for an exempt ENSP, must within 2 business days of the date of the request provide the retailer with the NMI standing data for premises identified in the request.</p>	<p>NER Chapter 7, Part E, clause 7.13.3</p>
<p>Application of distribution loss factors</p>	<p>ENSPs are required to apply distribution loss factors (DLFs) as part of the settlement process of energy flows within the embedded network:</p> <ul style="list-style-type: none"> • ENSPs must comply with the methodology developed and published by the AER for determining DLFs • absent that, DLFs are to be calculated for connection points assigned to a single transmission network connection point (retail customer loads) based on the methodology published by a LNSP • or are to be calculated as agreed by an ENSP and a distribution customer with a large load (as approved by the AER). <p>For connection points assigned to transmission network connection points (larger loads), the DLF is the one which would apply to the child connection point if connected directly to the LNSPs distribution system, or the DLF applicable at the parent connection point for the embedded network.</p>	<p>NER Chapter 3, clauses 3.6.2B, 3.6.3(g1)(1) and 3.6.3(g1)(2)</p>
<p>Network billing</p>		
<p>A shadow network charges procedure will</p>	<p>Network billing and payment rules will apply to ENSPs and exempt ENSPs, like direct</p>	<p>NER Chapter 6B,</p>

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
<p>apply for network billing arrangements between retailers and ENSPs and exempt ENSPs for on-market embedded customers</p>	<p>billing and network charges for embedded network customers of NEM retailers</p> <ul style="list-style-type: none"> • Direct billing arrangements are permitted by ENSPs and exempt ENSPs • Network charges are to be calculated for embedded customers of NEM retailers using the 'shadow network charges procedure'. <p>AEMO is to develop, publish and maintain the 'shadow network charges procedure' which specifies:</p> <ul style="list-style-type: none"> • the methodology to be used to determine network charges payable by NEM retailers to ENSPs and exempt ENSPs for network charges relating to on-market child connection points within their embedded networks • arrangements for billing and settlement of the network charges (billing and settlement communications between retailers, ENSPs and ENMs in accordance with applicable B2B Procedures, and application of standardised data and file formats for those communications). 	<p>Part A, Division 2, clause 6B.A1.3</p>
<p>ENSP and exempt ENSPs to calculate and provide statement of network charges and payment to retailers</p>	<p>Obligation of ENSPs and exempt ENSPs to calculate network charges for on-market embedded customers in accordance with the shadow network charges procedure, and provide a statement of network charges to a retailer (NEM retailer and off-market retailer)</p>	<p>NER Chapter 6B, clauses 6B.A2.4 and 6B.A2.5</p>
<p>Matters incidental to billing and payment apply to ENSPs and exempt ENSPs</p>	<p>Matters incidental to billing and payment will apply to ENSPs and exempt ENSPs under the proposed framework, including:</p> <ul style="list-style-type: none"> • provisions on adjustment of network charges to recover for any error of metering data or any other factor that affects the calculation of charges • tariff reassignments on request of the retailer • dispute mechanism for stated amount of charges 	<p>NER Chapter 6B, Division 3</p>

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
Credit support for late payments	<ul style="list-style-type: none"> any changes to network charges must be provided as reasonably practical to the retailer. 	NER Chapter 6B, Part B
Connection and network charging framework		
Requirement to provide connection services in embedded network area	<p>An ENSP is required to provide connection services for premises where the premises are located in its embedded network area.</p> <p>ENSPs must comply with the provisions on deemed standard connection contracts for existing connections.</p>	NERL Part 3, Division 2, section 66; NER Chapter 5A
Preventing or hindering access	A civil penalty will apply to ENSPs, persons party to an agreement with an ENSP for the provision of an electricity network service or an associate to one of these persons engaging in conduct for the purpose of preventing or hindering access to an electricity network service.	NEL Part 11, section 157(1A)
Obligation to provide a model standing offer for basic connection services	ENSPs must have and publish on their website a model standing offer for basic connection services. They can either adopt the AER published model standing offer(s) for basic connection services or submit their own for the approval by the AER.	NER Chapter 5A, Part B, Division 1, clauses 5A.B.1, 5A.B.2 and 5A.B.3
Provide customers with the option to negotiate a connection contract	ENSPs will have to provide customers with the option of a negotiated connection, and must negotiate a connection contract in accordance with the negotiation framework set out in the NER.	NER Chapter 5A, Part C, clause 5A.C.3
Requirements to publish information on website	ENSPs have to comply with the requirements to publish information on their website, including information on their basic connection offers, an explanation of the connection applicant's right to negotiate a negotiated connection contract, a description of the negotiation process, and contact details for the local embedded	NER Chapter 5A, Part D, Division 1, clauses 5A.D.1 and 5A.D.1A

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
Application of embedded network connection charge principles	network retailer as well as inform customers about their right to choose a retailer. If embedded generation projects are located within an ENSP's embedded network, the ENSP must maintain a register of completed embedded generation projects. The register must be updated by 1 December each year.	NER Chapter 5A, Part E
AER to develop and publish an embedded network connection policy	<p>ENSPs must adhere to the embedded network connection charge principles outlined in the NER when setting connection charges for connection services.</p> <p>ENSPs must comply with the AER's embedded network connection policy in relation to</p> <ul style="list-style-type: none"> • the specified circumstances under which a customer has to pay connection charges for a connection service to an ENSP • the basis for determining connection charges • the types of model standing offers that an ENSP can adopt • specification of the circumstances when a retail customer is required to make a capital contribution towards the cost of network augmentation. 	NER Chapter 5A, clause 5A.E.3A
Dispute resolution procedures for connection agreements will be extended to embedded networks	Dispute resolution procedures regarding basic connection services, negotiated connection contracts or connection charges will also apply to disputes between ENSPs and retail customers and real estate developers within embedded networks.	NER Chapter 5A, Part G
Updating consumer protections in the NERL and NERR		
Obligations with regard to life support customers	<p>ENSPs must comply with the additional requirements for embedded networks under the distributor obligations when advised by a customer that a person residing or intending to reside at the customer's premises requires life support equipment.</p> <p>The ENSP has to advise those customers that an embedded network planned interruption to supply could occur and notify distributors and the NEM retailer at any</p>	NERR Part 7, rules 124(4)(b)(viii), (d) and 124B(1)(e)

OBLIGATION UNDER PROPOSED FRAMEWORK	DETAILS	PROPOSED CHANGES
	parent connection point within an embedded network. NEM retailers, off-market retailers and distributors, including ENSPs, for life-support customers must give those customers notice of interruptions as soon as practicable, and in any event within 1 business day.	
Notification about interruption of supply	<p>An ENSP must, by any appropriate means, notify each affected customer on its embedded network of an embedded network interruption as soon as practicable after receipt of a notice of the interruption under NERR 99B by the DNSP or, in any event within 1 business day. Interruptions to be notified include:</p> <ul style="list-style-type: none"> • interruptions of supply of energy in an embedded network due to a retailer planned interruption • distributor planned interruption at or above the parent connection point. 	NERR Part 4, Division 6, rules 88 and 90A
ENSP obliged to provide electricity consumption information to the AER	An ENSP must, for the purpose of electricity consumption benchmarks, provide information to the AER in a manner and form requested by the AER.	NERR Part 11, rule 171
Customer access to jurisdictional ombudsman schemes	Customers in a registered embedded network operated by an ENSP will have access to the relevant jurisdictional energy ombudsman to make complaints.	NERL Part 4 - Small customer complaints and dispute resolution

B OVERVIEW OF ROLES AND RESPONSIBILITIES OF THE OFF-MARKET RETAILER AND EXEMPT SELLER

Off-market retailer

Under the proposed framework, an off-market retailer has a limited authorisation from the AER to on-sell electricity, purchased at a parent connection point, to customers at child connection points in an embedded network.

The off-market retailer will be required to appoint a metering coordinator, and obliged to make an offer to all the customers in the embedded network for which it is registered with AEMO as the local embedded network retailer.

The entity that registers as an off-market retailer may also be an ENSP.

Exempt seller

The exempt seller is a person who is exempted by the AER from the requirement to hold a retailer authorisation. An exempt seller has registered with the AER for a selling exemption and on-sells energy (gas or electricity or both) purchased at a parent connection point to exempt customers in an exempt embedded network.

