AEMC

REVIEW

Australian Energy Market Commission

FINAL REPORT

REVIEW OF THE REGULATORY FRAMEWORKS FOR STAND-ALONE POWER SYSTEMS - PRIORITY 2

31 OCTOBER 2019

INQUIRIES

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

E aemc@aemc.gov.au
T (02) 8296 7800
F (02) 8296 7899

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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.

SUMMARY

1 In August 2018, the Australian Energy Market Commission (AEMC or Commission) was asked by the COAG Energy Council to undertake a review of the regulatory arrangements for stand-alone power systems under the national energy laws and rules.

2 This report sets out and explains the Commission's final recommendations for the regulatory frameworks that should apply to stand-alone power systems (SAPS) provided by parties other than distributors in the National Electricity Market (NEM). These "third parties" could include a wide range of potential providers, including community groups, local councils, developers or NEM market participants.

3 Under the terms of reference for the review, the Commission was asked by the COAG Energy Council to look at the use of SAPS by NEM distributors as a first priority for the review. A final report for distributor-led SAPS under priority 1 was published on 30 May 2019.

4 In the priority 1 final report, the Commission recommended the implementation of new regulatory arrangements that would allow NEM distributors to use stand-alone power systems where it would be economically efficient to do so. The arrangements would closely follow existing national energy frameworks to enable customers receiving stand-alone systems to retain all of their current consumer protections, including access to retail competition and existing reliability standards, such that they would not be disadvantaged where a distributor determined that it would be more cost-effective to supply them on a stand-alone basis.

5 The approach set out in this priority 2 final report for third-party SAPS aims to provide a more flexible framework capable of accommodating the broader range of providers and circumstances that could be associated with third-party systems. The framework aims to provide for future developments and technological changes in the energy industry. In contrast to priority 1, customers will generally be making a choice to transition to third-party provision or to move to premises supplied by a third-party system. Additionally, service providers themselves are likely to be much smaller and less well resourced than distribution businesses in the NEM would be, and may operate under a variety of ownership structures and operating models.

6 To meet these requirements, the Commission has developed a tiered framework that would provide appropriate protections for consumers, but with these applied in a proportionate manner. A number of categories of stand-alone system would be identified, with regulatory obligations tailored to fit each category. The very largest systems would be regulated under national frameworks, but smaller systems - likely to be by far the majority - would be subject to jurisdictional arrangements.

7 A tiered framework is appropriate to account for the potential wide variation in third-party SAPS, while allowing for consumer outcomes consistent with those under standard supply arrangements or distributor-led SAPS.

Background

8 A stand-alone power system (SAPS) is an electricity supply arrangement that is not physically connected to the national grid. The Commission uses the term to encompass both microgrids, which supply electricity to multiple customers, and individual power systems (IPS), which relate only to single customers.

9 Currently, the national energy laws and rules only apply to the interconnected electricity grid on the east coast of Australia that forms the NEM.[1] Where there are stand-alone systems not connected to this grid, generally in remote areas, these are subject to regulation by states and territories at the jurisdictional level.[2]

10 State and territory regimes for SAPS differ quite widely, and regulation is not necessarily comprehensive. Most jurisdictions have some form of licensing or exemption system that allows certain conditions to be applied to licensees, but some jurisdictions do not. Customers of SAPS often have some pricing protections but reliability standards may be less prescriptive, for example.

11 Changes in technology and technology costs are leading stand-alone power systems to become an increasingly viable option for providing electricity services to customers. Consequently, enhancements to the regulatory framework are required to allow customers to take advantage of new technology and approaches, and enable the adoption of future advancements in technology.

12 In 2017, the Commission considered a rule change request made by Western Power that sought to better allow for the use of alternative technologies and methods of providing distribution services, such as transitioning customers to off-grid supply, primarily by Distribution Network Service Providers (DNSPs) registered in the NEM. The Commission concluded that there may be situations where it would be efficient to allow DNSPs to offer off-grid supply, but that a broader package of framework changes would be required to properly implement the required reforms. Consequently, the Commission determined not to make a rule at that time, but recommended that the COAG Energy Council ask it to provide advice on the law and rule changes that would be required.

13 Similar conclusions were reached by the *Independent Review into the Future Security of the National Electricity Market* ('the Finkel Review') and the Australian Competition and Consumer Commission (ACCC) in its retail electricity pricing inquiry, with both recommending that a review of the regulation of SAPS be undertaken so that these systems could be used where efficient to do so.

14 In light of these recommendations, and building on work previously undertaken by its Energy Market Transformation Project Team (EMTPT), on 23 August 2018, the COAG Energy Council directed the Commission to conduct a review of changes required to the national electricity framework for stand-alone power systems.

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1 Certain elements of the national laws and rules also apply to the three largest electricity systems in the Northern Territory.

2 Note that Queensland applies some national regulation to stand-alone power systems.

Approach

15 As noted, under the terms of reference, the review was split into two priority areas:

- priority 1, focussing on the development of a national framework for customers that move from grid-connected supply to stand-alone systems provided by DNSPs
- priority 2, focussing on the development of a national framework to support the supply of electricity from stand-alone power systems provided by parties other than DNSPs.

16 Additionally, under priority 1, the Commission was asked to develop a mechanism to facilitate the transition of customers currently supplied by a DNSP to a stand-alone power system provided by a party other than a DNSP, such as a developer or community group. The terms of reference contemplated that such systems could then be regulated on an ongoing basis under existing jurisdictional frameworks or under the regulatory arrangements to be developed by the Commission in accordance with priority 2.

17 A final report for priority 1 was published on 30 May 2019. In addition to the key recommendations to facilitate use of SAPS by DNSPs, this also contained recommendations for amendments to the national frameworks to enable the transition of existing DNSP customer to SAPS supply provided by parties other than the local distribution business.

18 The Commission commenced consultation on priority 2 of the review through the publication of a consultation paper on 1 March 2019, with submissions being received from 20 stakeholders in response. A draft report for priority 2 was published on 27 June 2019, with 13 submissions being received.

19 To develop its recommendations for priority 2, the Commission identified and consulted on potential issues, comparative arrangements under different models of supply and policy considerations across a range of seven dimensions for regulation:

- **Registration and licensing**, covering eligibility criteria to provide assurance that service providers are 'fit and proper', and to provide a means for the application of further regulatory obligations, as well as covering supply continuity.
- **Access and connection**, comprising obligations to supply, connect and/or provide access.
- **Economic regulation**, which refers to the regulation of prices charged or revenues earned by the service provider for supply, connection and/or access.
- **Consumer protections** which provide rights for consumers, including protections for vulnerable consumers, and aim to prevent unfair practices or unscrupulous behaviour.
- **Reliability of supply** obligations to support adequate and efficient levels of reliability.
- **Network operations**, including system security and technical standards, in addition to metering and settlement.
- **Safety standards** governing the safe supply of electricity to consumers, and the safety of electrical works and the general public.

20 To a greater extent than for priority 1, the issues considered under priority 2 also relate to the Commission's work on embedded networks. The Commission self-initiated the *Updating the regulatory frameworks for embedded networks* review on 30 August 2018, and published

a final report on 20 June 2019.[3] The report describes and explains an accompanying package of drafting changes to the national energy laws and rules to implement the recommendations from the Commission's earlier *Review of the regulatory arrangements for embedded networks*.

21 The Commission recognises the risk that may be introduced if inconsistent regulatory approaches are adopted for DNSP SAPS, third-party SAPS and embedded networks. As such, the Commission has closely coordinated and considered the linked policy and legal issues between the SAPS priority 1, SAPS priority 2 and embedded networks workstreams.

This report

22 This report presents and explains the Commission's recommendations for the regulatory framework that should apply to third-party SAPS.

23 As noted above, in developing this framework, the Commission has sought to apply consistent principles between priority 2, priority 1 (distributor-led SAPS), and the Commission's recommended framework for embedded networks, as well as standard supply, recognising the importance of areas such as licensing, consumer protections and access to retail competition. However, how those principles are applied for third-party SAPS in practice will vary, depending on:

- the size of the system (for example, only large systems are likely to be able to support retail competition and justify the costs of economic regulation) and
- whether it is regulated under national or jurisdictional rules (noting that regulation of third-party SAPS is currently the responsibility of jurisdictions).

24 In addition, a key difference between DNSP-led SAPS and third-party SAPS is the area of consent and customer choice. Customers transitioning to a DNSP-led SAPS would be doing so because it has been identified by the DNSP that it would be more economically efficient way of supplying the customer, and customer consent to the transition would not be required. In contrast, customers transitioning to a third-party SAPS, establishing a third-party SAPS, or moving into a premises supplied by a third-party SAPS are more likely to be doing so by choice.

25 Similarly, customers of third-party SAPS are more likely to have alternative choices than standard supply customers. Third-party SAPS customers would not be able to access cross-subsidies present in standard supply network tariffs that offer benefits to high cost to serve customers and, as such, supply from an IPS would likely be a comparable financial cost to supply via a third-party microgrid. In addition, customers would have the choice to request a connection offer from the local DNSP. All of these factors mean that consent and choice should drive principles for the appropriate regulatory frameworks for third-party SAPS.

26 The Commission took a forward-looking view in developing the framework for third-party SAPS, recognising that a variety of SAPS may be more common in the future as technology continues to advance. The scope and breadth of potential SAPS is large, with many variations

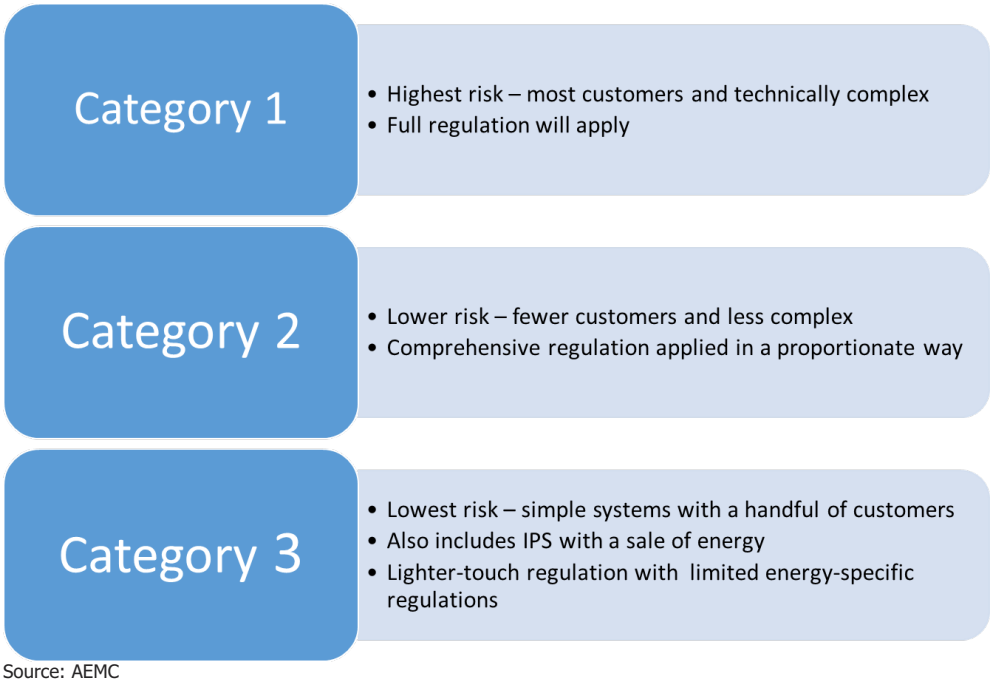
3 AEMC, *Updating the regulatory frameworks for embedded networks*, Final report, 20 June 2019.

likely in the size of the systems, as well as ownership structures and operating models. Consequently, the Commission considers that a one-size-fits-all approach will not be appropriate for the regulation of third-party SAPS. Instead, regulatory arrangements should allow the Commission's overarching principles to be applied in a proportionate and flexible manner, with these allowing for consistent consumer outcomes to be achieved.

27 While the Commission is cognisant of minimising opportunities for regulatory arbitrage between types of supply, it considers that the most appropriate approach to regulating third-party SAPS will be through a tiered framework which enables the application of regulation (where necessary and appropriate) that is proportionate. Numerous stakeholders have advocated such an approach, with a number highlighting a straw man concept outlined by the Independent Pricing and Regulatory Tribunal (IPART) in response to an earlier NSW government consultation.

28 To develop the tiered framework, the Commission considered the appropriate categories for third-party SAPS, how boundaries would be drawn between categories and what type and level of regulation would be required for each category.

Figure 1: Proposed tiered framework for third-party SAPS



Source: AEMC

29 The recommended framework covers three broad categories of system:

- Category 1 would comprise very large microgrids, in particular those large enough to warrant regulatory determinations by the AER. The existence of network tariffs arising from the regulatory determinations, together with the likelihood of a relatively large number of customers, would mean that such systems should also be able to support

effective retail competition. Consequently, this category of microgrids would be regulated in an equivalent manner to standard supply customers, and DNSP-led SAPS. As such, the existing national laws and rules would be extended to apply to these systems so they are regulated in the same way as standard supply, as should relevant existing jurisdictional frameworks.

- Category 2 microgrids will range from those supplying smaller towns to those connecting more than a handful of customers. Effective retail competition is unrealistic in this category as any network tariffs would be specific to each microgrid and retailers generally require many thousands of customers for it to be cost effective to develop specific retail tariffs and therefore support retail competition. In any event, the costs associated with the AER revenue determination process to set network tariffs would be disproportionately burdensome. Consequently, microgrids under category 2 will generally be vertically integrated. The flexibility and proportionality in a regulatory framework necessary to accommodate the potential breadth of circumstances is likely to be most effectively supported through regulation being undertaken at a jurisdictional level. However, the development of frameworks along nationally consistent principles would be desirable to minimise additional compliance costs for operators seeking to operate on a national basis.
- Category 3 would encompass very small microgrids with a handful of customers, microgrids which only supply large customers and IPSs where there is a sale of energy. These microgrids and IPSs are likely to have a much lower regulatory risk and failure of the energy provider would impact a much smaller number of customers. In addition, customers are likely to have a higher degree of control over system specifications and requirements, and greater bargaining power. A proportionate framework would therefore have some minimum consumer protections, such as billing requirements, as well as energy-specific safety requirements, basic metering requirements and some technical standards. Applying these requirements through jurisdictional license conditions or jurisdictional exemption conditions would allow for flexibility and likely strike an appropriate balance between risks and costs.