Table B. 1: Responsibilities of the off-market retailer and exempt seller

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
<p>Registration and authorisation regime for embedded networks</p> <p>An on-seller of energy to customers in an embedded network will need to be either a NEM retailer, an off-market retailer that can only sell to customers in embedded networks, or an exempt seller</p> <p>The rules are to provide for different classes of retailer authorisation which an entity can apply for, including a general NEM retailer authorisation and an off-market retailer authorisation</p>	<p>A person that is engaged or intending to engage in the activity of selling electricity in the NEM (which includes embedded networks) will need to obtain a retailer authorisation or be an exempt seller under the NERL.</p> <p>Retailers that do not purchase electricity from the spot market, but from a NEM retailer, and on-sell energy in an embedded network to a person who takes a supply of electricity at an off-market child connection point, will be required to become a registered participant under the NER, and be authorised by the AER under the NERR as an off-market retailer.</p> <p>NEM retailers generally can sell to embedded network customers without needing an off-market retailer authorisation.</p> <p>Provisions in the NERL that relate to a 'retailer' will extend to both NEM retailers and off-market retailers unless expressly excluded.</p> <p>The AER can grant one or more classes of retailer authorisations (based on different criteria) in respect of sale of electricity, or sale of gas to a class of persons or premises, where applied for by entities, including:</p> <ul style="list-style-type: none"> • (a) a general authorisation for electricity and gas sellers; or • 	<p>NERL section 2, definition of 'interconnected national electricity system', Part 5, section 88; NERR rule 3C; NEL sections 11(4) and 11(5); NER Chapter 2, Part A, clause 2.4B</p> <p>NERL Part 5, sections 88(4), (5) and 89(1A); NERR Part 1, Division 1A, rule 3B.1</p>

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
AER is to specify entry criteria and conditions for retailer authorisations which may differ depending on the type of retailer authorisation being sought, and possibly determined on a case-by-case basis	<ul style="list-style-type: none"> (b) an off-market retailer authorisation for sellers of electricity specifically within embedded networks. <p>In its Retailer Authorisation Guideline, the AER has discretion to specify entry criteria applicable to off-market retailers.</p> <p>If the AER grants an application, it may impose conditions that apply as pre-conditions or ongoing obligations which a retailer must comply with to retain its retailer authorisation. The AER may amend or revoke any conditions, providing it flexibility to better manage retailer authorisations.</p>	NERL Part 5, Division 1, sections 90 and 93
Off-market retailers with AER authorisation are to register as an off-market retailer with AEMO under the NER	<p>An off-market retailer also has to register with AEMO under the NER as an off-market retailer. Off-market retailers are registered participants within the NER and NEL (including with respect to Chapter 2 provisions and Chapter 8 dispute resolution provisions) except where specified otherwise.</p>	NER Chapter 2, clause 2.4B.1
An off-market retailer can be a local embedded network retailer for an embedded network when nominated and registered as such by an ENSP with AEMO	<p>As part of an ENSP's registration under the NER, an ENSP may nominate an off-market retailer (with its consent) as the local embedded network retailer of the respective embedded network, which will then be identified in the embedded network register published by AEMO.</p> <p>An off-market retailer registered by AEMO in relation to an embedded network can only on-sell electricity in relation to a specific embedded network (and not outside of an embedded network).</p>	NER Part 1, Division 1A, rule 3B.2(2); NER Chapter 2, clause 2.5.4(h)
Off-market retailers that are the designated	An off-market retailer in its capacity as a designated retailer	NERL section 2 definition of

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
<p>retailer for an embedded network must make an offer to their small customers</p>	<p>(where registered as the local embedded network retailer by an ENSP for an embedded network area) is required to make a standing offer to the small customers within the embedded network area.</p>	<p>'designated retailer', Part 2, Division 3, section 22</p>
<p>An entity can, if not registered as a NEM retailer or an off-market retailer, be registered as an exempt seller</p>	<p>The AER will be able to grant an exemption from the requirement to hold a retailer authorisation. The holder of a corresponding exemption is classified as an exempt seller.</p> <p>The AER may determine persons or a class of persons to whom an exemption from being an authorised retailer is granted. In the NERR, the AER can determine classes of exempt sellers with regard to persons that sell metered energy to holiday accommodation, temporarily sell to construction sites, sell energy to related body corporates, selling energy as a supplementary supply, or those sellers exempt under jurisdictional energy legislation. The AER will be able to create sub-classes that fit these broad categories as required.</p> <p>Those granted an exemption are to be registered on the AER's Public Register of Authorised Retailers and Exempt Sellers.</p> <p>The proposed exemption provisions do not address gas embedded networks. Previous exemptions relating to gas retailers under the AER's retailer selling guideline (AER exempt selling guidelines exemption class D5) are not proposed to be carried over into the new framework, thus requiring those parties to register as retailers.</p>	<p>NERL Part 5, Division 6, sections 110 and 113(a); NERR Part 9, Division 2, rules 150 and 151</p>

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
	<p>The previous deemed, individual and registrable exemption classes will no longer apply and be replaced by this streamlined exemption process.</p>	
<p>The AER can impose exemption conditions</p>	<p>The AER may impose conditions on an exemption or class of exemptions in accordance with the NERR and the AER Retail Exemption Guideline. The exemption only commences with regard to a person or class for as long as the conditions are satisfied.</p> <p>An exempt seller must comply with exemption conditions applicable to its exemption. Exemption conditions are enforceable by the AER, and breaches are treated as civil penalties.</p> <p>The AER's Retail Exemption Guideline will need to reflect changes to the exemption framework.</p>	<p>NERL Part 5, Division 6, sections 112 and 113(c); NERR Part 9, Division 2, rules 152 and 153</p>
<p>Relief from exemption conditions</p>	<p>The AER has the ability to provide relief from the exemption conditions that apply to an exempt seller in accordance with the AER exempt selling guidelines and where criteria for the grant of relief in the NERR are satisfied.</p>	<p>NERL Part 5, Division 6, sections 112A and 113(c)</p>
<p>AER can revoke a retailer or exempt seller authorisation</p>	<p>The AER has the power to revoke a retailer's authorisation or exemption. The grounds for revocation of a retailer's authorisation are extended to include a breach of a condition imposed under the NERL and NERR by the AER. This applies to both electricity and gas retailers.</p> <p>The AER can, in relation to a particular exempt seller, decide to revoke an exemption if there has been a material failure by the seller to comply with the exemption conditions applicable to its</p>	<p>NERL Part 5, Division 5, Section 107 and Division 6, sections 110A, 111, 112 and 113</p>

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
<p>AER's ability to monitor compliance and enforce retailer authorisations extends to off-market retailers, exemption conditions and any breaches of the NEL, NERL and NERR</p>	<p>exemption, or revoke an exemption with the consent of or at the request of the exempt seller.</p> <p>Under the proposed framework the enforceable activities of holders of retail authorisations are extended, as most previously exempt sellers have become subject to the provisions applicable to authorised retailers in their capacity as an off-market retailer. This is because off-market retailers will now be subject to the AER's monitoring, investigation, enforcement, and information gathering powers, AER reporting and subject to AER compliance procedures, guidelines and information provision requirements.</p> <p>Exempt sellers are not subject to the wider AER reporting and compliance procedures, but are subject to compliance audit provisions at the request of the AER. Any breaches of conditions for an exempt seller are to be enforceable by the AER.</p>	<p>NERL Part 12 and Part 13; NEL Part 4, Division 5</p>
<p>AER to maintain a register of exempt network operators and exempt sellers to increase transparency</p>	<p>Under the Public Register of Authorised Retailers and Exempt Sellers, the AER will register the names and business addresses of persons who hold retailer authorisations and the form of energy to which the retailer authorisation applies. This applies to both retailer and exempt seller authorisations.</p>	<p>NERL Part 5, Division 7, section 119; NERR Part 9, Division 5, rule 164</p>
Market and system integration		
<p>Obligations of off-market retailers</p>	<p>Chapter 7 (Metering) of the NER will in general apply to embedded networks. It is proposed that off-market retailers (unlike exempt sellers) will have those obligations applicable to financially responsible market participants (FRMP) for off-market connection points.</p>	<p>NER Chapter 7, Part A, clauses 7.1.1 and 7.1.2</p>