30 Energy-specific regulation generally only applies where there is a network connecting more than one customer, or where there is a sale of energy. For IPSs where there is no sale of energy, that is where the customer has brought the IPS outright from an equipment provider or installer, and owns and operates the IPS themselves, the Commission's view is that the impost of additional energy-specific regulations beyond those relating to safety would not be proportionate and would not be consistent with the existing national and jurisdictional approach to energy regulation. Where there is no sale or supply of energy the IPS will be covered by Australian Consumer Law, and any applicable jurisdictional safety regulations that apply to electrical installations.

31 A key question for the review has been how to determine which category a given third-party SAPS will fall into, and the Commission has given further consideration to this matter since the draft report. The Commission's recommendations in this area are as follows:

- Category 1 systems would be determined by a coverage test to assess whether facilitating competition in generation and retail through mandated access to the SAPS under the national regulatory regime would be appropriate. The Commission's

recommended test is structured around two key tests: that there would be a reasonable prospect, within a reasonable timeframe, that effective competition would become established as a result of coverage; and that coverage would not generate costs that would exceed the expected benefits.

- Category 2 would encompass systems that are bigger than category 3 but for which the category 1 coverage test is not passed. The threshold between categories 2 and 3 might be based on simpler, more deterministic criteria such as the number of small customers, the size and complexity of the system, and the public safety risks posed by the microgrid. While the test to determine regulatory coverage under category 1 would be specified on a national basis, the threshold between categories 2 and 3 would be specified on a jurisdictional basis, and it might be appropriate for this vary to reflect local circumstances.
- Category 3 would include systems with a sale of energy and/or more than one customer but fewer customers than the category 2 trigger. This category would also include microgrids with only large customers. Any other triggers for category 2 status, such as technical characteristics, would also not be met.

32 This report sets out the Commission's recommendations for the regulatory obligations that should apply to each category, for each of the seven regulatory dimensions considered in the review. These are set out in the Table 1 at the end of this Executive Summary, and include the form of registration or licensing that would be used to give effect to the further obligations. It should be noted that, under the tiered approach, the precise requirements for category 2 and 3 systems would be developed and applied by jurisdictional governments and regulators. As such, the Commission's final recommendations for categories 2 and 3 are generally not specified in prescriptive detail.

Implementation

33 Implementation of the recommended framework will require a package of changes to the national energy law and rules, and to jurisdictional legislative instruments. Those third-party SAPS classified as category 1 SAPS will be regulated under the national framework, supported by jurisdictional regulations in line with the Australian Energy Market Agreement. Those third-party SAPS classified as category 2 and 3 SAPS will be regulated under relevant jurisdictional legislative instruments.

34 Consequently, the recommendations made in this final report in respect of the regulatory framework for stand-alone power systems relate to four groups of changes — that is:

- to the NEL and NERL, in order to enable the provision of electricity via category 1 SAPS as a regulated service and to allow rule changes to be made to implement the recommended framework for category 1 SAPS and the transition to third-party SAPS
- to the NER and NERR, in order to introduce rules to apply the recommended framework for category 1 SAPS, and to allow customers to transition from a grid-connection to third-party SAPS with explicit informed consent[4]

4 The recommended arrangements for the transition of grid-connected customers were developed under priority 1 of the review. For further details, see Chapter 8 of the priority 1 final report.

- to jurisdictional legislative instruments, so that they are consistent with, and supportive of, the recommended framework for category 1 SAPS, and
- to jurisdictions' legislative instruments and licenses, to provide the regulatory framework for category 2 and 3 third-party SAPS.

35 Recognising the benefits of timely implementation by the COAG Energy Council, the Commission has prepared recommended drafting instructions for amendments to the NEL and NERL i.e. the first group of changes above. The COAG Energy Council can submit these to Parliamentary Counsel for consideration.

36 There are a number of ways that the complete package of national energy law and rule changes could be implemented. However, in light of the approach to implementation of the priority 1 recommendations agreed by the COAG Energy Council's Senior Committee of Officials and being progressed by the AEMC at present, the Commission anticipates the priority 2 recommendations set out in this report proceeding in a similar way — that is:

- The COAG Energy Council endorses the policy recommendations made in this final report, noting agreed changes by the Council (if any), and tasks the Commission with developing a package of draft changes to the NER and NERR to apply the recommended framework.
- The national law and rule changes would then be submitted by the COAG Energy Council for endorsement as a complete package of reforms. The South Australian Parliament would make the agreed amendments to the NEL and NERL while the South Australian Minister would make the Rules.

37 This approach would allow the Commission to commence work on developing detailed rule changes to implement the recommended framework following endorsement by the COAG Energy Council. If the Commission's recommended framework is endorsed at the next meeting of the COAG Energy Council on 22 November 2019, the Commission would be in a position to commence the development of a package of rule changes relatively quickly. This would enable the complete package of law and rule changes to be delivered to the South Australian Parliament and Minister in the first half of 2020. The Commission's recommended framework could then take effect as early as the first half of 2021, depending on jurisdictional arrangements.

38 In conjunction with the enactment of the recommended law and rule changes to implement the recommended regulatory framework for category 1 third-party SAPS, jurisdictions will also need to make amendments to relevant jurisdictional instruments. This will include changes to NERL application Acts in some jurisdictions, as well as a more general review of regulatory instruments needed to support category 1 SAPS. The review and (where required) amendment of jurisdictional instruments and application Acts was recommended to be completed by the first half of 2021 under priority 1 of the review (DNSP-led SAPS). The Commission does not anticipate jurisdictions will be required to make changes additional to those required under priority 1 to provide for category 1 third-party SAPS.

39 To provide a regulatory framework for category 2 and 3 third-party SAPS, jurisdictions will need to determine license conditions to impose appropriate and proportionate obligations on third-party SAPS operators. The Commission has provided recommendations in this report for the access and connections obligations, consumer protections, economic regulations,

reliability measures, network operations and system security obligations and safety requirements it considers appropriate for category 2 and 3 third-party SAPS. However, jurisdictions will ultimately decide the appropriate conditions for each category 2 and 3 third-party SAPS.

40 The development of jurisdictional frameworks for category 2 and 3 third-party SAPS is not required in order for national changes to be made, nevertheless the Commission encourages jurisdictions to commence this process as soon as possible in order to realise the benefits.

41 A comprehensive implementation plan is included in Chapter 5 of the report.

Table 1: **Recommended regulatory obligations under the tiered framework**

DIMENSION	CATEGORY 1	CATEGORY 2	CATEGORY 3
Registration and licensing	Registration and licensing arrangements should be as for standard supply. Existing NEM Retailer of Last Resort (RoLR) arrangements will apply.	Licensing should be undertaken on a jurisdictional basis with combined licenses for network, generation and retail activities. Licence conditions would be determined on a risk basis. No form of registration with AEMO would be required. Provisions for continuity of supply should be developed to apply in the event of a failure of a vertically integrated category 2 service provider.	Licensing/ exemptions should be undertaken on a jurisdictional basis using either a risk-based licensing regime with proportionate licence conditions or an exemptions framework with exemption conditions. No OoLR arrangements would apply.
Access and connections	A "coverage test" will be used to determine microgrids large enough to warrant the application of an access regime (and therefore be classified as category 1 SAPS). This regime would be the same as in the NEM. Retailers would also have access to the customers of Category 1 SAPS in the same way they have access to grid-connected customers.	Obligations to offer to supply and connect end users, including micro embedded generators, through jurisdictional license conditions. Jurisdictions may also decide to extend these obligations to generators less than 5MW. Alternatively, jurisdictions may decide to implement a negotiate/arbitrate regime for some category 2 SAPS.	No obligations to connect and supply customers.
Economic regulation	Economically regulated by the AER in the same manner as existing DNSPs including revenue determinations and	Some form of light-handed economic regulation by jurisdictions under license conditions. A form of price transparency	Not economically regulated.

DIMENSION	CATEGORY 1	CATEGORY 2	CATEGORY 3
	incentive schemes. Retail price regulation in jurisdictions with current retail price regulation.	and price monitoring would be required for both retail and connection charges at a minimum. More prescriptive forms of economic regulation could also be considered by jurisdictions to apply to larger category 2 SAPS.	
Consumer protections	Retailers would be authorised by the AER, with the full suite of consumer protections under the National Energy Customer Framework (NECF) and any applicable jurisdictional consumer protections to apply. Consumers should have access to jurisdictional energy ombudsman schemes and concessions, rebates and emergency payment assistance.	Comprehensive consumer protections largely consistent with the consumer protections in other supply models would be applied through jurisdictional license conditions.	Minimum consumer protections such as billing information, payment minimum requirements and disconnection and reconnection obligations would apply through exemption/license conditions.
Reliability of supply	Same reliability requirements as DNSPs, including jurisdictional reliability standards (SAIDI and SAIFI), Guaranteed Service Level (GSL) schemes and STPIS. Some variations to the STPIS and jurisdictional standards may be required. The reliability standard set in the NER would apply for generation.	Reliability targets in jurisdictional licence conditions (which may not be as prescribed as for DNSPs). Reporting on performance against reliability targets and any rectification requirements for poor reliability also included in jurisdictional licence conditions.	Reliability performance for category 3 SAPS would be expected to be addressed in the contract between the SAPS provider and individual customers, not through a jurisdictional target.

DIMENSION	CATEGORY 1	CATEGORY 2	CATEGORY 3
Network operations and system security	An independent system operator responsible for operating the system, including maintaining system security and reliability would be required in a category 1 SAPS. System security requirements, which may be a simplified version of the NER requirements, will be needed. Jurisdictional and NER technical standards that apply to DNSPs are recommended for category 1 SAPS. For metering and settlement, existing NEM arrangements would apply, including AEMO settlement and metrology procedures and NEM compliant metering. Retailers would be responsible for arranging metering services for small customers.	The system operator would be the SAPS provider. The SAPS provider would be responsible for system operator functions and maintaining system security and reliability. Jurisdictional system security and technical standards should include adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits. SAPS operators should be required to prepare and submit for approval asset management (technical and maintenance) plans. For metering and settlement, jurisdictional licence conditions should require SAPS operators to use pattern approved meters and develop a metering plan for approval by the jurisdictional regulator.	The system operator would be the SAPS provider. Security and reliability of the system would be the responsibility of the SAPS provider. Jurisdictional system security and technical standards for microgrids should include adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits. SAPS operators should be required to prepare and submit for approval asset management (technical and maintenance) plans. For IPS, jurisdictions should require compliance with relevant Australian Standards, in particular the AS/NZS 4509 series, where this is not already the case. For metering and settlement, jurisdictional licence conditions should require SAPS operators to use pattern approved meters.
Safety	The Commission recommends the same jurisdictional safety arrangements applied to DNSPs connected to the interconnected grid	The Commission recommends that operators of category 2 SAPS be required to develop and maintain a Safety Management System (SMS) under AS	The Commission recommends that the safety obligations imposed on category 2 SAPS also be applied to category 3 microgrids, albeit rationalised to the

DIMENSION	CATEGORY 1	CATEGORY 2	CATEGORY 3
	also be applied to category 1 SAPS distributors. Mandatory jurisdictional reporting schemes for safety incident reporting should also be extended to category 1 SAPS.	5577. Jurisdictions should consider developing a national model regulatory framework for the SMS requirement, for incorporation in jurisdictional statutes. Jurisdictional regulators should consider whether certain jurisdictional safety standards and codes should be mandatory for category 2 third-party SAPS. Mandatory jurisdictional reporting schemes for safety incident reporting should apply.	extent necessary to account for the degree of safety risks associated with the system. For IPS, the Commission recommends that AS 3000 and AS 4509, as well as any other standards the jurisdictions consider appropriate, should be enforced.

Source: AEMC

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1 INTRODUCTION

The COAG Energy Council requested that the Australian Energy Market Commission (AEMC or Commission) undertake a review of the regulatory arrangements for stand-alone power systems (SAPS). The review focused on the regulation of new SAPS, and was required to consider three sets of circumstances:

- the transition of currently grid-connected customers to a SAPS provided by their existing distributor
- the transition of currently grid-connected customers to a SAPS provided by a party other than their existing distributor ('third-party SAPS')
- the ongoing regulation of third-party SAPS.

The first two of these requirements were met by the Commission's final report on priority 1 for the review.[5]

This report sets out the Commission's recommendations for the third of these three requirements — the development of regulatory frameworks for third-party SAPS. It includes the Commission's position relating to SAPS supply by parties other than the local distribution network service provider (DNSP). This report completes priority 2 for the review.

This chapter provides an introduction to the review and outlines:

- the background to the *Review of the regulatory frameworks for stand-alone power systems*, in particular for priority 2 on third-party stand-alone power systems
- a summary of the review, including terms of reference, progress so far and structure of this report
- an overview of other related ongoing work, and
- the structure of this report.

1.1 Background

The falling costs of renewable generation and batteries are leading to significant decreases in the costs of providing off-grid electricity supply. In some areas, including those prone to bushfire risk or heavily vegetated, off-grid supply may now be less costly than standard supply. In addition, off-grid supply offers customers potential additional benefits, such as improved reliability for customers in remote regions, and a reduced carbon footprint. There are currently relatively few customers receiving supply from a SAPS due to a combination of factors that include limitations in the regulatory frameworks and the nascence of the SAPS industry.

1.1.1 Definitions and concepts

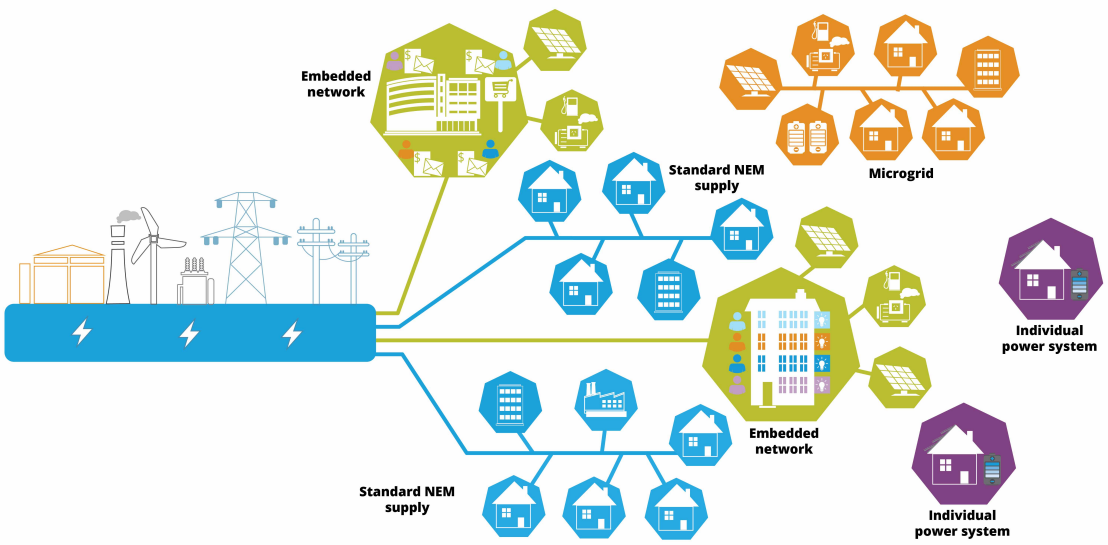
For the purposes of the review, we consider there to be four possible models of electricity supply for customers:

5 AEMC, *Review of the regulatory frameworks for stand-alone power systems — priority 1,* Final report, 30 May 2019.

- supply via the interconnected grid, which we refer to as "standard supply"
- supply via an embedded network, which in turn is connected to the interconnected grid or a microgrid
- supply via a microgrid isolated from the interconnected grid
- supply via an individual power system (IPS).

The non-standard forms of supply are described in more detail below.

Figure 1.1: Four models of electricity supply



This review focussed on power systems that are not connected to the interconnected grid. An electricity supply arrangement that is not physically connected (directly or indirectly) to the national grid can be referred to as a stand-alone power system. Microgrids and individual power systems are both a form of stand-alone power system.

Microgrid

A microgrid is a SAPS that generates and supplies electricity to multiple customers. This could include anything from a large town to two farms connected to each other. Power may be supplied by a mix of local generation and storage, possibly combined with behind-the-meter generation and storage. Remote communities, island resorts and remote mining towns are often supplied by microgrids.

Individual power system

An individual power system, or IPS, is a SAPS that generates and supplies electricity to a single customer. Typically, power is generated by a combination of renewable generation, energy storage and/or conventional diesel or gas generators.

Embedded network

Microgrids and individual power systems are distinct from embedded networks. While embedded networks supply electricity to customers in a way that is an alternative to standard supply, they remain connected to the national grid or to a microgrid (there may or may not be generation within the embedded network). The regulatory framework for embedded networks was considered in a concurrent review by the Commission, which is discussed in section 1.4.

1.1.2 Overview of related reforms

Currently, SAPS are not generally captured under the national regulatory framework and are subject to jurisdictional legislative frameworks that vary in their completeness.

There are a range of reasons that justify the need for effective regulation of SAPS:

- Energy is an essential service for which there is a need and expectation for certain minimum protections. However, in some jurisdictions SAPS customers currently have no energy-specific consumer protections and minimal safety or reliability standards.
- Once they are established, SAPS may exhibit natural monopoly characteristics such that regulation is required to simulate competitive market outcomes.
- Regulatory barriers may inhibit new entrant products and services that have the potential to benefit consumers and increase energy productivity.

The need to update the regulatory framework to better facilitate the use of SAPS to supply certain customers has been recognised both by governments and regulatory bodies in recent years. Details of past related work programs that have led to this review are provided below.

Energy Market Transformation Project Team related work

In August 2016, the COAG Energy Council's Energy Market Transformation Project Team (EMTPT) published a consultation paper on regulatory issues relating to off-grid systems.[6] Following consideration of submissions to the consultation, the COAG Energy Council agreed that EMTPT should engage with regulators and other relevant jurisdictional bodies to develop a best practice model for jurisdictional regulation of stand-alone power systems, and to develop changes to the national framework to address regulatory gaps for transferring from grid supply to SAPS. In 2017/2018, the EMTPT undertook further work on the regulatory issues relating to off-grid systems. This included commissioning HoustonKemp to facilitate a workshop involving the EMTPT, the Commission and the Australian Energy Regulator (AER), and develop a workshop report.[7]

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6 COAG Energy Council, *Stand-alone power systems in the electricity market*, *Consultation on regulatory implications*, 19 August 2016.

7 HoustonKemp, *Decision-making mechanisms for transition to Stand-alone Power Systems*, attached as Appendix 2 to the terms of

Western Power rule change

In 2017, the Commission considered a rule change request made by Western Power that sought to allow DNSPs to deploy alternative technologies and methods of providing distribution services, such as transitioning customers to off-grid supply. The Commission concluded that there may be situations where it would be efficient to allow DNSPs to offer off-grid supply, but that a broader package of framework changes would be required to properly implement the required reforms.[8]

The Commission determined not to make a rule at that time, but recommended that the COAG Energy Council ask it to provide advice on the law and rule changes that would be required.

Finkel review

The *Independent Review into the Future Security of the National Electricity Market* (the Finkel review) detailed 50 recommendations for the national electricity market. At its July 2017 meeting, the COAG Energy Council agreed to implement 49 of the 50 recommendations. One of the recommendations was that:

> By mid-2018, the COAG Energy Council should direct the Australian Energy Market Commission to undertake a review of the regulation of individual power systems and microgrids so that these systems can be used where it is efficient to do so while retaining appropriate consumer protections.

Consistent with this recommendation, the COAG Energy Council tasked the Commission with undertaking such a review. The terms of reference for this review distinguish between SAPS that are provided to existing grid-connected customers by a DNSP and SAPS that are owned and operated by third party providers. The key focus of this report is a framework for third-party SAPS.

ACCC retail pricing inquiry

On 11 July 2018, the Australian Competition and Consumer Commission (ACCC) released the final report for its Retail Electricity Price Inquiry.[9] The report contained a recommendation (recommendation 23) on SAPS. The recommendation was that the package of law amendments recommended by the Commission in the Western Power rule change determination be worked on immediately to allow DNSPs to supply power to existing customers or new connections via SAPS, where efficient.

The ACCC also stated in its recommendation that the arrangements for SAPS should be adopted on a consistent basis across the NEM, and operated under a contestable framework. These recommendations are more closely related to DNSP-led SAPS, but may also have implications for stand-alone power systems that are provided by other parties.

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reference for this review, available on the Commission website www.aemc.gov.au.

8 AEMC, *Alternatives to grid-supplied network services*, Final rule determination, 19 December 2017.

9 ACCC, *Restoring electricity affordability and Australia's competitive advantage*, Retail Electricity Pricing Inquiry - Final Report, June 2018, p. 221.

1.2 Context

The Commission defines third-party stand-alone power systems as power systems that are not connected to the national grid and that a third party owns and operates.[10]

The Commission considers a third party to be any party that is not the customer's local DNSP, which may include:

- a community group (that is, customers of a microgrid)
- a local council
- a developer
- an embedded network operator
- an electricity market participant that is not the local DNSP – for example a retailer or a ring-fenced affiliate of the local DNSP or another DNSP.

Third-party stand-alone power systems would include both third-party individual power systems and microgrids that supply:

- customers that transition from a DNSP interconnected grid
- customers that transition from a DNSP owned and operated SAPS
- new customers.

The sections below provide an overview of the regulatory treatment of these systems in current national and jurisdictional frameworks.

1.2.1 Regulatory treatment of stand-alone power systems in national energy frameworks

This section provides an overview of the current application of national energy frameworks to third-party SAPS. Unless otherwise specified, references in this section to microgrids and individual power systems refer to both DNSP-led SAPS, and third-party systems.

In general, the National Electricity Law (NEL) and the National Electricity Rules (NER) do not currently impose obligations on owners/operators of stand-alone power systems, unless those entities are already registered market participants, as most provisions of the NEL and NER apply only to interconnected systems.

The NEL defines the interconnected national electricity system as:[11]

> The interconnected transmission and distribution system in this jurisdiction and in the other participating jurisdictions used to convey and control the conveyance of electricity to which are connected –
>
> (a) generating systems and other facilities; and
>
> (b) loads settled through the wholesale exchange operated and administered by AEMO under this Law and the Rules.

10 AEMC, *Review into the regulatory frameworks for stand-alone power systems — priority 1*, Final report, 30 May 2019, p. 3.

11 Section 2 of the NEL.

"Connected" is defined in the NER as having a "physical link to or through a transmission network ... or distribution network".[12] As such, most provisions of the NEL and NER apply only to generators and transmission or distribution providers that are physically linked to other transmission or distribution systems and to loads settled on the wholesale exchange operated by AEMO.

The National Energy Customer Framework (NECF) comprises the National Energy Retail Law (NERL) and National Energy Retail Rules (NERR) together with Chapters 5A and 6B of the NER. The NECF would not apply to stand-alone power systems in New South Wales (NSW), South Australia or Tasmania as the NERL application Acts in these states only apply to customers supplied via the "interconnected national electricity system" that is defined to exclude stand-alone power systems. However, the NERL and NERR do apply to Queensland stand-alone power systems unless the seller has an exemption. In Victoria, the Commission understands that provisions largely equivalent to the NECF would apply to stand-alone power systems.

The NEL and NERL provide for individual jurisdictions to choose to nominate an entity responsible for operating a distribution system that would not otherwise be covered by the national framework in respect of that specific distribution system (for example, a distributor in a microgrid) to become a 'nominated distributor'.[13] The nominated distributor would then be subject to specified provisions of the NER relating to connection services, retail support obligations and credit support obligations[14] as well as all or part of the NERL and NERR. These provisions could be used by jurisdictions if they wish to ensure that distributors operating microgrids are subject to the full NECF provisions including those contained in Chapters 5A and 6B of the NER. To do so, a jurisdiction would need to amend the regulations under the Acts which apply the NEL and NERL in that jurisdiction (the application Acts). To date, only Queensland has chosen to nominate a distributor in this way — Ergon Energy Corporation is nominated in relation to the distribution systems it operates that do not form part of the national grid (except for the Mount Isa – Cloncurry supply network).[15]

Under priority 1 of the review, the Commission has recommended changes to the NEL and NERL, as well as to the application Acts for the NERL in NSW, South Australia and Tasmania, to extend the application of the NEL, NERL, NER and NERR to DNSP-led SAPS. However, these proposed changes will not extend the application of these instruments to third-party SAPS.

Recommended changes to the NEL and NERL to facilitate the Commission's recommended regulatory framework for third-party SAPS, as well as to facilitate the transition of customers from grid-connection to third-party SAPS, are provided in appendix A of this report.

12 NER Chapter 10.

13 Section 6A of the NEL and section 12 of the NERL.

14 Chapters 5A and 6B of the NER.

15 Electricity — National Scheme (Queensland) Regulation 2014, s.4. The Mount Isa - Cloncurry supply network is a large microgrid that is regulated as if it were connected to the NEM. The microgrid is operated by Ergon and supplies approximately 10,000 customers. It is subject to chapter 6 (Economic regulation of distribution services) and chapter 11 (Savings and transitional rules) of the NER.

1.2.2 Other national frameworks covering third-party stand-alone power systems

The Australian Consumer Law (ACL) prohibits misleading, deceptive and unconscionable conduct and offers protections for consumers including in the areas of:

- consumer rights when buying goods and services
- product safety
- unsolicited consumer agreements, direct marketing, unfair contract terms law and consumer redress options, among others.

Therefore, the sale of electricity by a third-party SAPS provider, the safety of the SAPS solution and equipment and any agreements between consumers and any third party in this context would be broadly governed by the ACL, irrespective of whether the NECF and parts of the NER also apply.

Further detail on relevant ACL provisions is set out in appendices E and H.

1.2.3 Jurisdictional frameworks for stand-alone power systems

State and territory regimes for SAPS differ quite widely, and regulation (particularly in relation to consumer protections) is not necessarily comprehensive. Most jurisdictions have licensing and exemption systems that allow certain conditions to be applied to licensees. SAPS operators with exemptions from the requirement to obtain a licence would, in general, be subject to fewer conditions than licensees, which may be appropriate in some cases. Customers of SAPS often have some pricing protections but in some jurisdictions there is little in the way of reliability standards, and safety and technical standards that apply to SAPS vary in their comprehensiveness.

Some examples of jurisdictional regulation of SAPS are discussed in appendix B of the report.

1.3 Summary of the review

This section outlines the terms of reference for, and the Commission's approach to, the Review of the regulatory frameworks for stand-alone power systems.

1.3.1 Terms of reference

On 23 August 2018, the Commission received the terms of reference from the COAG Energy Council for a review of the regulatory frameworks for SAPS. The review was in response to the Commission's recommendations in the final rule determination on the Western Power rule change and the recommendation in the Finkel review.

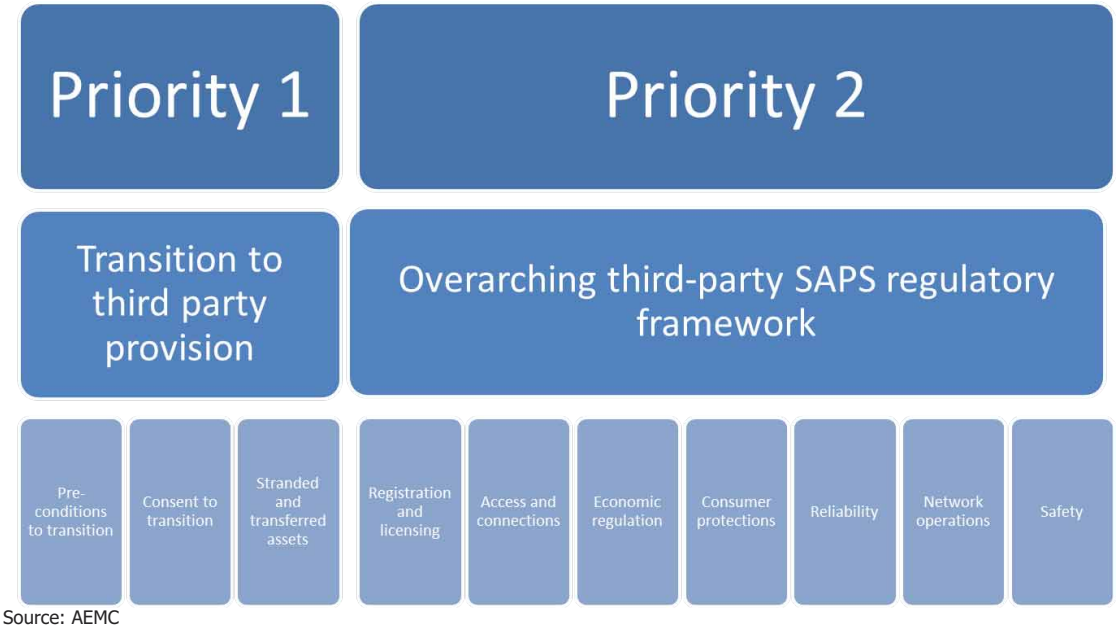
The review has focused on the regulation of new SAPS, and has considered the national electricity regulatory frameworks set out in the NEL and NER, the NERL and NERR, and associated regulations and other subordinate instruments including guidelines issued by the Australian Energy Market Operator (AEMO) and the AER. Existing SAPS operating under jurisdictional legislation have not been a focus of the review.