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
Appointment of a metering coordinator	<p>The off-market retailer has to ensure a metering coordinator is appointed for off-market child connection points on an embedded network, the connection points have a metering installation, which is registered with AEMO, and prior to registration, a NMI has been obtained, before selling electricity to a customer.</p> <p>The appointment of a metering coordinator results in the need to appoint a metering provider and a metering data provider. An off-market retailer is not eligible for registration as a metering provider and metering data provider.</p> <p>It is through this requirement that off-market connection points will be NMI registered, and permitted flexibility to shift on-market.</p>	NER Chapter 7, Part B, clauses 7.2.1 (d), 7.4.1(f) and 7.4.2(f)
Updating consumer protections in the NERL and NERR		
Customer protections under the NERL and NERR extend to embedded network customers	<p>By elevating off-market retailers into the national regulatory framework and treating them as a category of authorised retailers, embedded network customers are treated as retail customers where possible.</p> <p>The differences between a NEM retailer and an off-market retailer include:</p> <ul style="list-style-type: none"> • the off-market retailer will be able to vary standing offers more often than once every 6 months • the off-market retailer is exempted from publishing variations of offers via newspaper. 	NERL Part 2 and 4
There are some small differences between NEM retailer and off-market retailer obligations	<p>The differences between a NEM retailer and an off-market retailer include:</p> <ul style="list-style-type: none"> • the off-market retailer will be able to vary standing offers more often than once every 6 months • the off-market retailer is exempted from publishing variations of offers via newspaper. 	NERL Part 2, Division 3, section 23(8); NERR Part 1, Division 1A, rule 3B.3 and Schedule 1
Additional provisions for retailers in embedded networks	Additional provisions for retailers in embedded networks (including off-market retailers and NEM retailers) include:	NERL Schedule 1 and Part 5, Division 3, rule 99B

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
	<ul style="list-style-type: none"> modified model terms and conditions for standard retail contracts to make reference to embedded network planned interruptions obligation to communicate retailer planned interruptions to all distributors within an embedded network. 	
<p>Off-market retailers have an obligation to make offers to small customers, on specified terms and conditions</p>	<p>Off-market retailers are required to:</p> <ul style="list-style-type: none"> make offers to small customers use model terms and conditions, with proposed amendments to the model terms and conditions for standard retail contracts accommodating embedded network arrangements for changes to tariffs and charges, provide historical billing information, life support customers and planned interruptions. 	<p>NERR Schedule 1, 6.3, 8.2, 9.4, 11A.2</p>
<p>AER's Retail Pricing Information Guidelines applies to off-market retailers</p>	<p>Current provisions relating to the AER Retail Pricing Information Guidelines for presentation of standing and market offer prices will extend to off-market retailers.</p>	<p>NERL Part 2, Division 11, section 61</p>
<p>Off-market retailers are subject to customer hardship provisions</p>	<p>Current provisions to be extended to off-market retailers and exempt sellers through the AER's ability to require compliance audits.</p>	<p>NERL Part 12</p>
<p>Off-market retailers are subject to energy marketing rules and customer consent requirements when transferring customers</p>	<p>Energy marketing rules and the need to obtain explicit informed consent of a small customer when transferring customers to a retailer from an exempt seller apply to off-market retailers and embedded network customers.</p>	<p>NERL Part 2, Division 5, section 38 and Division 8, section 53</p>
<p>Off-market retailers are subject to energy consumption information provision to small</p>	<p>Existing information provision rules in the NERR extend to off-market retailers including provisions pertaining to energy</p>	<p>NERR rules 56, 56A, 56B</p>

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
customers	consumption information (where available), as well as information on its dispute resolution procedure through its website. The RoLR scheme is to be modified to extend to embedded network customers.	
Application of retailer of last resort (RoLR) scheme	For an off-market connection point, the default RoLR is either (a) the FRMP under the NER for the parent connection point (i.e. the NEM retailer selling to the off-market retailer), or (b) if the person under (a) happens to be a failed retailer, the default RoLR for the parent connection point (the parent connection point for the embedded network connecting to a distribution system). The registration requirements for RoLR are proposed to not apply to off-market connection points. The RoLR provisions applicable to a connection point that is supplied by a NEM retailer within an embedded network remain unchanged.	NERL Part 6, Division 1, sections 122 and 122A
Transfer of responsibility in the case of a RoLR event	The transfer of responsibility clauses to assume the functions and powers of the failed retailer, including the appointment of a metering coordinator and transfer of metering coordination agreements in force, are proposed to be extended to also apply to off-market RoLR provisions.	NERL Part 6, Division 5, section 140
Use of pre-payment meter at a parent connection point	Under the proposed framework, parent connection points of an embedded network are required to not use a pre-payment meter system.	NERL, Part 2, Division 10, section 56A
Access to ombudsman scheme	Under the proposed framework, small customer complaints and	NERL Part 4

OBLIGATION UNDER PROPOSED FRAME- WORK	DETAILS	PROPOSED CHANGES
	dispute resolution provisions leading to the application of jurisdictional ombudsman schemes will extend to off-market retailers.	
Obligations with regard to life support customers	Off-market retailers and distributors (including ENSPs) for life-support customers must give to those customers notice of interruptions as soon as practicable, and in any event, within 1 business day.	NERR Part 7, rule 124B
Obligations to notify customers of retailer interruptions apply to off-market retailers	Off-market retailers will need to notify their affected customers of retailer planned interruptions, including a requirement that they provide notifications, and provide for a 24 hour telephone number for its customers.	NERR rule 56C

C JURISDICTIONAL ARRANGEMENTS

C.1 Introduction

To provide a complete set of consumer protection and safety regulations to consumers in embedded networks, there are state and territory energy regulatory functions that need to be considered. Under the Australian Energy Market Arrangement (AEMA), state and territory functions include distributor technical and safety requirements, small customer dispute resolution, service reliability standards and the determination of distribution and retail service areas.³⁰⁴

In the 2017 Review, the Commission made a number of recommendations to be progressed by jurisdictional governments relating to improving access to energy ombudsman schemes, improving awareness and access to concessions and reviewing jurisdictional safety and reliability schemes.³⁰⁵

The jurisdictional consumer protections and safety regulations that require analysis to determine the appropriate application to embedded networks include:

- Access to state and territory concessions and rebates
- Access to independent dispute resolution for both distribution and retail services
- Retail price controls
- Reliability requirements
- Safety requirements and monitoring regimes
- Technical regulation such as equipment and performance standards
- Ability to access land required for the supply of electricity
- Other Guaranteed Service Level (GSL) payments.

The Commission's initial analysis of jurisdictional consumer protections and safety regulations and their application to new embedded networks is detailed in the following sections. Under the new framework, some of these jurisdictional protections may now automatically apply to customers in new embedded networks (subject to the wording of the relevant jurisdictional instrument), as the customers will be supplied by an authorised retailer and a registered distributor.

The interaction between the national framework for new electricity embedded networks and jurisdictional arrangements requires further analysis in the next stage of the review, including engagement with jurisdictional regulators to understand the intricacies of each jurisdiction's differing arrangements.

As these are jurisdictional functions, jurisdictions will determine which consumer protections and safety regulations should be extended to new embedded networks, and whether it will be via amendments to existing regulatory instruments, or new regulatory instruments. However, the Commission will engage with jurisdictional regulators and provide advice on the

304 Annexure 2, Australian Energy Market Agreement.

305 AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017, p. ii.

issues that should be considered by jurisdictions in order to provide equivalent consumer protections and safety regulations to customers in embedded networks, where practicable and proportionate.

The jurisdictional arrangements relating to legacy embedded networks are not covered in this Appendix.

C.2 Current arrangements

C.2.1 Access to state-based energy concessions and rebates

Standard supply residential customers who meet certain conditions may be eligible for state-based electricity concessions and other payment assistance schemes. The concession and rebate schemes differ in each jurisdiction, with different types of rebates available in each jurisdiction as well as differing eligibility criteria. However, in each jurisdiction, all residential customers are informed of the availability of energy rebates and payment assistance by their NERL authorised retailer, and can contact their retailer to determine if they meet the requirements to receive a concession.