The terms of reference split the review into two priority areas:

- Priority 1 focused on the development of a national framework for customers that are moved by their DNSP from grid-connected supply to a SAPS, and adjustments to the national framework to enable the transition of grid-connected customers to a SAPS facilitated by a party other than a DNSP.
- Priority 2 focused on the development of a national framework to support a SAPS model of supply facilitated by a third party.

The following figure outlines the Commission's approach to issues related to third-party SAPS under priorities 1 and 2 of the review as set out in the terms of reference.

Figure 1.2: Approach to third-party SAPS



Source: AEMC

1.3.2 Priority 1 and transition to third-party stand-alone power systems

The Commission published the final report for priority 1 on 30 May 2019. In the report, the Commission recommended the implementation of new regulatory arrangements that would allow DNSPs to use stand-alone power systems to supply existing grid-connected customers, where it would be economically efficient to do so. The recommended arrangements closely follow existing national energy frameworks to enable customers who receive supply from stand-alone systems to retain all of their current consumer protections, including access to retail competition and existing reliability standards. As such, these customers would not be disadvantaged where a distributor determines that it would be more cost-effective to supply them on a stand-alone basis.

The Commission's final recommendations in relation to DNSP-led SAPS covered a number of specific areas, including planning and customer engagement obligations, arrangements for the ongoing supply of electricity to SAPS customers, the treatment of SAPS assets and

services within the distribution network regulatory framework, consumer protections and processes for new connections and reconnection.

Additionally, under priority 1, the Commission was asked to develop a decision-making framework and mechanism to facilitate the transition of customers who may be supplied by the national grid or a SAPS provided by a DNSP in the future, to a stand-alone power system provided by (or transferred to) a third party. The terms of reference contemplated that such systems could then be regulated on an ongoing basis under existing jurisdictional frameworks or under the regulatory arrangements to be developed by the Commission in accordance with priority 2.

The Commission's recommendations in relation to the transition of customers from the national grid or a DNSP-led SAPS to a third-party SAPS were as follows:[16]

- Third parties should be required to obtain the written consent of all relevant customers in order to transition them to a third-party SAPS.
- Consent to transition customers to third-party SAPS supply should be based on a set of explicit informed consent requirements that include detailed information about the third party, the SAPS solution and additional conditions related to service delivery and outcomes under a third-party SAPS supply model.
- The third party SAPS provider should be required to compensate the relevant DNSP for costs related to stranded assets as a result of the transition, under AER guidance.

The Commission determined that an efficiency pre-condition for transitioning DNSP customers to a third-party SAPS was not necessary on the basis that the costs of any transition would be borne by the customers who had consented to the transition.

The changes to the NEL and NERL to implement these recommendations regarding transition to third-party SAPS have been developed as part of priority 2 and are included in appendix A of this report.

1.3.3 Priority 2

For priority 2 of the review, the Commission was asked to develop and recommend a national framework for third-party SAPS which jurisdictions could then use for new and/or existing stand-alone power systems. The framework was to cover the ongoing regulation of any systems transferred from local DNSPs to third parties, as well as newly established systems.

The Commission published a draft report on 27 June 2019, following a consultation paper published on 1 March 2019. In the draft report, the Commission proposed a tiered framework for the regulation of third-party SAPS, with three categories of third-party SAPS specified in the framework. The draft report also detailed the Commission's initial positions on the regulatory obligations that should apply to each category for each of seven dimensions. These dimensions were:

- Registration and licensing
- Access and connections

16 AEMC, *Review of the regulatory arrangements for stand-alone power systems - priority 1*, Final report, 30 May 2019.

- Economic regulation
- Consumer protections
- Reliability of supply
- Network operations and system security
- Safety.

Throughout the review, the Commission consulted with a wide range of stakeholders, including jurisdictional governments, regulators, consumer groups, technology providers and agricultural bodies. In addition to two rounds of formal written consultation open to all stakeholders, the Commission utilised stakeholder meetings and roundtables to further stimulate discussion and facilitate consultation.

1.4 Related work

This section summarises ongoing and recently completed work that is related to the *Review of the regulatory frameworks for stand-alone power systems.*

1.4.1 Embedded networks review

The Commission self-initiated the *Updating the regulatory frameworks for embedded networks* review on 30 August 2018, publishing a draft report on 31 January 2019 and a final report on 20 June 2019.[17]

The purpose of this review was to advise on the detailed amendments to the regulatory frameworks required to implement the recommendations from the Commission's 2017 *Review of the regulatory arrangements for embedded networks*. The recommendations proposed a new regulatory approach to improve access to competition for embedded network customers, elevate embedded networks into the national framework, and better regulate new and legacy embedded networks.

The final report set out a package of proposed changes to the NER and NERR, along with recommended amendments to the NEL and NERL, to implement the new regulatory approach for embedded networks.

The Commission closely coordinated and considered linked policy and legal issues between the SAPS and the Embedded networks workstreams. The COAG Energy Council recommended that the two workstreams were coordinated to ensure strategic overview, efficiency and consistency, as the regulatory issues covered were similar.

1.4.2 Western Australian Parliamentary Inquiry into Microgrids and Associated Technologies

In February 2018, the Western Australian Government commenced a Parliamentary Inquiry into Microgrids and Associated Technologies in WA.[18] This Inquiry considered both stand-alone power systems and embedded networks.

17 AEMC, *Updating the regulatory frameworks for embedded networks*, Final report, 20 June 2019.

18 See: www.parliament.wa.gov.au.

The Commission made a submission to the inquiry highlighting the common issues with this review on 31 October 2018[19] and participated in a hearing on 23 November 2018. An interim report was released by the Economics and Industry Standing Committee on 11 April 2019 with a final report due to be released on 26 March 2020.

1.4.3 New Energy Tech Consumer Code

In 2017, a New Energy Tech Consumer Code (then the Behind the Meter Code) Working Group was established to develop a draft code of practice for the industry in relation to behind the meter products and technologies.[20] The Working Group consists of Australian Energy Council, Clean Energy Council, Consumer Action Law Centre, Energy Consumers Australia, Energy Networks Australia, Public Interest Advocacy Centre, Renew and Smart Energy Council.

The Working Group submitted a draft code to the Australian Competition and Consumer Commission for authorisation on 30 April 2019. The ACCC subsequently released a draft determination on 1 August 2019 which proposed to grant authorisation to the Code for five years. The ACCC will release its final determination in October/November 2019. If approved, this Code may provide some general consumer protections relating to the purchasing of SAPS from signatories to the Code.[21]

1.4.4 Updating the regulatory framework for distributor-led SAPS

The Commission is developing advice for governments on the detailed rule changes required to enable distribution businesses to supply customers using SAPS where it is more efficient than maintaining a connection to the grid. The *Updating the regulatory frameworks for distributor-led SAPS* review, initiated on 19 September 2019, is developing a package of rule changes to implement the new regulatory arrangements recommended under priority 1 of the *Review of the regulatory arrangements for stand-alone power systems*. The focus of the work is on changes to:

- support efficient planning and investment outcomes in relation to SAPS
- extend existing market arrangements to accommodate distributor-led SAPS, including the full-suite of energy-specific consumer protections
- allow participation by the jurisdictions in the national arrangements for distributor-led SAPS on an opt-in basis.

The Commission intends to publish a draft report in December 2019.[22][23]

19 See AEMC Corporate Publications: www.aemc.gov.au.

20 These include solar, battery energy storage systems, electric vehicle charging products, energy management systems and software, and other emerging products and services for homes and businesses.

21 BTM Working Group, *Draft New Energy Tech Consumer Code*, 29 April 2019. Available at: www.accc.gov.au.

22 See the webpage for *Updating the regulatory frameworks for distributor-led SAPS* at www.aemc.gov.au

23 .

1.5 Structure of the report

This report sets out the Commission's recommendations for a regulatory framework for third-party SAPS, followed by more detailed analysis of key issues. The Commission's recommendations on key areas for the regulation of a third-party SAPS service are detailed in the appendices.

The rest of the report is structured as follows:

- Chapter 2 provides the Commission's assessment framework and the overarching principles guiding this review.
- Chapter 3 provides an overview of the Commission's recommended framework for the regulation of third-party SAPS.
- Chapter 4 provides analysis of the key issues relating to the development of the regulatory framework for third-party SAPS.
- Chapter 5 sets out the proposed approach for implementing the Commission's recommendations under priority 2 of this review.
- Appendix A proposes drafting instructions for changes to the NEL and NERL to implement the recommended framework.
- Appendix B describes examples of current stand-alone power systems.
- Appendices C to H then set out the Commission's detailed analysis and views in relation to access and connections, economic regulation, consumer protections, reliability, network operations and security and safety under the recommended regulatory framework.

2 APPROACH

2.1 Assessment framework

In developing recommendations on whether and how to regulate third-party SAPS, the Commission has applied the national electricity objective (NEO) and the national energy retail objective (NERO). The objectives and the Commission's assessment criteria are set out below.

2.1.1 National energy objectives

The review involved the consideration of potential changes to the NEL and NER for electricity, and the NERL and the NERR for energy retail services. As such, two of the national energy objectives — the NERO and the NEO — were relevant to this review.

The NERO is:[24]

> to promote efficient investment in, and efficient operation and use of, energy services for the long term interests of consumers of energy with respect to price, quality, safety, reliability and security of supply of energy.

In addition, under the NERL the Commission must, where relevant:[25]

> satisfy itself that the Rule is compatible with the development and application of consumer protections for small customers, including (but not limited to) protections relating to hardship customers.

This is referred to as the consumer protection test.

The NEO is:[26]

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

Consistent with the terms of reference for the review, the Commission considered that the relevant aspects of the NERO and NEO were the promotion of efficient investment in, and operation of, electricity services for the long term interests of consumers of electricity with respect to price, quality, safety and reliability.

For example, any regulatory arrangements for SAPS may affect the prices consumers pay (including consumers that remain connected to the grid) and the reliability of the service SAPS customers receive.

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24 NERL, s. 13.
25 NERL, s. 236(2)(b).
26 NEL, s. 7.

The consumer protection test was also important given the strong focus of the review on the protections that consumers should receive when supplied by stand-alone power systems.

For a detailed discussion on the Commission's approach to applying these overarching objectives to rule making processes and reviews, such as this one, refer to Applying the energy objectives: A guide for stakeholders.[27]

2.1.2 Assessment criteria

The assessment criteria used to determine the scope and breadth of a fit-for-purpose regulatory framework for third-party SAPS are the same as those used by the Commission in respect of priority 1 (DNSP-led SAPS), namely:[28]

- Do the regulatory arrangements facilitate competition and consumer choice in energy services and products?
- Are the regulatory arrangements proportional to the risks they seek to mitigate, such that the framework balances the costs of regulatory arrangements with their expected benefits?
- Do the regulatory arrangements promote efficient investment and allocation of risks and costs?
- Do appropriate consumer protections and compliance mechanisms apply within stand-alone power systems?
- Are the regulatory arrangements clear and fit-for-purpose? The considerations here include the regulatory framework being flexible and resilient to future market developments including technological developments, and evolution of SAPS business models.
- Are the regulatory arrangements consistent and transparent? A level regulatory playing field, to the extent that this is likely to yield efficient outcomes for consumers, would eliminate incentives for arbitraging across different regulatory frameworks.

Facilitating competition and consumer choice

Competition is a key driver of productivity and efficiency in markets, driving lower prices and improved choices for consumers in the long run. This is because, over time, effective competition will incentivise businesses to innovate, minimise costs, provide competitive prices, provide a quality of service matching customer expectations and a choice of services consistent with consumer preferences.

Proportionality and regulatory burden

This review considered how the regulatory framework could appropriately address any market failures or risks arising from the evolution and growth of third-party stand-alone power systems. For example, the breadth and depth of the regulatory framework could be different for an IPS compared to a microgrid, or for different sized microgrids. For economic

27 AEMC, *Applying the energy objectives: A guide for stakeholders*, 1 December 2016, Sydney.

28 AEMC, *Review of the regulatory frameworks for stand-alone power systems — priority 1*, Final report, 30 May 2018.

regulation, the potential for market power to be exercised in an IPS is likely to be lower than for a microgrid, moreover, the size of the microgrid may also be a determining factor in whether and how it is economically regulated.

Regulatory frameworks should balance the costs of regulatory arrangements with their expected benefits and be fit for purpose. Where arrangements are complex to administer, difficult to understand, or impose unnecessary risks, they are less likely to achieve their intended ends, or will do so at higher cost.

Efficient investment and allocation of risks and costs

The regulatory framework for stand-alone power systems should encourage innovation and promote efficient investment in network infrastructure and the supply of energy services. Efficient outcomes are most likely to arise where risks and costs are appropriately allocated.

As a general rule, risks should be borne by, or allocated to, parties who are in the best position to manage them and have the incentives to do so. This review, for example, considered how costs and risks are allocated between third-party SAPS service providers and SAPS customers.

Appropriate consumer protections and compliance mechanisms apply

This review considered the extent to which the regulatory arrangements for a third-party SAPS could and should provide for adequate consumer protections for third-party SAPS customers, and how the provision of consumer protections can best be achieved. The Commission also considered the mechanisms for compliance and enforcement of consumer protections within a third-party SAPS.