Access to concessions and rebates for customers in embedded networks also differs by jurisdiction, and in some jurisdictions access is also dependent on the type of embedded network the customer resides in. For example, in NSW embedded network customers who are either long term residents of an on-supplied retirement village, on-supplied residential community or on-supplied strata scheme may be able to access the same state government energy rebates as standard customers by applying to the NSW Department of Planning and Environment.³⁰⁶ In South Australia, there are specific rebates for customers living in a residential park or caravan park (which is a single combined concession for energy, water and sewerage) and specific arrangements for customers living in retirement villages to receive electricity concessions. From the Commission's initial analysis it is unclear if customers living in on-supplied strata schemes in South Australia would be able to access energy concessions, as they are generally paid through an authorised retailer.³⁰⁷

In addition to concessions and rebates, customers who meet certain conditions and are experiencing severe financial hardship may be eligible to access emergency assistance towards the costs of their energy bills. These emergency assistance schemes differ in each jurisdiction, but generally offer one-off emergency assistance where an unforeseen emergency or unexpected hardship has occurred.

For customers in embedded networks, under the AER's Retail Exemption Guideline, exempt sellers must inform customers within embedded networks of the availability of relevant government or non-government energy rebates, concessions and relief schemes. In addition, where a customer is eligible to receive a government or non-government energy rebate, concession or assistance under a relief scheme, the exempt seller must not hinder the customer's attempt to establish eligibility, and if required under the scheme must make the

³⁰⁶ NSW Government, *NSW Social programs for energy code*, 11 December 2017, p. 14.

³⁰⁷ South Australian government website: <https://www.sa.gov.au/topics/care-and-support/financial-support/concessions/energy-bill-concessions>, accessed on 5 December 2018.

claim on behalf of the exempt customer and apply any successful claims to the customer's bill.³⁰⁸

C.2.2 Access to independent dispute resolution

Energy ombudsmen provide independent dispute resolution services for disputes relating to energy. Registered distributors and authorised retailers are required to be members of jurisdictional energy ombudsman schemes under the NERL.³⁰⁹ Small customers can access jurisdictional energy ombudsmen to resolve disputes and complaints with their retailer and/or distributor, with the retailer or distributor bound by the ombudsman's decision.

Under Condition 17 of the AER's Retail Exemption Guideline, an exempt seller must, if permitted by the energy ombudsman scheme, be a member of, or subject to, an energy ombudsman scheme for each jurisdiction where it sells energy to exempt customers. In addition, under the AER's Network Exemption Guideline, exempt network service providers must, if permitted by an energy ombudsman scheme, be a member, or subject to, the energy ombudsman scheme in the state or territory in which the exempt network is located, and comply with the requirements of that scheme.³¹⁰

In the 2017 Review, the Commission considered that access to independent dispute resolution was a priority to address. The AER and jurisdictional energy ombudsmen have been working collaboratively to extend scheme membership to embedded networks. The membership schemes and fee structures for energy ombudsmen were based on a relatively small number of authorised retailers and distributors, therefore, the inclusion of exempt sellers and exempt network service providers increases the members in each energy ombudsman's scheme exponentially. Energy ombudsmen in NSW, South Australia and Victoria have made changes to the membership scheme and fee structure, and are now accepting exempt sellers and exempt network service providers as members.

C.2.3 Retail price controls

Retail energy price controls are utilised where competition is "not yet effective for a market, group of users or a region".³¹¹ Retail energy price controls are jurisdictional functions, however, they can be transferred to the AER and the AEMC at the discretion of each jurisdiction.³¹² For example, the AER's retail exempt selling guideline, applicable to exempt sellers, contains a pricing condition.

The pricing condition contained in the AER's Retail Exemption Guideline is that customers supplied by the exempt seller must not be charged tariffs higher than the standing offer price that would be charged by the relevant local area retailer for new connections. Additionally under the pricing condition, notice must be given of any change in the customer's tariff, no additional charges that could not be charged by the local area retailer are allowed, and any

³⁰⁸ AER, *(Retail) Exempt Selling Guideline*, version 5, March 2018, pp. 34, 38, 41.

³⁰⁹ Section 86 of the NERL.

³¹⁰ AER, *Electricity Network Service Provider - Registration Exemption guideline*, version 6, March 2018, p. 39.

³¹¹ Australian Energy Market Agreement s. 14.15.

³¹² Australian Energy Market Agreement s. 14.15(b).

late payment fees must be limited to recovering reasonably incurred costs as a result of the customer's late payment.³¹³

Although the effectiveness of price controls based on standing offers has been questioned in recent years, with the Commission's *2018 Retail Energy Competition Review* finding the average standing offer to be as much as \$832 more annually than the best market offer,³¹⁴ the AER has the discretion to lower the price cap through its retail exemption guideline if it considers this appropriate.

In Tasmania, the ACT, the Northern Territory and for Ergon Energy's distribution network area in Queensland, the jurisdictional regulators have set regulated retail prices for standard supply customers. Any embedded networks would be restricted from charging more than those regulated retail prices under the pricing condition in the AER's Retail Exemption Guideline, as the regulated retail prices would be the standing offer prices in those jurisdictions.³¹⁵

C.2.4

Reliability

Reliability of electricity supply is a key factor considered in the national energy objective, with network reliability standards a jurisdictional regulatory function.³¹⁶

The levels of reliability that must be provided by transmission and distribution networks are contained in jurisdictional licence conditions or in state codes or regulations, and are generally measured by the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI).

Under traditional supply arrangements in the national interconnected system, each individual customer has a meter and a connection point that connects them directly to a DNSP's network. Customers (small customers only, in some jurisdictions) who are connected directly to the DNSP's network are subject to, by way of local legislation or codes, Guaranteed Service Levels (GSLs) covering areas such as reliability, customer service and connection and disconnection. Each jurisdiction prescribes GSLs, generally for each distribution business. These GSLs are usually included in a code or licence condition administered by the jurisdictional regulator.³¹⁷

In addition to the jurisdictionally set service reliability standards, there are reliability performance standards for DNSPs set by the AER. These are the performance targets set under the service target performance incentive scheme (STPIS).³¹⁸

313 AER, *(Retail) Exempt Selling Guideline*, version 5, March 2018, Condition 7 - Pricing, p. 37.

314 AEMC, *2018 Retail energy competition review*, final report, p. viii.

315 In the ACT, the Independent Competition and Regulatory Commission sets regulated prices for ActewAGL's retail regulated tariffs. In Tasmania, the Economic Regulator approves the regulated offer prices offered by Aurora Energy. In the Northern Territory, the Minister sets the maximum retail prices for small customers through an Electricity Pricing Order. In Queensland, the Queensland Competition Authority determines the regulated retail electricity price for Ergon Energy's standard contract.

316 Annexure 2, Australian Energy Market Agreement.

317 Chapter 5 in the NER details some power system performance and supply standards (technical requirements), as well as conditions for connection, but these do not cover reliability.

318 Section 2.1(a) of the AER's *Electricity distribution network service providers - Service target performance incentive scheme* (November 2009).

For current embedded networks, in the AER's Network Exemption Guideline reliability is only mentioned in relation to small generator installations. All systems are required to be reviewed by AEMO so that necessary performance standards can be applied, reducing the risk of impacts to reliability.³¹⁹

Reliability of supply for embedded networks and GSL payments are discussed in further detail in Appendix D.

C.2.5 Safety of electricity supply

When designing their grid connected networks, DNSPs are required to comply with a range of detailed safety obligations, taking all reasonable steps to make the network safe. Safety obligations vary between jurisdictions, and some jurisdictions impose obligations on DNSPs to implement a safety management system that expressly considers safety of the public, workers, property, the environment, and safety risks arising from a loss of supply. Jurisdictional regulators generally have audit and enforcement powers, and can apply penalties for failure to comply with these requirements.

In some jurisdictions the safety obligations imposed on licensed DNSPs are not extended to ENSPs. Other jurisdictions have safety obligations that more generally apply to the distribution of electricity. For example, from the Commission's initial analysis it appears that the *Electrical Safety Act 2002 (Qld)*, and the *Electrical Safety Regulation 2013 (Qld)*, which provide the legislative framework for electrical safety in Queensland, would apply to embedded networks, however, there are differences in obligations depending on whether the person is an 'electrical entity' (including a distribution entity) and whether the network is an 'electrical installation'. If an embedded network is classified as an electrical installation (as the ENSP is currently not classified as a distribution entity) there will therefore be differences in the safety requirements for DNSPs and ENSPs.