Clarity and predictability

The regulatory framework for a third-party SAPS needs to be transparent and result in predictable outcomes for all participants and should provide a clear, understandable set of rules to encourage effective participation in the SAPS. SAPS customers (which may consist of residential and business customers) and SAPS service providers need to understand what their protections and obligations are, and what others' obligations are, with respect to the transactions they undertake. This should promote confidence in the regulatory framework and encourage effective participation.

To the extent they are required to make decisions, consumers should have access to sufficient information to make informed and efficient decisions, especially as a decision to accept a third-party SAPS solution is likely to have long-term implications.

A clear and transparent regulatory framework creates confidence in the market which should also encourage investment and innovation in providing SAPS-based services.

Consistency

Through the general principle that a national framework for third-party SAPS should provide a level playing field, the Commission recognises the risk of having different regulatory approaches across DNSP SAPS, embedded networks and non-DNSP SAPS. As such, the

Commission has considered potential incentives for parties to arbitrage across different regulatory frameworks; for example, the potential switching from one SAPS supply model (e.g. DNSP-led SAPS) to another SAPS model due to an onerous regulatory burden in the former supply model.

The Commission is mindful that the national framework may create incentives for parties around disconnections from the interconnected grid, or migration from DNSP SAPS to third-party SAPS. For example, an embedded network may have the incentive to disconnect from the interconnected grid to be treated as a third-party SAPS rather than an embedded network under the regulatory framework. The Commission intends for its recommendations to create incentives around efficiency and consumer benefits rather than regulatory arbitrage. These issues are discussed further below and in chapter 4.

2.2 Principles

When developing a regulatory framework for third-party SAPS, the Commission has endeavoured to provide consistency in consumer outcomes by applying consistent principles between priority 1 (DNSP-led SAPS) and priority 2, embedded networks and standard supply, recognising the importance of areas such as licensing, consumer protections and access to retail competition. Importantly, the means of achieving consistent consumer outcomes, and the application of the principles guiding the development of regulatory approaches, may vary to some degree across (and within) the various supply models, depending on factors such as:

- the size of the supply system and risks associated with the system, and
- whether it is appropriate to regulate the supply model (or categories of systems within a supply modes) under national or jurisdictional rules (noting that regulation of third-party SAPS is currently the responsibility of jurisdictions).

In addition, the Commission considers that a key difference between DNSP-led SAPS and third-party SAPS is the area of consent and customer choice. Customers transitioned to a SAPS by a DNSP are those identified as being more efficiently supplied via a SAPS than via the grid (for example, remote customers). Such a transition would benefit all customers of the DNSP (including its SAPS customers) through lower network prices. On this basis, and subject to the regulatory arrangements ensuring that transitioned customers are no-worse-off in respect of the consumer protections they receive, customer consent to the transition is not a necessary pre-condition.

In contrast, customers who receive supply via a third-party SAPS will be doing so by choice, whether they establish their own third-party SAPS, are transitioned to a SAPS by a third party or move into a premises already being supplied by a third-party SAPS. In these cases, consent and choice are key considerations in developing an appropriate regulatory framework for third-party SAPS.

The Commission focused on seven dimensions of regulation for priority 2 of the review, and applied the assessment criteria set out above to determine the following overarching principles which it used to develop recommendations for each dimension:

1. Registration and licensing — an appropriate form of registration, licensing or authorisation should be required for retail where there is a sale of electricity[29] and for distribution where there is a network connecting two or more small customers or a significant number of large customers.
2. Access and connections — there should be an obligation to connect and supply customers within a defined boundary area where this is not too onerous or disproportionate, and if the SAPS is large enough to support competition there should be access to services required to facilitate competitive markets.
3. Economic regulation — proportionate, risk based forms of economic regulation should apply to govern access and connection, and to provide protection to customers.
4. Consumer protections — consumer protections should apply to customers in a proportionate manner where there is a sale of energy. The size and risks of the SAPS, as well as the customers' control and bargaining power may impact the level of consumer protections required.
5. Reliability — reliability of supply should be at an appropriate level valued by the customer, or customers as a whole. For customers with limited control over the system design, reliability targets should be specified.
6. Network operations — technical standards (for example, service installation rules and the wiring rules) should apply to all SAPS, in proportion to the risks and size of the system. There should also be some metering standards to provide accurate metering.
7. Safety — safety standards should apply to all SAPS, in proportion to the risk to customers, operators, employees and the general public that the SAPS poses.

As noted above, the application of each of these principles varies between small and large third party SAPS, standard supply, embedded networks and DNSP-led SAPS in some aspects. This is to account for differences in consent and choice, differences in the risks, types, sizes and circumstances of third-party SAPS, the cost of regulation for very small SAPS and likely vertical integration of many third-party SAPS. Consistency of regulatory approach between supply models is discussed in more detail in chapter 4 of this report.

29 Sale of energy includes, for the purposes of this report, an ongoing arrangement between two parties, where one party is controlling the supply of electricity to the other party, regardless of whether there is a separate charge for the electricity consumed.

3 RECOMMENDED FRAMEWORK FOR THIRD-PARTY SAPS

RECOMMENDATION 1: TIERED FRAMEWORK FOR THE REGULATION OF THIRD-PARTY SAPS

The Commission recommends a three-tiered framework for the regulation of third-party SAPS. A tiered regulatory framework is appropriate to account for differences between SAPS in customers' bargaining power, customers' ability to influence the design and system requirements of the SAPS, the complexities of the relationships in SAPS and the risk of failure of the third-party SAPS provider, as well as the risk to customers and the greater public. The Commission considers that consistent consumer outcomes can be achieved across different supply models with a tiered-framework for third-party SAPS.

The Commission recommends the use of economic and risk based approaches to determine the categories within the tiered framework and the extent of the regulatory requirements to apply within each category. For example, jurisdictions will be able to apply a risk based approach determining the safety obligations that apply to the category 2 SAPS based to the risk to customers of the SAPS, workers and the general public.

The Commission considers that a three-tiered framework will support: efficient investment in SAPS by third parties; the allocation of risks and costs to those parties best able to manage them; and proportionality in the application of regulatory obligations on key parties, while maintaining consumer protections for consumers supplied via a third-party SAPS.

The three categories recommended by the Commission are as follows:

- **Category 1** would comprise very large microgrids, where there is the potential for effective competition in generation. Category 1 SAPS would be regulated using the existing national energy laws and rules, which would be extended to these types of third-party SAPS. The owner/operator of the microgrid would be required to register with AEMO as a DNSP under the NER and be subject to the same NER/NERR rules as other DNSPs (and would likely also need to be licensed on a jurisdictional basis like other DNSPs). Existing provisions regarding retailer authorisation would apply, with retailers required to be authorised by the AER (or ESC in Victoria). A coverage test will determine if a microgrid is a category 1 third-party SAPS.
- **Category 2** would comprise smaller — likely vertically-integrated — microgrids. Category 2 SAPS would be subject to a relatively comprehensive jurisdictional licensing regime, with consumer protections applied in a manner to provide consistency of customer experience with other models of supply, where relevant. SAPS providers would be required to obtain a retail and distribution license from the jurisdiction in which the SAPS is located, and would be subject to comprehensive license conditions governing access and connections, economic regulation, consumer protections, some reliability standards,

metering, system operation, technical standards and safety, and would be subject to compliance and monitoring requirements.

- **Category 3** would comprise microgrids with very few customers (or only large customers), and IPS where there is a sale of energy. Category 3 SAPS would be regulated through jurisdictional registered exemptions or jurisdictional licenses with more limited conditions and would be required to be registered in the jurisdiction in which they are located. Some consumer protection, safety and network operations obligations would apply to category 3 third-party SAPS as a minimum.

Details of the access and connection, economic regulation, consumer protections, reliability, network operations and system security and safety obligations can be found in section 3.4 of this chapter, and in appendices C to G of this report.

3.1 Overview

Electricity is an essential service and is generally considered to require additional regulatory protections beyond those in the Australian Consumer Law. Currently, third-party SAPS would be regulated under the ACL, some jurisdictional safety legislation, and in some jurisdictions, license conditions or by other specific third-party SAPS legislation.

The existing jurisdictional frameworks for third-party SAPS vary in their completeness. Regulation, particularly in relation to consumer protections, safety and reliability, is not comprehensive in some jurisdictions; in others, a relatively comprehensive licensing framework is in place, with some or all third-party SAPS providers obliged to comply with detailed jurisdictional license conditions.

For standard supply, energy-specific national and jurisdictional regulations are in place, and the Commission has recently recommended energy-specific regulations be implemented for DNSP-led SAPS and embedded networks.[30] Although there would be benefits in applying energy-specific regulations to third-party SAPS, the regulatory framework needs to be designed such that the benefits to consumers from regulation of third-party SAPS exceed the costs associated with applying that regulation. Unlike customers who may be transitioned to SAPS supply by DNSPs for economic efficiency reasons, and customers who purchase or lease premises connected to an embedded network, customers who enter into a supply arrangement where electricity is supplied by a third-party SAPS generally have a choice to do so. As such, some or all of the costs of regulation are likely to be passed onto these customers. This highlights the importance of ensuring that regulatory costs are proportionate, especially for small SAPS where the costs would not be spread over a large customer base in the same way as for standard supply or DNSP-led SAPS.

30 Respectively, AEMC, *Review of the regulatory frameworks for stand-alone power systems — priority 1,* Final report, 30 May 2019; and AEMC, *Updating the regulatory frameworks for embedded networks*, Final report, 20 June 2019.

3.1.1 Considerations for regulation of third-party SAPS

The appropriate regulation of third-party SAPS, including whether and how to regulate these systems, was a key focus of this review. Energy-specific national and jurisdictional regulations are currently in place for standard supply, and the Commission has recommended energy-specific consumer regulations for DNSP-led SAPS, and embedded networks.[31]

A key question for priority 2 of this review has been whether the regulation of third-party SAPS should mirror the approach used for standard supply and recommended in priority 1 for DNSP-led SAPS, the approach recommended for embedded networks, or whether there are sufficient differences between supply models and associated systems to warrant a different approach to regulation. For example, some differences in the regulatory framework for third-party SAPS compared to other electricity supply models may be appropriate to reflect the differences in the underlying supply models, costs to supply the customer and the potential for effective competition, among other things.

In its consideration of the appropriate regulation of third-party SAPS, the Commission focused on the following seven potential dimensions for regulation:

1. **Registration and licensing**, which covers eligibility criteria to provide assurance that service providers are 'fit and proper', and to provide a means for the application of further regulatory obligations, as well as covering supply continuity.
2. **Access and connection**, which includes obligations to supply, connect and/or provide access to the network.
3. **Economic regulation**, which refers to the regulation of prices charged or revenues earned by the seller for supply, connection and/or access.
4. **Consumer protections**, which provide rights for consumers, including protections for vulnerable consumers, and aim to prevent unfair practices or unscrupulous behaviour.
5. **Reliability of supply obligations**, to support adequate and efficient levels of reliability.
6. **Network operations**, including system security and technical standards, in addition to metering and settlement, to support the supply of electricity and operation of the SAPS.
7. **Safety standards**, which govern the safe supply of electricity to consumers, and the safety of electrical works and the general public.

It is worth noting that there is a high degree of overlap between these dimensions of regulation — for example, matters relevant to the regulation of access and connections are also relevant to considerations in respect of the broader economic regulation of SAPS. This overlap means that the regulatory approach for each of these dimensions was not determined in isolation from any other one.

In this report, the discussion on the seven dimensions has focused primarily on third-party SAPS supplying small customers,[32] and the provision of consumer protections to these

31 Respectively, AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019; and AEMC, *Updating the regulatory frameworks for embedded networks*, Final report, 20 June 2019.

32 Under the NERL and jurisdictional regulation, a small customer is a residential customer and any business customer consuming less than 100MWh per annum in Queensland, NSW and the ACT, less than 150MWh per annum in Tasmania and less than 160MWh per annum in South Australia.

customers. Large customers have substantially fewer customer protections under current arrangements for grid supply, based on a rationale that they should be able to negotiate satisfactory commercial outcomes. The Commission considers this rationale would hold for large customers being supplied via a third-party SAPS. Nevertheless, the Commission has considered whether there are certain aspects of the recommended regulatory framework for third-party SAPS which could deliver better outcomes for large customers.

Whether the regulatory framework for a third-party SAPS should distinguish between microgrids and individual power systems, and whether it should also distinguish between microgrids of differing sizes, was also a key consideration of the Commission during this review. For example, the Commission considered whether it was appropriate to economically regulate a microgrid with thousands of customers in the same manner as a microgrid with a handful of customers, and whether economic regulation of an IPS with one customer was appropriate at all. Consideration was also given to the size at which a microgrid starts to exhibit the same market characteristics as the interconnected grid thereby potentially justifying the costs that would result from the application of more onerous forms of regulation, such as economic regulation.

Consideration of a tiered regulatory framework for third-party SAPS

Given the vast range of system sizes and ownership models of third-party SAPS, consideration was given to whether a tiered regulatory framework for third-party SAPS might be appropriate. A tiered framework would comprise different categories of SAPS, with different regulations or governance arrangements applied to each category.

An example of a tiered regulatory framework to apply in the electricity sector was proposed by the Independent Pricing and Regulatory Tribunal (IPART) to the NSW Government's discussion paper — *Protecting energy consumers in a changing energy world* — in November 2017. In providing feedback on what changes may be required to ensure consumers continue to receive safe and reliable electricity supply in light of the emergence of new models of supply, IPART proposed the development of three categories of electricity supply systems:[33]

- Category 1: distribution and transmission networks
- Category 2: more complex and higher risk embedded networks and microgrids
- Category 3: less complex and lower risk embedded networks and microgrids

IPART considered that existing DNSPs and TNSPs would be included in category 1. Category 2 was recommended to contain embedded networks and microgrids that presented a higher risk to the community, for example those with high voltage networks and any low voltage networks considered to be higher risk after the completion of a risk assessment. Category 3 would include low voltage networks which were found to be lower risk. These categories - each defined using a risk-based approach - would provide the starting point for consideration of appropriate degree and form of safety regulation to apply to each supply model.

33 IPART, submission to NSW Government Discussion paper - Protecting consumers in a changing energy world, 19 December 2017, p. 1.

While IPART's submission was made primarily in the context of safety regulation for both interconnected and stand-alone systems, the use of a tiered regulatory framework appears to be suitable when extrapolated to a complete regulatory framework for third-party SAPS.

IPART's approach was recommended as a starting point for a tiered framework by a number of stakeholders in submissions to the consultation paper.

3.1.2 National or jurisdictional regulatory framework

When developing a regulatory framework for third-party SAPS, the Commission gave thorough consideration to whether a national or jurisdictional based framework would be most appropriate for the regulation of third-party SAPS, whether some provisions may be more appropriately applied under a national framework and others under a jurisdictional framework, and whether there should be differences in the governance of third-party SAPS depending on certain factors.

In considering these issues, the Commission was cognisant of achieving a balance between the following factors:

- The benefits of a harmonised framework in creating certainty for potential participants and customers, and enabling a national approach and market for third-party SAPS.
- Proportionality and the ability to cater to individual circumstances which might include whether the customer is an individual or a strata scheme, the location of the SAPS or the nameplate output of the power system.
- Interrelations between national provisions and jurisdictional policy and regimes that are directly or indirectly related to energy, such as tenancy legislation and subsidy schemes.

Currently, national energy markets in Australia are governed by a combination of national and jurisdictional legislation and other regulatory frameworks. This structure is supported by the Australian Energy Market Agreement (AEMA) which is an agreement between the Australian government and the governments of all states and territories[34] setting out the legislative, institutional and governance frameworks for energy regulation. Among other things, the AEMA specifies the distribution and retail activities and functions that are to be covered by national regulatory frameworks in NEM jurisdictions[35] and those that are regulated under state and territory arrangements. Specifically:

- National functions include the economic regulation of distribution networks, arrangements for distribution network expansion, the authorisation of retailers, and key consumer protection measures and contract terms and conditions under NECF.[36] The regulation of transmission networks and arrangements for the wholesale electricity market are also activities governed by national frameworks in NEM jurisdictions.

34 COAG, Australian Energy Market Agreement (as amended December 2013).

35 The NEM interconnects five regional market jurisdictions: Queensland, New South Wales (including the Australian Capital Territory), Victoria, South Australia and Tasmania. Western Australia and the Northern Territory are not connected to the NEM.

36 Some elements of the national frameworks have not been adopted in Victoria.

- State and territory functions include DNSP technical and safety requirements, small customer dispute resolution, service reliability standards and the determination of distribution and retail service areas.

The AEMA has helped guide the Commission's approach in this review.

3.1.3 Registration and licensing

An important feature of any regulatory regime that aims to manage risks to both individual consumers and the community more generally, is the existence of a system of checks to ensure that service providers intending to become involved in the supply of electricity to consumers have the necessary skills, resources and processes in place to meet the obligations that they will be subject to. The volatile nature of the wholesale energy market in the NEM also means that intending market participants need to have access to sufficient financial resources.

Under current national and jurisdictional electricity frameworks:

- A person engaging in the sale of energy to a person for premises must hold a retail authorisation from the AER (in NECF jurisdictions), unless exempt from this requirement[37]
- A person engaging in the activity of owning, controlling or operating a transmission or distribution system must be registered by AEMO (unless exempted by the AER) and licensed by jurisdictional governments or regulators[38]
- A person engaging in the activity of owning, controlling or operating a generating system must also be registered by AEMO (unless exempted by AEMO) and, in some jurisdictions, be licensed by jurisdictional governments or regulators.[39]

A requirement for a third-party SAPS to be registered or licensed would allow a regulator to verify a third-party SAPS provider is appropriately prepared and resourced prior to the third-party being granted a license or being registered, and allows for ongoing regulatory obligations to be applied. The appropriate form of registration and licensing for third-party SAPS has been considered under this review.

3.2 Commission's draft position

The Commission proposed in the draft report that a tiered regulatory framework would be most appropriate for third-party SAPS. The Commission considered that, given the breadth of both third-party SAPS sizes and operating models, a tiered framework would provide a necessary level of flexibility and adaptability, and would allow risks and costs to be managed more effectively than under a one-size-fits-all national framework. The Commission considered that the regulations that apply to a third-party SAPS need not be the same as for

37 NERL section 88. A retailer purchasing electricity in the wholesale market for resale to its customers must also be registered with AEMO as a market customer, under chapter 2 of the NER.

38 NEL section 11(2) and NER clause 2.5.1. Network licences are referred to as "authorities" in Queensland, under the *Electricity Act* 1994 (QLD).

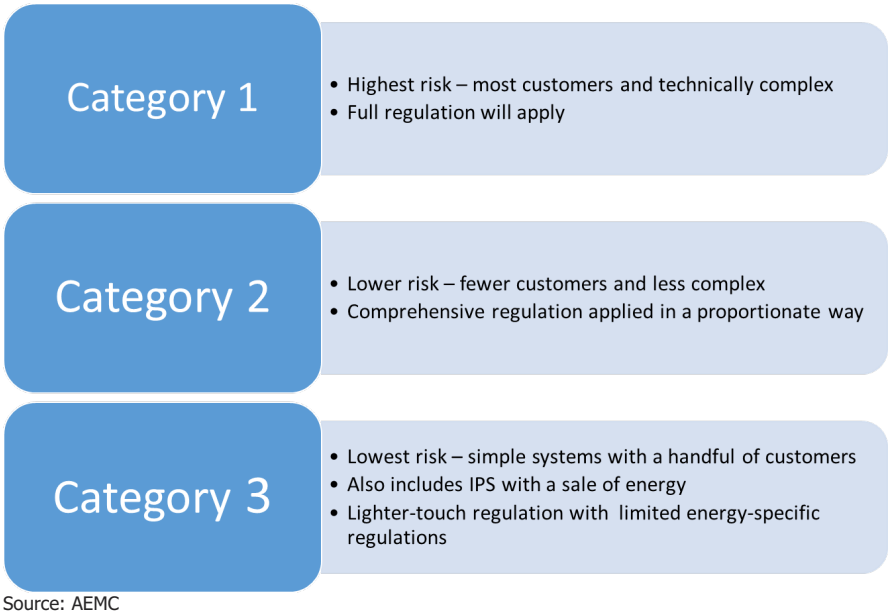
39 NEL section 11(1) and NER clause 2.2.1. For example, generators require licenses or authorities in South Australia, Victoria and Queensland, but not in New South Wales.

a DNSP-led SAPS and for standard supply. However, the principles behind the regulations of all of the electricity models of supply should be consistent.

A tiered framework comprising of three categories was proposed, with different regulatory arrangements applying to each category. The Commission's proposed categorisation of third-party SAPS in the draft report was as follows:

- **Category 1** would comprise very large microgrids, where there might be potential for competition in retail and/or generation. Category 1 would be regulated using the existing national energy laws and rules, which would be extended to these types of third-party SAPS. The owner/operator of the microgrid would be required to register with AEMO as a DNSP under the NER and be subject to the same NER/NERR rules as other DNSPs (and would likely also need to be licensed on a jurisdictional basis like other DNSPs). Existing provisions regarding retailer authorisation would apply.
- **Category 2** would comprise smaller (likely vertically-integrated) microgrids, which would be subject to a relatively comprehensive jurisdictional licensing regime.
- **Category 3** would comprise microgrids with very few customers (or only large customers), and IPS where there is a sale of energy, which would be regulated through jurisdictional registered exemptions or jurisdictional licenses with more limited conditions.

Figure 3.1: Tiered framework for third-party SAPS prosed in draft report



Source: AEMC

In the draft report, the Commission considered that, in circumstances where a customer has purchased a SAPS outright — that is, where there is no sale of electricity — the IPS would generally be outside of the energy regulatory frameworks but would be subject to jurisdictional safety requirements as well as Australian Consumer Law.

The Commission's recommended draft frameworks for each of the three categories of third-party SAPS are detailed below.

3.2.1 Category 1

The Commission's draft proposal was that very large microgrids would fall under Category 1 of the tiered framework. The Commission considered that microgrids, particularly very large microgrids, would effectively become monopolies if they were providing energy services to a large number of customers — for example, microgrids supplying a city or large town.

Microgrids in category 1 were considered to be large enough to warrant regulatory determinations by the AER. With a relatively large numbers of customers and the existence of AER-determined network tariffs, category 1 SAPS should also be able to facilitate effective retail competition. The Commission considered it was appropriate to regulate this category of microgrid in an equivalent manner to standard supply customers and DNSP-led SAPS. For efficiency and consistency, it was recommended that the regulation of this category should be under the NEL, NERL, NER and NERR for current national energy regulations, and the existing jurisdictional frameworks for those areas that are regulated by jurisdictions under the AEMA.

3.2.2 Category 2

In the draft report, the Commission was of the view that regulating smaller category 2 microgrids in the same manner as standard supply and DNSP-led SAPS would likely be disproportionate in a number of key areas.

On the basis that the prospect of effective retail competition is unrealistic, category 2 microgrids would generally be expected to be established by vertically integrated entities. The Commission considered that the costs associated with the AER revenue determination process would likely be disproportionate and overly burdensome on both the SAPS provider and the AER.

Further, due to the potential breadth of microgrids in category 2, the Commission considered that the regulatory framework governing these SAPS would need to be flexible and adaptable in order to provide regulatory arrangements that are fit for purpose and proportionate. As such, the Commission considered it appropriate that regulation of category 2 microgrids be undertaken at a jurisdictional level, including through jurisdictional license conditions. Nevertheless, the Commission noted that national consistency in the regulation of category 2 third-party SAPS, as much as practicable, was desirable to provide a consistent and transparent framework, and minimise additional compliance costs for operators seeking to operate on a national basis.

A licensing process at a jurisdictional level that is proportionate to the level of retail services provided by an applicant was proposed in the draft report, with no requirement for the category 2 SAPS to be registered with AEMO, as AEMO would not have a role in either system operation or market operation.

3.2.3 Category 3

In the draft report, the Commission envisaged that category 3 SAPS would encompass very small microgrids connecting a handful of customers, microgrids which only supply large customers, and IPS where there is a sale of energy. The Commission considered that these microgrids and IPS would likely have a lower need for prescriptive regulation on the basis that a failure of the energy provider would impact a much smaller number of customers, and customer would have a higher degree of control over the SAPS system.

The Commission recommended that category 3 SAPS be regulated under jurisdictional licenses or registered exemptions, with conditions including some minimum consumer protections, such as billing requirements, as well as energy-specific safety requirements, basic metering requirements and some technical standards.

3.2.4 Determining thresholds for categories within a tiered regulatory framework

In the draft report, the Commission proposed that the thresholds for each category might best be determined in the following manner:

- Category 1 systems would be determined by a form of coverage test to determine whether retail competition would be feasible or whether it would be appropriate for other generators and retailers to be able to access the SAPS. Although customer numbers would likely be important, they are unlikely to be the sole determinant — significant industrial load might be more important than a much larger number of small customers, for instance.
- Category 2 would encompass systems that are bigger than category 3 but for which the category 1 coverage test is not passed. The threshold between categories 2 and 3 might be based on the number of small customers. It is also likely that other factors, such as the size and complexity of the system, and the public safety risks posed by the microgrid, would be relevant. While the test to determine regulatory coverage under category 1 should be specified on a national basis, the threshold between categories 2 and 3 would be specified on a jurisdictional basis, and it might be appropriate for this vary to reflect local circumstances.
- Category 3 would include systems with a sale of energy and/or more than one customer but fewer customers than the category 2 trigger. This category would also include microgrids with only large customers. Any other triggers for category 2 status, such as technical characteristics, would also not be met.

3.2.5 National or jurisdictional regulatory framework

In the draft report, the Commission acknowledged that the harmonisation of regulatory arrangements would bring many benefits, and reduce the administrative burden of third-party SAPS service providers operating in multiple jurisdictions. The Commission noted that this harmonisation could occur via a national framework, via consistent jurisdictional frameworks, or via a combination of both national and consistent jurisdictional frameworks.

The Commission considered that, due to the diversity of circumstances of third-party SAPS, a one-size-fits-all approach would not be appropriate for the regulatory framework for third-

party SAPS. Further, the Commission considered that the functions which are jurisdictional responsibilities under the AEMA should remain jurisdictional functions under a third-party SAPS framework, consistent with the NEM.

National regulation was proposed for very large third-party SAPS in category 1, but was seen as less appropriate for categories 2 and 3. Jurisdictional regulatory frameworks developed using a consistent approach were proposed for third-party SAPS in categories 2 and 3.

3.3 Stakeholder submissions

Stakeholders were generally supportive of the Commission's proposed tiered framework for the regulation of third-party SAPS. Many noted the importance of ensuring that regulation is flexible and proportionate to the size and structure of each SAPS and to the level of risk to SAPS customers (for example, safety risk).[40] Stakeholders also generally considered that customer outcomes should be consistent regardless of how a customer receives their energy supply, although some stakeholders saw opportunities for refinement.

A number of DNSPs suggested that a proportionate, more flexible framework should be extended to DNSP-led SAPS.[41]

Although EWON and PIAC both supported flexibility in the framework for third-party SAPS, both expressed some concern with the approach set out in the draft report. EWON considered that the growth in third-party SAPS may be driven by developers, not customer choice, and that tiered consumer protections could lead to unequal consumer outcomes.[42] Similarly, PIAC was concerned that the proposed tiered framework may lead to confusion relating to the protections available to consumers, forum shopping and unequal outcomes for consumers. PIAC recommended an alternative framework for consumer protections informed by a harm-based approach.[43]

In its submission, Red/Lumo Energy considered the regulatory framework for third-party SAPS should be designed to provide certainty to all parties about their regulatory obligations, ensure consumers receive the same entitlements and protections, irrespective of how they receive their energy, and be competitively neutral as far as possible.[44]

AusNet Services considered the Commission's proposed framework would provide direction and certainty and a regulatory context for safety requirements for third-party SAPS.[45]

The AEC considered that a tiered framework would allow appropriate protections to be applied in a proportionate manner. For category 2 SAPS, the AEC supported consistency between the Commission's approach to protecting customers in embedded networks. For

40 Submissions to the draft report: Red/Lumo Energy, p. 1; Endeavour Energy, p. 1; Essential Energy, p. 3; CEC, p. 1; AusNet Services, p. 1; Energy Queensland, p. 3.