Under the AER's Network Exemption Guideline general requirements, exempt networks must be installed, operated and maintained in accordance with all applicable requirements for the safety of persons and property within the jurisdiction in which the embedded network is located. This includes relevant industry codes, guidelines or other instruments applicable to a network service provider providing similar services. Larger networks are required to obey any of the local safety requirements to have and maintain a safety management plan.³²⁰

C.2.6 Technical regulation such as equipment and performance standards

DNSPs must adhere to a number of technical regulations and design and performance standards when supplying grid-connected customers, and designing their networks. For example, there are design standards relating to overhead lines, underground lines, substations, generators, services and customer installations. In addition, there are quality of

³¹⁹ AER, *Electricity Network Service Provider - Registration Exemption Guideline*, version 6, March 2018, p. 50.

³²⁰ AER, *Electricity Network Service Provider - Registration Exemption Guideline*, version 6, March 2018, p. 36.

supply obligations relating to voltage range, frequency, and disturbances as well as enforcement regimes to monitor compliance with the obligations.³²¹

Australian Standard 3000 (AS 3000), the Wiring Rules, are incorporated in certain jurisdictional technical standards in part, providing fundamental safety principles for safe electrical installation. The Wiring Rules generally apply to work carried out by licensed electrical practitioners on electrical installations, which would include embedded networks.³²² Technical standards are also regulated by Service and Installation Rules (or similar) in each jurisdiction. The Service and Installation Rules are primarily designed to regulate the relationship between a licensed distributor and its grid connected customers. Further, the rules are designed to provide reasonable technical requirements that meet legislative and other regulatory requirements for connection to DNSP networks, and compatible requirements of the electrical installation which is to be connected to the DNSP's network. For example, the *Victorian Service and Installation Rules* apply to all installations connected, or to be connected, to Victorian electricity distribution networks, and all installations must comply with the Rules as a condition to acquiring and maintaining an electricity supply. The Rules cover areas such as supply application, connection and disconnection, supply types, use and protection, connection to the low voltage network, low voltage metering, and high voltage electrical installations.³²³

C.2.7

Ability to access land required for the supply of electricity

Under jurisdictional regulations, DNSPs have specific land access rights in order to install and maintain systems to supply grid-connected customers. For example, DNSPs may have rights to occupy public or private land, cross land, or resume land, undertake works, vegetation management and bushfire prevention measures. ENSPs do not generally have the power to acquire or access land, unless they have negotiated such rights under contracts.

Land access rights are contained under different legislative instruments in each jurisdiction. For example, in NSW network operators have land access rights under Part 5 of the *Electricity Supply Act 1995 (NSW)*, including powers to acquire land, enter and access premises, undertake works and vegetation management, and take bushfire prevention measures.³²⁴ DNSPs in Queensland have similar rights under Part 4 of the *Electricity Act 1994 (Qld)*.

In most jurisdictions it is likely that for embedded networks, rights of entry and management are largely regulated by contract and community by-laws. Jurisdictional laws governing different supply arrangements (for example body corporate or residential land lease or retirement villages) may provide some land access rights, however, the Commission has not yet conducted a review into these arrangements.

³²¹ For example, in NSW the *Electricity Supply Act 1995 (NSW)*, the *Electricity Supply (Safety and Network Management) Regulation 2014 (NSW)* and licence conditions provide technical regulations and design and performance standards.

³²² AS/NZS 3000: 2018, Electrical Installations.

³²³ The Victorian Service and Installation Rules Management Committee, *Victorian Electricity Distributors Service and Installation Rules 2014*, incorporating amendment 1.

³²⁴ *Electricity Supply Act 1995 (NSW)*, Part 5.

C.2.8 Other GSL categories

Under jurisdictional GSL schemes, each jurisdiction has GSLs for different services, with some jurisdictions having many GSLs, and some only a few. In addition to reliability GSLs discussed in detail in Appendix D other jurisdictional GSLs include:

- Notice of planned interruption
- Timeliness of new connections
- Missed scheduled appointments
- Timely repair of faulty streetlights
- Wrongful disconnection
- Reconnection
- Time to respond to complaints
- Time to respond to notification of a problem
- Hot water complaints.

C.3 Analysis and recommendations

The Commission's high level analysis on each of the jurisdictional consumer protections and safety arrangements and the application to new embedded networks is detailed below. The Commission has not undertaken detailed analysis of all jurisdictional regulatory instruments and it is not a comprehensive analysis of the jurisdictional consumer protections and safety regulations.

The Commission considers that current jurisdictional consumer protections that cover standard supply customers should, in many cases, be extended to customers in new embedded networks. For example, if the customer chooses a NEM retailer, then all retailer consumer protections including access to state-based concessions and rebates, and access to any jurisdictional retail price controls, should automatically apply. Depending on how key terms (such as 'distributor' and 'system') are defined in the jurisdictional instruments, some consumer protections and safety regulations will not automatically apply, and the jurisdictional regulatory instrument(s) will require amendment in order for them to apply to embedded networks. For some consumer protections or safety regulations, it may not be proportionate to apply equivalent obligations on ENSPs or on off-market retailers.

As discussed in chapter 8, next steps, further analysis including engagement with jurisdictional regulators to understand the intricacies of each jurisdiction's differing arrangements will be carried out in the next stage of this review.

C.3.1 Access to energy concessions and rebates

Vulnerable customers may be eligible for jurisdictional concessions or rebates. These are generally in the form of concessions and rebates for pension and concession card holder and/or low income customers, life support and medical energy cost rebates and emergency assistance towards energy costs.

A prerequisite for many of these rebates or concessions is that the applicant must be a customer of an authorised retailer (or exempt seller in some cases) and be listed as the account holder. As customers in new embedded networks will be supplied by an authorised retailer under our recommendations, whether a NEM retailer or an off-market retailer, customers should be able to access rebates and concessions in the same way that standard supply customers would be able to. Jurisdictional regulators would need to review the relevant regulatory instruments to determine if any amendments would be required to include off-market retailers in the definition of 'retailer'. Further, there may be some instances where alternative arrangements for payment of a concession or rebate are still required.

In addition, both NEM retailers and off-market retailers will be required to have a hardship program under the new framework, and it is likely that this would assist customers in new embedded networks in accessing jurisdictional emergency energy assistance schemes.

C.3.2

Access to energy ombudsman schemes for independent dispute resolution

Customers in new embedded networks will be supplied by a registered ENSP and an authorised retailer (either a NEM retailer or an off-market retailer), who are required to inform customers that they have a right to refer disputes and complaints to energy ombudsman under the NERR. The Commission is of the view that access to energy ombudsman schemes for independent dispute resolution for both distribution and retail issues should be extended to customers in new embedded networks. This would require jurisdictions to review jurisdictional energy ombudsman schemes to determine whether they need to be extended to require registered ENSPs and off-market retailers to become members. Once the scheme is extended to ENSPs and off-market retailers, the decisions made by the respective energy ombudsman would be binding in the same way as they would for standard supply customers.

As noted in the current arrangements section, the AER and jurisdictional energy ombudsmen have been working to extend scheme membership to embedded networks, with some energy ombudsmen schemes requiring exempt network service providers and exempt sellers to become members from July 2018, or 1 January 2019. This extends access to independent dispute resolution to exempt embedded networks in those jurisdictions.

C.3.3

Retail price controls

In the 2017 Review, the Commission was of the view that improving access to competition and other consumer protections rather than reforming price regulation in embedded networks was the most appropriate approach.³²⁵ Consequently, changes detailed in the rest of this draft report have been proposed to better enable customers in embedded networks to access retail competition, and to extend the consumer protections within the NERL and NERR to customers within embedded networks.³²⁶

The changes proposed in the report will assist customers in accessing retail competition and other consumer protections, as customers in new embedded networks will have a NMI and

³²⁵ AEMC, *Review of the regulatory arrangements for embedded networks*, final report, 28 November 2018, p. 137.

³²⁶ See chapter 7 of this report.

will be able to access retail offers from NEM retailers, as well as off-market retailers selling in the embedded network they reside in.³²⁷

The Commission continues to be of the view that price conditions are appropriate for child connection points in legacy embedded networks, in particular where workable competition may not emerge due to impediments to transitioning to the new framework. There may also be some new embedded networks where retail price regulation is also necessary. The Commission will consider this issue in relation to the transition, or otherwise, of legacy embedded networks to the updated framework.

C.3.4

Reliability

One of the key findings of the 2017 review of the regulatory arrangements for embedded networks was that an embedded network customer should be able to expect similar access to competition and consumer protections as a standard customer. To implement this principle implies the application of reliability standards to embedded networks to drive equivalent outcomes. However, the form of the reliability standards that would apply to embedded networks may need to differ from those that apply to a DNSP as both national and jurisdictional reliability standards use averages over thousands (and potentially hundreds of thousands) of customers.