41 Submissions to the draft report: Essential Energy, p. 3; Endeavour Energy, p. 2; ENA, p. 8.

42 EWON, submission to the draft report, pp. 2,4.

43 PIAC submission to the draft report, pp. 1-2.

44 Red/Lumo Energy, submission to the draft report, p. 1.

45 AusNet Services, submission to the draft report, p. 1.

category 3 SAPS, the AEC considered that regulation should be tailored to limit the impact and regulatory costs on small business.[46]

Ausgrid did not agree that the tiered framework proposed by the AEMC was the same as the framework proposed by IPART in its submission to the NSW Government's 2017 consultation paper. Ausgrid suggested that the Commission's proposed framework appeared to have been developed using an economic and competition-based approach, as opposed to a risk-based approach proposed by IPART.[47]

3.3.1 Number of categories and thresholds

Views on the appropriate thresholds for each category of third party SAPS were mixed. Some stakeholders agreed with, or made no further comment on, the categories proposed by the Commission. Other stakeholders questioned the suitability of the category 1 threshold and whether two, rather than three, categories of third-party SAPS may be more appropriate.

For example, given the costs and complexity involved in undertaking a Chapter 6 revenue determination, the AER considered that the regulatory framework proposed to apply to category 1 SAPS would only be proportionate if the trigger for category 1 was high.[48] In contrast, Ausgrid and Energy Queensland considered the proposed threshold for category 1 SAPS was likely too high. Ausgrid also recommended that category 2 be designed to capture SAPS that were smaller than envisaged in the draft report — for example, a microgrid covering a group of households or businesses.[49]

Energy Queensland recommended a framework with only two categories, suggesting that category 2, as proposed by the Commission, was too uncertain and the SAPS intended to be captured by this category 2 should instead be included within category 1.[50]

EWON proposed two alternative approaches to the regulation of third-party SAPS captured within category 2. Under the first model, EWON proposed that all category 2 SAPS operators should be required to obtain a national retailer authorisation; under the second model, EWON proposed that any category 2 SAPS operators who provide retail services to more than one SAPS with retail customers should be required to obtain a national retailer authorisation.[51]

In relation to category 3 third-party SAPS, the ENA recommended that this category be restricted to IPS only, with any SAPS supplying more than one customer classified as a category 2 SAPS. Further, the ENA recommended that all SAPS installations should be required to register, with penalties applying to those parties that do not. It considered registration would provide accountability and allow for transition to a higher category where required.[52]

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46 AEC, submission to the draft report, pp. 1-2.
47 Ausgrid, submission to the draft report, p. 4.
48 AER, submission to the draft report, p. 1.
49 Ausgrid, submission to the draft report, p. 5.
50 Energy Queensland, submission to the draft report, pp. 3-4.
51 EWON, submission to the draft report, pp. 5-8.
52 ENA, submission to the draft report, p. 10.

AusNet Services also supported the application of registration requirements on all small microgrids and SAPS, with ongoing reporting obligations to provide for consumer protections and ensure public safety.[53]

Finally, in relation to defining the categories for third-party SAPS, Essential Energy requested details of the criteria for defining the categories of third-party SAPS,[54] while the ENA considered that the transitional arrangements between categories are as important as the categories themselves.[55]

3.3.2 National or jurisdictional framework

Most stakeholders considered that the regulatory frameworks governing the different models of supply (that is, standard supply, SAPS supply of supply via an embedded network), and applied in different jurisdictions, should be as consistent as possible, particularly in respect of consumer protection obligations. Stakeholder views on consistency between supply models is discussed in more detail in chapter 4 of this review.

The AER was supportive of the development of a nationally consistent framework that allows for choice, while maintaining core consumer protections and does not disadvantage customers who remain on the grid in its submission to the draft report. Further, the AER considered there were benefits in regulating smaller third-party SAPS at a jurisdictional level.[56]

For category 2 and 3 SAPS the Clean Energy Council were of the view that a national framework with jurisdictional opt in was preferred over a jurisdictional framework.[57] Essential Energy considered that jurisdictional arrangements may diverge over time, which would not lead to consistent outcomes for consumers.[58]

3.4 Commission's recommended regulatory framework

The scope and breadth of potential third-party SAPS is large, with the possibility of many variations in the size of the SAPS, as well as the ownership structure and operating models. Having had regard to the assessment criteria, including proportionality of the regulatory arrangements and the promotion of efficient investment and allocation of risks and costs, the Commission considers that a one-size-fits-all approach is unlikely to be appropriate for the regulation of third-party SAPS.

The majority of stakeholders who provided submissions to the draft report agreed that a tiered framework represented an appropriate approach to the regulation of third-party SAPS. This would support the application of flexible and proportionate regulations to take account of the wide variations in size, ownership and operating models which may emerge.

53 AusNet Services, submission to the draft report, p. 1.
54 Essential Energy, submission to the draft report, p. 3.
55 ENA, submission to the draft report, pp. 4, 9-10.
56 AER, submission to the draft report, p. 1.
57 CEC, submission to the draft report, p. 1.
58 Essential Energy, submission to the draft report, p. 3.

The Commission recognises the concerns of a number of stakeholders that the jurisdictional regulation of category 2 and 3 SAPS could result in inconsistencies between jurisdictions and potentially between the regulatory frameworks applying to different supply models.

While the Commission is cognisant of reducing opportunities for regulatory arbitrage between types of supply, it remains of the view that the most appropriate regulatory framework for third-party SAPS is a tiered framework with three categories. The Commission has taken steps to mitigate against risks of forum shopping between electricity supply models, whilst allowing for flexibility, adaptability to changes in technology and innovation where practicable, and applying the overarching principles in a clear and transparent matter. The Commission has developed a framework that provides for consistency of customer experience with consistent customer outcomes.

Further details on the Commission's recommended obligations relating to access and connections, economic regulation, consumer protections, reliability, network operations and system security and safety for each SAPS category can be found in appendices C to H in this report.

3.4.1 Tiered regulatory framework

Consistent with the Commission's position in the draft report, the Commission is recommending a tiered framework for the regulation of third-party SAPS, with three categories. A tiered regulatory framework will most appropriately account for differences between SAPS in respect of customers' bargaining power, customers' ability to influence the design and system requirements of the SAPS, the complexities of the relationships in SAPS and the risk of failure of the third-party SAPS provider, as well as the risk to customers and the greater public. Further, tThe Commission considers that consistent outcomes can be achieved between supply models by implementing a tiered approach to the regulation of third-party SAPS. Further discussion on consistent outcomes between supply models can be found in chapter 4.

The Commission recommends that jurisdictions employ both an economic and-based approach to determine the categories within the tiered framework, and the regulatory requirements and application of these within each category. For example, in determining the safety obligations to apply to the operators of each SAPS in category 2, jurisdictions would be encouraged to have regard to the risks that the system and its operation may impose on customers of the SAPS, workers and the general public.

As noted above, the Commission has given thorough consideration to stakeholder concerns that there could be a potential for regulatory arbitrage, or unequal treatment of customers with a tiered framework. Throughout the design of the tiered framework, and in developing the recommendations for consumer protections and other regulatory obligations to apply within each tier, the Commission has been cognisant of these potential issues. The recommendations in this report are designed to address these concerns as much as possible.

The Commission's recommendation for a three-tiered regulatory framework for third-party SAPS supports efficient investment in SAPS assets and services and the appropriate allocation of risks and costs between third-party SAPS providers and SAPS customers. It also allows for

proportionate regulatory obligations, whilst maintaining consumer protections for customers supplied via a third-party SAPS.

A summary of the three categories recommended by the Commission is set out below:

- **Category 1** would comprise very large microgrids, where there is the potential for effective competition to emerge in the generation and retail markets. The intention is for SAPS in category 1 to be regulated under the existing national energy laws and rules, which would be extended to these types of third-party SAPS. The owner/operator of the third-party microgrid would be required to register with AEMO as a DNSP under the NER and would be subject to the same NER/NERR obligations as other DNSPs. As is the case with existing DNSPs, category 1 SAPS providers would likely also need to be licensed on a jurisdictional basis. Existing provisions in the NERL regarding retailer authorisation for any retailers wishing to supply electricity to customers within the SAPS would apply.
- **Category 2** would comprise smaller, likely vertically-integrated, microgrids. These SAPS would be subject to a relatively comprehensive jurisdictional licensing regime. Consumer protections would be applied in a manner which ensures consistency of customer experience with other models of supply.
- **Category 3** would comprise microgrids with very few customers or only large customers, and IPS where there is a sale of energy. SAPS in category 3 would be regulated through jurisdictional registered exemptions or jurisdictional licenses with more limited conditions.

3.4.2 Category 1

The Commission considers that very large microgrids would fall under category 1 of the tiered framework. Microgrids, particularly very large microgrids supplying a city or large town, would effectively become monopolies if they were providing energy services to a large number of customers. Customers will have little bargaining power or control over the SAPS performance, quality or other system requirements. Additionally, the consequences of failure of the third-party provider will be high, with the supply of an essential service to a large number of customers at risk.

Microgrids in category 1 would be large enough to warrant regulatory determinations by the AER. The relatively large numbers of customers and the existence of AER-determined network tariffs means that such systems would also be able to facilitate effective competition in the retail and generation market.

Consequently, the Commission considers it is appropriate to regulate this category of third-party SAPS in an equivalent manner to the interconnected grid and DNSP-led SAPS. For efficiency and consistency, category 1 SAPS should be regulated under the national energy laws, regulations and rules, and the existing jurisdictional frameworks for those areas that are regulated by jurisdictions under the AEMA.

Registration and licensing

For category 1 SAPS, all intending participants (including generators) would be required to register with AEMO in order to be able to operate within the market. Whether AEMO would have a role in system operation would need to be considered, likely on a case-by-case basis

depending on the size and capacity of the system, and the availability of suitable entities to perform the system operation role for the category 1 SAPS. This will be explored further when rules are being developed.

The distributor of a category 1 SAPS would be required to obtain a jurisdictional distribution license. Any retailers who supply customers in the category 1 SAPS will be required to obtain a retail authorisation with the AER. In addition, if required by the jurisdiction, any connected generators which meet the jurisdiction's licensing requirements will be required to obtain a jurisdictional generation license.

This category does not require the development of a new form of regulation, and would require relatively minor changes to the existing national energy laws and rules to extend them to this category of third-party SAPS.

Importantly, given that they would need to connect thousands of customers, it is not anticipated that many third-party SAPS will be classified as a category 1 third-party SAPS. However, it is important to have this category to allow for any future developments.

Table 3.1 provides a summary of the recommended regulatory framework to apply to third-party SAPS that fall within category 1 of the three-tiered regulatory framework.

Table 3.1: **Recommended category 1 SAPS framework**

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
Registration and licensing	Registration and licensing arrangements as for standard supply: • Network service providers require a jurisdictional license, generators may require jurisdictional licenses, depending on the jurisdiction. • Retailers would be required to hold a retail authorisation from the AER. • Network service providers, retailers and any connected generating units of a sufficient size would need to be registered with AEMO. Existing NEM RoLR arrangements will apply.
Access and connections	A "coverage test" will be used to determine those third-party microgrids large enough to warrant the application of an access regime (and therefore be classified as category 1 SAPS). This access regime would be the same as the regime that applies in the NEM. Retailers would also have access to the customers of Category 1 SAPS in the same way they have access to grid-connected customers.
Economic regulation	The Commission recommends that distributors of category 1 SAPS be regulated in the same manner as DSNPs. This includes being subject to a NER Chapter 6 regulatory determination by the AER.

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
	In addition, the Commission recommends that category 1 SAPS be subject to the same retail price regulation applicable in the relevant NEM jurisdiction. Consequently, where jurisdictional price regulations apply, jurisdictions should determine a retail price specific to the category 1 SAPS. If there is no price regulation applying in that jurisdiction, no price regulation would be required for the category 1 SAPS.
Consumer protections	Retailers will be authorised by the AER, with the full suite of consumer protections under the NECF and any applicable jurisdictional consumer protections. Consumers should have access to jurisdictional energy ombudsman schemes and concessions, rebates and emergency payment assistance.
Reliability	Reliability measures should be the same as those applicable to DNSPs, including jurisdictional reliability standards (SAIDI and SAIFI), GSL schemes and STPIS. Some variations to the STPIS and jurisdictional standards may be required, as feeder categories may require review. Reliability performance reporting to the jurisdictional regulator on jurisdictional distribution reliability standards and GSL payments, and to the AER on STPIS target performance, should be required, consistently with current requirements for DNSPs. As category 1 SAPS will be regulated under the national framework, the reliability standard set in the NER would apply for generation.
Network operations and system security	The designation of an independent system operator would be required in a category 1 SAPS. The ISO will be responsible for operating the system, including maintaining system security and reliability. For category 1 SAPS, system security requirements, which may be a simplified version of the NER requirements, will be needed. Jurisdictional and NER technical standards that apply to DNSPs are recommended for category 1 SAPS, including the creation of service and installation rules for the SAPS, adoption of Australian standards covering quality of supply, and the development of an asset management plan by the SAPS distributor. For metering and settlement, existing NEM arrangements would apply, including AEMO settlement and metrology procedures and NEM compliant metering. In addition, retailers would be responsible for arranging metering services for small customers.

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
Safety	The Commission recommends the same jurisdictional safety arrangements applied to DNSPs connected to the interconnected grid also be applied to category 1 SAPS distributors. Mandatory jurisdictional reporting schemes for safety incident reporting should also be extended to category 1 SAPS.

3.4.3 Category 2

SAPS in category 2 will cover a broad range of microgrids — from those connecting a few customers to those supplying smaller towns. Subject to the final approach implemented by jurisdictions, the Commission considers this category of third-party SAPS has the potential to be the largest of the three categories.

For a number of reasons (discussed in detail in chapter 4), the Commission does not consider it to be appropriate to regulate category 2 SAPS in a manner equivalent to the interconnected grid and DNSP-led SAPS. Nor is it likely to be appropriate to regulate these SAPS using every aspect of the framework recommended for embedded networks.

Due to the potential breadth of microgrids in category 2, the Commission considers that the regulatory framework supporting these SAPS will need to be flexible and adaptable in order to provide regulatory arrangements that are fit-for-purpose and proportionate. The Commission considers this flexibility and proportionality is most effectively supported through regulation being undertaken at a jurisdictional level, including through jurisdictional license conditions. This will allow the regulatory framework to be tailored as required to best manage risks and balance regulatory costs.