Additionally, consideration will need to be given as to how customers at child connection points in embedded networks should be treated in regards to outages on the distribution network's feeder supplying the embedded network resulting in outages for customers within the embedded network. Currently, only one customer, the customer at the parent connection point, is included in any calculations for DNSPs' reliability standards.

The Commission's analysis of reliability standards for embedded networks is covered in more detail in Appendix D.

C.3.5

Safety of electricity supply

As detailed in the current arrangements section of this Appendix, safety obligations are generally placed on DNSPs via jurisdictional safety Acts, Regulations, guidelines and licence conditions. Some jurisdictions have different safety legislation for DNSPs than other for other parties working on electrical infrastructure or 'electrical installations', other jurisdictions have one set of legislative instruments applying to electricity safety in general.

Accordingly, from the Commission's initial analysis it is not clearly apparent that all issues related to worker and public safety in embedded networks have been fully addressed under the current regime in some jurisdictions. Where they have been addressed, it is not clear that they have been addressed in a proportionate manner.

Extending the jurisdictional safety Acts, Regulations, guidelines and licence conditions to all new embedded networks in entirety may not be proportionate, and could place onerous obligations on smaller embedded networks. Analysis of the safety obligations in each

³²⁷ Off-market retailers will be required to provide a standing offer for premises they are the designated retailer for, and may also choose to provide market offers to consumers.

jurisdiction, and the appropriateness of applying them to embedded networks, will be required to determine if current obligations can be extended either in full or with amendment, or whether alternative safety obligations may be more appropriate.

C.3.6 Technical regulation such as equipment and performance standards

The Commission's initial analysis suggests that technical regulations and design and performance standards that DNSPs must adhere to when supplying their customers and designing their networks, as well as quality of supply obligations, would likely not extend to ENSPs and embedded networks in most jurisdictions. Although the Australian Standard 3000 (AS 3000), the Wiring Rules, would likely apply in embedded networks, most other technical regulations and design and performance standards such as Service and Installation Rules (or similar) do not.

The Service and Installation Rules (or similar) would apply to the connection between the embedded network and the DNSP's network, however, the Commission's initial analysis suggested equivalent rules would not apply within embedded networks.

Customers would have some protections under the Wiring Rules. However, the calculation methods governing supply sizes in AS 3000 do not fully reflect the complexity of embedded networks and therefore capacity shortfalls or excesses may result. Rectification of capacity issues may prove to be expensive and it is not clear how the costs would be shared between the supplier and the customer.

Analysis of the technical obligations such as equipment and performance standards in each jurisdiction, and the appropriateness of the application to embedded networks, will be required to determine if current obligations can be extended either in full or with amendment, or whether alternative technical standards may be more appropriate. The size and complexity of the embedded network may be a consideration when determining the approach.

C.3.7 Ability to access land required for the supply of electricity

Initial analysis suggest that ENSPs or exempt network service providers would have no power to acquire or access land, unless they have negotiated such rights under contracts, or access rights are contained in jurisdictional laws governing different supply arrangements. The Commission has not conducted a review into these arrangements.

It is, however, unlikely that an ENSP would need all of the powers available to DNSPs relating to land access. Jurisdictions should review the land access rights conferred on DNSPs to determine if it would be appropriate for any of those rights to be extended to ENSPs to install, maintain and operate embedded networks.

C.3.8 Other GSL categories

The Commission's high level analysis suggests that the other GSL categories apart from interruption of supply that apply in different jurisdictions may be able to be applied to new embedded networks with minor alterations. There are no feeder categories or other issues that would restrict GSLs in categories such notification of planned interruption, time to

respond to complaints, missed scheduled appointments or connection timeframes. Customers in new embedded networks will be supplied by either a NEM retailer or an off-market retailer, both of which will be required to comply with the obligations under the NERL and NERR relating to the retail GSL categories. Similarly, ENSPs will be required to comply with obligations in the NERL and NERR relating to the distribution GSL categories.

GSLs in each jurisdiction, and their extension to customers within embedded networks, are discussed in more detail in Appendix D.

D RELIABILITY AND OTHER JURISDICTIONAL GSLS

D.1 Introduction

In the 2017 Review, the Commission made a number of recommendations for other parties to progress. One of the recommendations was for jurisdictions to review their safety and reliability regimes to determine whether the regimes remained appropriate.³²⁸ A number of submissions to the review raised reliability in embedded networks as an issue to be considered further.

In the NEM, the reliability that customers experience is a combination of the service provided by generators, transmission networks, and distribution networks. However, most of the outages that customers experience are due to issues on the distribution networks. Network reliability standards are a jurisdictional regulatory function, with the levels of reliability that must be maintained by distribution networks contained in jurisdictional licence conditions, and/or in state codes and regulations.³²⁹ For distribution, levels of reliability are generally measured by the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI).

Customers (small customers only, in some jurisdictions) who are connected directly to the DNSP's network are subject to, by way of local legislation or codes, Guaranteed Service Levels (GSLs) covering areas such as reliability, customer service and connection and disconnection. Each jurisdiction prescribes GSLs, generally for each distribution business. These GSLs are usually included in a code or licence condition administered by the jurisdictional regulator.

In addition to the jurisdictionally set service reliability standards, there are reliability performance standards for DNSPs set by the AER. These are the performance targets set under the service target performance incentive scheme (STPIS).³³⁰

One of the key findings of the 2017 Review was that an embedded network customer should be able to expect similar access to competition and consumer protections as a standard supply customer. To implement this principle implies the application of reliability standards to embedded networks to drive equivalent outcomes. However, the form of the reliability standards that would apply to embedded networks may need to differ from those that apply to a DNSP as both national and jurisdictional reliability standards use averages over thousands (and potentially hundreds of thousands) of customers.

Currently, it appears that few or no reliability standards or performance incentives apply within embedded networks. Embedded network operators are only subject to reliability obligations in the unlikely event that the relevant contracts include a provision to that effect. Additionally, although in most jurisdictions there are mandatory technical standards

³²⁸ AEMC, *Review of the regulatory frameworks for embedded networks*, final report, 28 November 2017, pp. vi, 112.

³²⁹ Chapter 5 in the NER details some power system performance and supply standards (technical requirements), as well as conditions for connection, but these do not cover reliability.

³³⁰ Section 2.1(a) of the AER's *Electricity distribution network service providers - Service target performance incentive scheme*, version 2.0 (November 2018).

prescribing minimum technical requirements for embedded networks at the time they are installed, there are no ongoing standards for reliability.

Embedded network customers receive a lesser level of reliability consumer protections than those customers connected to a DNSP's distribution network as they are not eligible for GSL payments, either from the DNSP to whose network the embedded network is connected for an interruption of the supply to the embedded network, or from the ENM for interruptions within the embedded network itself. Customers in embedded networks are also not covered by clearly defined jurisdictional reliability standards. At the upper end of the estimates, there are hundreds of thousands of embedded network customers not eligible for GSL payments if GSL thresholds are exceeded, who would be entitled to a payment if they were standard supply customers.

When a DNSP's performance against reliability standards is determined, embedded network customers are not included in the calculations to determine SAIDI and SAIFI – rather the embedded network is considered just to be a single customer at the parent connection point.

Additionally, there are no standards for supply restoration for customers within embedded networks if the outage is within the embedded network. Customers have limited to no recourse should the embedded network manager not restore supply in a timely manner following an interruption, and they do not receive any GSL payments³³¹ if unplanned interruptions exceed a certain duration or frequency.

This Appendix details the current arrangements for reliability standards and reliability and other jurisdictional GSLs, and provides the Commission's analysis and recommendations for the application of reliability standards and jurisdictional GSLs to customers within embedded networks.

D.2

Current arrangements

D.2.1

Reliability guaranteed service levels

Under traditional supply arrangements in the national interconnected system, each individual customer has a meter and a connection point that connects them directly to a DNSP's network. Customers (small customers only in some jurisdictions) who are connected directly to the DNSP's network are subject to, by way of local legislation or codes, GSLs covering areas such as reliability, customer service and connection and disconnection. Each jurisdiction prescribes GSLs, generally for each distribution business. These GSLs are usually included in a code or licence condition administered by the jurisdictional regulator.³³²

For reliability, there are generally GSLs for unplanned supply interruptions covering both duration and frequency of interruption. If the distributor does not achieve a minimum service level, it is required to pay the customer a nominal amount (ranging from \$20 to \$605 depending on the jurisdiction) in recognition that the GSL has been breached. The GSL

³³¹ The parent connection point may be eligible for a single GSL payment.

³³² Chapter 5 provisions in the NER detail some power system performance and supply standards (technical requirements), as well as conditions for connection, but these do not cover reliability.

payments are not intended to be reflective of the costs the customers may have incurred as a result of the interruption(s), but rather are some financial recognition of the outage(s).

To access a GSL payment, customers must be connected directly to the DNSP's distribution network through a metered connection point. The reliability thresholds that trigger a GSL payment vary between jurisdictions. Further, in some jurisdictions the same threshold is used across the jurisdiction, whereas in others thresholds can differ depending on the classification of the feeder the customer is supplied from (i.e. whether they are supplied by a CBD feeder, urban feeder, short rural feeder, long rural feeder or isolated feeder), or by distributor.

Customers who are supplied electricity at a child connection point in an embedded network are not entitled to GSL payments, even if they would have been eligible if they were directly connected to the distribution network, not via a parent connection point.

D.2.2 Jurisdictional reliability standards — SAIDI and SAIFI

Jurisdictional reliability standards are generally included within distribution network licence conditions or authorisations. The two main jurisdictional reliability standards are SAIDI and SAIFI. Both SAIDI and SAIFI measure unplanned interruptions of supply.

Although requirements for determining SAIDI and SAIFI targets, and the entity responsible for determining them, differ by jurisdiction, each jurisdiction generally requires reporting on overall SAIDI and SAIFI as a minimum.

Overall SAIDI is determined by the average minutes of supply interruption per customer. Overall SAIFI is determined by the average number of interruptions per customer. These measures are usually calculated by categories of feeder type. However, Tasmania does not categorise customers by feeder type, instead using geographical regions.

SAIDI and SAIFI calculations would currently include embedded networks, but only as single customers at each parent connection point — they do not currently account for every individual customer in embedded networks.

D.2.3 National reliability standards within economic regulation – STPIS

The AER is responsible for designing the STPIS under Chapter 6 of the NER. The primary purpose of STPIS is to encourage distributors to maintain existing levels of reliability and make improvements where customers are willing to pay for that improvement. STPIS is applied in the Australian Capital Territory, New South Wales, Queensland, South Australia, Tasmania and Victoria.

Under the STPIS scheme, DNSPs receive revenue increments (or decrements) for given levels of performance. The reliability supply parameters under STPIS are unplanned SAIDI, unplanned SAIFI and MAIFI (Momentary Average Interruption Frequency Index).

Again, under the STPIS scheme embedded networks would be recognised as single customers of the DNSP, but each child connection point would not be accounted for.

Unlike DNSPs, embedded networks are not themselves subject to economic regulation under Chapter 6 of the NER and so are not subject to STPIS.

D.2.4 Other jurisdictional GSLs

Under jurisdictional GSL schemes, each jurisdiction has GSLs for different services, with some jurisdictions having many GSLs, and some only a few. In addition to reliability GSLs, Table D.1 sets out other GSLs and the jurisdictions they apply in:

Table D.1: Other jurisdictional GSLs

GSL TYPE	APPLICABLE JURISDICTIONS
Notice of planned interruption	Queensland and the ACT
Timeliness of new connections	Queensland, the ACT, NSW, Victoria and South Australia
Missed scheduled appointments	Queensland, Victoria and South Australia
Timely repair of faulty streetlights	NSW and Victoria
Wrongful disconnection	Queensland
Reconnection	Queensland
Time to respond to complaints	The ACT
Time to respond to notification of a problem	The ACT
Hot water complaints	Queensland

Source: *Electricity Distribution Network Code (Qld)*, version 3, August 2018; *Consumer Protection Code (ACT)*, July 2012; *Electricity Distribution Code (Vic)*, August 2018; *Public Lighting Code (Vic)*, version 2, December 2015; *Electricity Distribution Code (SA)*, January 2018; Ausgrid, Endeavour Energy and Essential Energy licences available at <https://www.ipart.nsw.gov.au/Home/Industries/Energy/Energy-Networks-Safety-Reliability-and-Compliance/Electricity-networks/Licence-conditions-and-regulatory-instruments>, accessed on 20 December 2018.

There are currently no GSL payments for embedded network customers, unless they are supplied by an authorised retailer (on-market customers). For example, if the customer is supplied by an authorised retailer in the ACT, the GSL for time to respond to complaints may apply.

D.3 Analysis and recommendations

From our investigations, it does not appear there are any alternative frameworks providing reliability consumer protections for customers in embedded networks. While we have considered the jurisdictional energy regulations that would be expected to be relevant, we have not comprehensively examined the full breadth of jurisdictional instruments that might apply, in particular tenancy/occupancy legislation and building codes. However, if any relevant obligations exist under other legislation, it is highly unlikely that those obligations provide the same level of protection as the reliability standards that apply to customers outside of embedded networks.

Additionally, consideration will need to be given as to how customers at child connection points in embedded networks should be treated in regard to outages on the distribution network's feeder supplying the embedded network resulting in outages for customers within the embedded network. Currently, only one customer, the customer at the parent connection point, is included in any calculations for DNSPs' reliability standards. The customer at the

parent connection point is the only customer that would be considered for payments under GSL schemes, and it is likely that the customer at the parent connection would not be classified as a small customer and is therefore not eligible under some jurisdictions' schemes.

It is apparent from the Commission's analysis there are two scenarios that require consideration in regards to reliability:

- the application of DNSPs' reliability standards and GSL thresholds to incorporate customers in embedded networks that are impacted by interruptions to the DNSP's network
- application of reliability standards/GSL payments to the embedded network for supply interruptions *within* the embedded network.

Further analysis on including embedded network customers in DNSP reliability standards and GSLs, and the application of reliability standards and GSL payments to ENSPs is included below. It is recommended that jurisdictional governments/regulators give consideration to updating jurisdictional reliability standards to include customers of registered ENSPs.

D.3.1 Inclusion of embedded network customers in DNSP reliability standards

Supply interruption GSLs

Customers are currently only covered by GSL schemes if they have a metered connection directly to the distributor's network. Customers who are in embedded networks are impacted by unplanned interruptions on the distributor's network that cause supply interruptions to the embedded network parent connection point. That the customer is in an embedded network does not change the end result of such an outage — the customer is still without supply directly attributable to an unplanned interruption on the distribution network.

To treat customers within embedded networks in an equivalent way to standard supply customers would require that customers in embedded networks are provided with access to DNSP GSL payments if they have had unplanned supply interruptions caused by the distribution network that exceed the thresholds for interruption duration or frequency under the respective GSL schemes.

If acted upon by jurisdictional governments/regulators, the application of distribution GSL schemes to customers within embedded networks will necessitate reviews by each jurisdiction of their GSL schemes to broaden the application of the scheme.

If applied, it would require DNSPs to be able to determine the total number of customers in each embedded network, especially in those jurisdictions that require automatic payment of GSLs once thresholds have been breached. The national framework being developed for implementation in the review requires that all child connections in new embedded networks be allocated a NMI in AEMO's MSATS system.

The allocation of NMIs would provide DNSPs with the number of customers in new embedded networks connected to their distribution system. Further analysis will need to be undertaken by each jurisdiction to determine how GSLs can be applied (at a minimum) to customers in new embedded networks within the parameters of their specific GSL scheme, and how GSL payments can be made to embedded network customers.

Jurisdictional reliability standards – SAIDI and SAIFI

Similarly, current jurisdictional reliability standards do not incorporate embedded network customers (except for the parent connection point) in the calculation of SAIDI and SAIFI (and other applicable jurisdictional reliability standards) and therefore do not reflect the true number of customers impacted by supply interruptions on the DNSPs' networks.

While inclusion of embedded network customers in SAIDI and SAIFI calculations may not have such obvious benefits for these customers, it would seem appropriate that jurisdictional regulators that update jurisdictional schemes to make GSL payments available to embedded network customers (as discussed above) also make such a change to the SAIDI and SAIFI calculations.

Including embedded network customers will impact SAIDI and SAIFI results differently for each DNSP depending on whether the majority of embedded network customers are in areas of high reliability or low reliability. Feeders with poor reliability will see the SAIDI and/or SAIFI increase when embedded network customers are included. This may direct investment to areas of the network to improve reliability for customers who would otherwise have been overlooked.

As for GSL payments, the proposal under this review to require all child connections in new embedded networks to be provided with a NMI in MSATs would likely provide DNSPs with the information required to incorporate embedded network customers in their SAIDI and SAIFI calculations.

D.3.2 Application of reliability standards to ENSPs

Application of supply interruption GSLs to ENSPs

Currently, there are no standards for supply restoration for customers within embedded networks for outages within the embedded network. Customers have limited to no recourse should the exempt network service provider not restore supply in a timely manner following an interruption, and do not receive any GSL payments or similar if thresholds are exceeded.

As noted above, to provide customers of embedded networks with equivalent consumer protections as standard supply customers, this also implies the application of some form of reliability standard to the embedded network itself. However, considering embedded networks have a much smaller number of customers connected to their networks, applying SAIDI and SAIFI in the same way as for DNSPs would likely not be appropriate.

The most reasonable approach to providing reliability protections within embedded networks is likely to be to develop and apply a type of GSL scheme. Given that many embedded networks will not be subject to the same number of external impacts as distribution networks (e.g. interruptions caused by weather, vegetation, vehicles crashing into distribution poles), and the cause of any fault would generally be more readily identified due to the smaller geographic area, it is likely that lower thresholds (i.e. a higher standard) should be applied to trigger GSL payments for embedded networks, both for interruption duration and frequency.

Consideration would also need to be given to the monitoring and enforcement regime that should apply to embedded networks if they are required to comply with a GSL scheme. ENSPs would need to keep auditable records on supply interruptions within the embedded network and report on the number of GSLs they have paid to customers under each of the GSL categories. The jurisdictional regulator would also require monitoring and enforcement powers.

If acted upon by jurisdictional governments/regulators, the application of distribution GSL schemes to ENSPs will necessitate reviews by each jurisdiction of their GSL schemes to broaden the application of the scheme.

D.3.3 Other jurisdictional GSLs

The Commission's high level analysis suggests that the other GSL categories apart from interruption of supply that apply in different jurisdictions may be able to be applied to new embedded networks with minor alterations to jurisdictional instruments. There are no feeder categories or other issues that would restrict GSLs in categories such notification of planned interruption, time to respond to complaints, missed scheduled appointments or connection timeframes.

Changes proposed in this review to the NERL and NERR will require ENSPs to comply with any jurisdictional GSL schemes, if required by the jurisdictional regulator. Therefore, if jurisdictions choose to amend their schemes to include ENSPs, or develop alternative GSLs schemes for ENSPs, then ENSPs will be required to comply with those schemes.

Customers in new embedded networks will be supplied by either a NEM retailer or an off-market retailer, both of which will be required to comply with the obligations under the NERL and NERR which are the basis for the retail GSL category. Similarly, ENSPs will be required to comply with obligations in the NERL and NERR which are the basis of most distribution GSL categories.

Jurisdictional GSLs, the jurisdictions they apply in and the Commission's initial analysis on the application of these GSLs to embedded networks are included in Table D.2.

Table D.2: Other jurisdictional GSLs and their application in new embedded networks

GSL TYPE	JURISDICTIONS	APPLICATION TO NEW EMBEDDED NETWORKS
Notice of planned interruption	Queensland and the ACT	This GSL relates to distributors providing 4 business days' notice for planned interruptions to supply. ENSPs will be required to comply with this notification period under the NERR. The Commission's initial analysis shows no reasons why this should not be extended to ENSPs. Amendments to the Codes in Queensland and the ACT would be required if this GSL was to extend to ENSPs.
Timeliness of new connections	Queensland, the ACT, NSW, Victoria and South Australia	New connection GSLs differ in each jurisdiction, but this GSL generally provides payment if specified connection timeframes are not met for premises which are already physically connected to the electricity network, or if the customer remains not connected after an agreed date if the customer has met the necessary pre-conditions. The Commission's initial analysis shows no reasons why this should not be extended to ENSPs. Amendments to the Codes in Queensland, the ACT, Victoria and South Australia would be required if this GSL was to extend to ENSPs. In NSW GSLs are contained in licence conditions, therefore a different instrument would be required if this GSL was to be extended to ENSPs.
Missed scheduled appointments	Queensland, Victoria and South Australia	In these jurisdictions there are GSL payments if the DNSP does not attend a customer's premises within an agreed timeframe (i.e. they are late, or do not attend). Specifics differ between the jurisdictions, however, the Commission's initial analysis shows no reasons why this GSL should not be extended to ENSPs. Amendments to the Codes in Queensland, Victoria and South Australia would be required if this GSL was to be extended to ENSPs.
Timely repair of faulty streetlights	NSW, Victoria and South Australia	Timeframes for the repair of faulty streetlights differ in each jurisdiction for this GSL, however, DNSPs are required to repair faulty streetlights within a certain timeframe, or they will be liable to pay the first person to report the faulty streetlight

GSL TYPE	JURISDICTIONS	APPLICATION TO NEW EMBEDDED NETWORKS
		(within certain conditions). The Commission’s initial analysis shows no reasons why this should not be extended to ENSPs whose embedded networks contain street lights, if they continue to apply to DNSPs. However, the Commission notes that this is likely to be not a large issue for embedded networks. Amendments to the Codes in Victoria and South Australia would be required if this GSL was to extend to ENSPs. In NSW GSLs are contained in licence conditions, therefore a different instrument would be required if this GSL was to be extended to ENSPs.
Wrongful disconnection	Queensland	Under the Queensland Electricity Distribution Code, GSL payments are due if a DNSP disconnects a customer without being entitled to, or disconnects the wrong customer. This includes if the DNSP wrongly disconnects a customer due to an error in the retailer’s request, or if the retailer has not given the customer a disconnection warning notice in accordance with the electricity legislation. The Commission’s initial analysis shows no reasons why this should not be extended to ENSPs. The Electricity Distribution Code would require amendment if the scheme was to be extended to ENSPs.
Reconnection	Queensland	Under the Queensland Electricity Distribution Code if a customer has been disconnected, and is entitled to be reconnected within specified timeframes, and the DNSP does not reconnect the customer within that timeframe, the DNSP must provide the customer with a GSL payment. The Commission’s initial analysis shows no reasons why this should not be extended to ENSPs. The Electricity Distribution Code would require amendment if the scheme was to be extended to ENSPs.
Time to respond to complaints	The ACT	Under the ACT Consumer Protection Code, an <i>obliged provider</i> must acknowledge complaints as soon as practicable, and respond to complaints within 20 business days. NERL retailers and

GSL TYPE	JURISDICTIONS	APPLICATION TO NEW EMBEDDED NETWORKS
		electricity distributors are <i>obliged providers</i> . Off-market retailers will be NERL retailers under the proposed framework. An electricity distributor is a licensed distributor in the ACT. The Commission's initial analysis shows no reasons why this should not be extended to ENSPs, however, this would require the ACT government to include ENSPs in the definition of electricity distributors in the Consumer Protection Code.
Time to respond to notification of a problem	The ACT	Under the ACT Consumer Protection Code, an <i>obliged provider</i> must respond to a problem or concern with the <i>obliged provider's</i> network within certain timeframes. For this GSL, an obliged provider is an electricity distributor, defined as licensed distributor in the ACT. The Commission's initial analysis shows no reasons why this should not be extended to ENSPs, however, this would require the ACT government to include ENSPs in the definition of electricity distributors in the Consumer Protection Code.
Hot water complaints	Queensland	The Queensland Competition Authority's draft decision for Review of Guaranteed Service Levels to apply to Energex and Ergon Energy from July 2020 recommends removing this GSL. The Commission has therefore not analysed this GSL at this stage.

Source: Electricity Distribution Network Code (Qld), version 3, August 2018; Consumer Protection Code (ACT), July 2012; Electricity Distribution Code (Vic), August 2018; Public Lighting Code (Vic), version 2, December 2015; Electricity Distribution Code (SA), January 2018; Ausgrid, Endeavour Energy and Essential Energy licences available at <https://www.ipart.nsw.gov.au/Home/Industries/Energy/Energy-Networks-Safety-Reliability-and-Compliance/Electricity-networks/Licence-conditions-and-regulatory-instruments>, accessed on 20 December 2018.