Effective competition in the provision of generation and retail services is unlikely to emerge within category 2 SAPS given that (a) the demand for electricity is unlikely to be high enough to sustain more than one party selling and electricity and (b) retailers generally require significant customer numbers before it becomes cost effective to develop specific retail tariffs (taking into account the SAPS specific network tariff) for a group of customers.[59] Further, the costs associated with the AER revenue determination process that would be necessary to set network tariffs for each category 2 third-party SAPS would be disproportionately burdensome. Consequently, the Commission expects that microgrids within category 2 will generally be established and operated by vertically integrated entities.

While ensuring the customers of a category 2 SAPS receive appropriate consumer protections is important, it is unlikely to be necessary to apply the full suite of consumer protections under the NERL and NERR to this category of third-party SAPS. For example, obligations relating to the tripartite relationship between the customer, retailer and distributor along with

59 The Commission understands from discussion with retailers that this would be several thousands to tens of thousands of customers.

obligations relating to Retailer of Last Resort, settlement, marketing and transfers (amongst others) would not be applicable to a vertically integrated third-party SAPS.

The Commission is of the view that national consistency for the regulation of category 2 third-party SAPS, as much as practicable, is desirable to provide a consistent and transparent framework, and minimise additional compliance costs for operators seeking to operate on a national basis. This will also provide a consistent consumer experience. Therefore, the Commission encourages jurisdictions to work together to develop nationally consistent regulations, and is happy to assist further in this process.

Registration and licensing

To facilitate regulation of category 2 third-party SAPS at a jurisdictional level, some form of licensing regime would be required to check whether service providers have the requisite organisational, technical and financial capacity, and to place ongoing obligations on the service provider.

A licensing process at a jurisdictional level should be implemented that is proportionate to the level of retail services provided by an applicant, and the risks posed by the third-party SAPS. This would reduce barriers to entry in the long-term and provide a regime that is flexible and adaptable to future changes in technology and operating models.

There would be no need for intending participants of a category 2 SAPS to be registered with AEMO, as AEMO would not have a role in either system or market operation. System operation would in all cases be the responsibility of the SAPS service providers, and there would be no competitive retail and/or generation markets to be supported. However, it will still be important for there to be a central register(s) of third-party SAPS to provide long-term clarity of who is providing energy services and where. Therefore, jurisdictional regulators should publish a register of licensees.

Although category 2 will cover a broad range of SAPS, some typical examples might be a SAPS supplying a remote town with hundreds of customers, or a small very remote town with a dozen customers.

Table 3.2 provides a summary of the recommended regulatory framework to apply to third-party SAPS that fall within category 2 of the three-tiered regulatory framework.

Table 3.2: **Recommended category 2 SAPS framework**

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
Registration and licensing	Licensing should be undertaken on a jurisdictional basis: • Jurisdictional regulators would be able to issue combined licenses for network, generation and retail activities. Licence conditions would be determined on a risk-based basis. • No form of registration with AEMO or authorisation by the AER would be required.

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
	Provisions for continuity of supply should be developed to apply in the event of a failure of a vertically integrated category 2 service provider.
Access and connections	An obligation to offer to supply and connect would be placed on third-party microgrid providers, implemented through a jurisdictional licensing regime. The obligations to connect would cover end users, including micro embedded generators. Jurisdictions may also decide to extend these obligations to generators less than 5MW. Alternatively, jurisdictions may decide to implement a negotiate/arbitrate regime for some category 2 SAPS, providing an avenue for generators to negotiate with the SAPS provider for access. This could be restricted to generators less than 5MW, or it could be opened up to larger generators as well.
Economic regulation	A light-handed approach to economic regulation is recommended for category 2 SAPS, with economic regulation to be dealt with through license conditions. To reduce the risk of third-party vertically integrated SAPS providers misusing its monopoly power, some form of price transparency and price monitoring would be required for both retail and connection charges at a minimum. More prescriptive forms of economic regulation could also be considered by jurisdictions to apply to larger category 2 SAPS. This could include requirements for the provider to report on reasons for price changes, regulations specifying permitted reasons for increasing prices, or caps on the amount of any price increases. In addition, for larger customers a negotiate/arbitrate regime should be considered by jurisdictions.
Consumer protections	Comprehensive consumer protections largely consistent with the consumer protections in other supply models provided through jurisdictional license conditions. Consumer protections should include: • customers' rights to access energy services • informed consent requirements to enter into a supply arrangement • billing requirements including bill contents obligations • payment minimum requirements including time to pay and payment methods • pricing principles or price monitoring requirements • payment plans and basic customer hardship obligations

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
	• undercharging and overcharging provisions • interruptions to supply obligations • Debit recovery arrangements • disconnection and reconnection obligations • protections for vulnerable customers and obligations relating to life support customers • internal complaints handling processes • independent dispute resolution • entry criteria for retailer authorisation • reporting and compliance obligations • concessions, rebates and emergency payment assistance, and • SAPS specific information provisions.
Reliability	Reliability targets should be included in jurisdictional licence conditions. The calculation of these reliability targets should include supply interruptions caused by both distribution and generation assets. These reliability targets may not be as prescriptive as SAIDI and SAIFI, and would not be calculated in the same way as for DNSPs. The use of supply interruption Guaranteed Service Level payments is recommended as an incentive for SAPS operators to maintain the required reliability standards. Reporting on performance against reliability targets and any rectification requirements for poor reliability should also be included in jurisdictional licence conditions.
Network operations and system security	The system operator would be the SAPS provider. The SAPS provider would be responsible for system operator functions and maintaining system security and reliability. Jurisdictional system security and technical standards should include: • adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits • development of standard, nationally consistent service and installation rules, and • a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans. For metering and settlement, jurisdictional licence conditions should

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
	require SAPS operators to use pattern approved meters and develop a metering plan for approval by the jurisdictional regulator.
Safety	The Commission recommends that operators of category 2 SAPS be required to develop and maintain a Safety Management System (SMS) under AS 5577. Jurisdictions should consider developing a national model regulatory framework for the SMS requirement, for incorporation in jurisdictional statutes. The Commission also recommends that jurisdictional regulators consider whether there are particular jurisdictional circumstances that justify making certain jurisdictional safety standards and codes mandatory for category 2 third-party SAPS. However, mandatory jurisdictional reporting schemes for safety incident reporting should apply.

3.4.4 Category 3

Category 3 microgrids would include very small microgrids connecting a handful of customers, microgrids which only supply large customers, or IPS where there is a sale of energy.[60] These microgrids and IPS are likely to have a much lower regulatory risk and failure of the energy provider would impact a much smaller number of customers. In addition, customers are likely to have a higher degree of control over system specifications and requirements, and greater bargaining power.

For small microgrids and IPS, the focus of a licensing regime would be different to category 2 in some respects. For example, as some safety risks are present irrespective of whether a network is large or small, it might be important to have a licensing regime protecting the long-term interest of consumers with respect to safety, but less so with respect to reliability. Similarly, electricity consumers would expect the same level of billing transparency regardless of whether they are connected to a small or a large SAPS, but may accept a lower level of reliability for a lower price.

The Commission considers that for category 3 customers, a proportionate framework would have some minimum consumer protections, such as billing requirements and planned supply interruption notification requirements, as well as energy-specific safety requirements, basic metering requirements and some technical standards.

Registration and licensing

The Commission continues to consider that the most appropriate regulatory approach for category 3 would be via jurisdictional license conditions, or jurisdictional registered exemption conditions. This would allow for flexibility in the arrangements and would likely

60 Noting the broad interpretation the Commission is taking in this report to the 'sale of energy', as described in section 2.2 above.

provide an appropriate balance between the risks and costs on third-party SAPS providers and SAPS customers.

If a jurisdiction decides to regulate category 3 SAPS under an exemption framework with obligations imposed via exemption conditions, the Commission recommends that all third-party SAPS are registered to enable jurisdictions to effectively monitor category 3 SAPS and to allow DNSPs and other potentially affected parties to be aware of these third-party SAPS for safety reasons.

Examples of category 3 third-party SAPS might include a microgrid supplying a couple of farms, or an IPS where the customer is charged by the service provider for the energy produced by the system.

Table 3.3 provides a summary of the recommended regulatory framework to apply to third-party SAPS that fall within category 3 of the three-tiered regulatory framework.

Table 3.3: **Recommended category 3 SAPS framework**

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
Registration and licensing	Licensing/ registered exemptions should be undertaken on a jurisdictional basis: • Jurisdictional regulators should use either a risk-based licensing regime with proportionate licence conditions or a registered exemptions framework with exemption conditions. • To the extent any exemptions framework is used, exemption holders should be registered by the jurisdictional regulator. No OoLR arrangements would apply. Such arrangements would likely be disproportionate given the small number of customers involved.
Access and connections	No obligations should be placed on third-party SAPS providers to offer to connect and supply customers on the basis that these obligations would be onerous and disproportionate to the scale of the SAPS in this category.
Economic regulation	Should not be economically regulated.
Consumer protections	Minimum consumer protections such as billing information, payment minimum requirements and disconnection and reconnection obligations would apply through exemption/license conditions.
Reliability	Customers of category 3 SAPS will be able to negotiate reliability with the provider when the contract for supply is being entered into. Consequently, reliability performance for category 3 SAPS would be expected to be addressed in the contract between the SAPS provider and individual customers, not through a jurisdictional target.

REGULATORY DIMENSION	RECOMMENDED OBLIGATIONS
Network operations and system security	The system operator would be the SAPS provider. Security and reliability of the system would be the responsibility of the SAPS provider. Jurisdictional system security and technical standards for microgrids should include: • adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits • development of standard, nationally consistent service and installation rules, and • a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans. For IPS, jurisdictions should require compliance with relevant Australian Standards, in particular the AS/NZS 4509 series, where this is not already the case. For metering and settlement, jurisdictional licence conditions should require SAPS operators to use pattern approved meters.
Safety	The Commission recommends that the safety obligations imposed on category 2 SAPS also be applied to category 3 microgrids, albeit rationalised to the extent necessary to account for the degree of safety risks associated with the system. For IPS, the Commission recommends that AS 3000 and AS 4509, as well as any other standards the jurisdictions consider appropriate, should be enforced.

3.4.5 Thresholds for each category

A key question that the Commission considered in the review is exactly how to determine which category a given third-party SAPS will fall into.

Some of the factors which the Commission considered for determining the boundaries between each category included:

- Whether effective competition can be sustained through markets for some services
- The number and type of customers in each SAPS (for example, small or large customers)
- The types of assets connected to each SAPS and the system complexity
- System load
- The risks to customers, employees and the public posed by the system. This might itself depend on a number of factors, including the voltage levels of equipment and whether property boundaries are crossed.

The Commission recommends that the thresholds for each category are determined as follows:

- **Category 1** systems will be determined by a form of coverage test. This coverage test will determine whether effective competition in retail and generation is realistic and whether the costs of coverage outweigh the benefits.
- **Category 2** would encompass systems that are bigger than category 3 but for which the category 1 coverage test is not passed. The threshold between categories 2 and 3 might be based on the number of small customers. It is also likely that other factors, such as the size and complexity of the system, and the public safety risks posed by the microgrid, would be relevant. The threshold between categories 2 and 3 would be specified on a jurisdictional basis, and it might be appropriate for this vary to reflect local circumstances.
- **Category 3** would include systems with a sale of energy and/or more than one customer but fewer customers than the category 2 trigger. This category would also include microgrids with only large customers. Any other triggers for category 2 status, such as technical characteristics, would also not be met.

The coverage test for determining which third-party SAPS will be considered to be a category 1 SAPS is discussed in detail in chapter 4 of this report. Jurisdictions will ultimately determine the thresholds between category 2 and 3 third-party SAPS.

3.4.6 Customer owned IPS

There has been no change from the Commission's recommendations in the draft report for IPS where there is no sale of energy. An IPS where there is no sale of energy - that is where the customer has bought the IPS outright from an equipment provider or installer, and owns and operates the IPS themselves - would be outside of the energy frameworks. The impost of additional energy-specific regulations beyond those relating to safety in these cases would not be proportionate. Where there is no sale or supply of energy the IPS will be covered by the ACL, any applicable jurisdictional safety regulations, and possibly the New Energy Tech Consumer Code (where the supplier has signed up to the code).

4 KEY ISSUES

There are a number of key issues that the Commission indicated in the draft report would be the key focus of this stage of the review, or were included in a number of stakeholder submissions to the draft report, and warrant further discussion and analysis.

These key issues are:

- Consistency of frameworks for different models of supply
- Operator of last resort arrangements for third-party SAPS
- The coverage test for determining if a third-party SAPS would be classified as a category 1 SAPS under the proposed framework.

This chapter explores these key issues, providing the Commission's analysis and detailing the Commission's final position in relation to these issues.

The Commission's recommendations relating to the operator of last arrangements for third-party SAPS and the coverage test for determining if a third-party SAPS will be classified as a category 1 SAPS are summarised in the box below.

RECOMMENDATION 2: OPERATOR OF LAST RESORT ARRANGEMENTS AND COVERAGE TEST FOR DETERMINING A CATEGORY 1 SAPS

Operator of last resort arrangements

The Commission considers that pre-emptive arrangements to ensure continuity of supply in the event of failure by a SAPS service provider will need to be developed to apply in respect of category 1 SAPS network and/or SAPS generation service provision. The retail activities within a category 1 SAPS would be covered by the national RoLR arrangements (with any necessary amendments).

In addition, provisions to ensure continuity of supply will need to be developed to apply in the event of a failure of a category 2 SAPS service provider (expected to be a vertically integrated service provider).

In contrast, the Commission does not consider that the development of a formal scheme to ensure continuity of supply is necessary or appropriate in the event of a category 3 SAPS service provider failure. Such arrangements would likely be disproportionate given the small number of customers involved.

Coverage test

The recommended coverage test to determine whether a third-party SAPS is classified as a category 1 SAPS and therefore subject to access arrangements under the national framework is:

Test feature 1 - In general, a SAPS is to be covered, and classed as category 1, where

- *there is a reasonable prospect, within a reasonable timeframe, that effective competition will become established for the generation of electricity for all, or a substantial portion, of the supply of electricity to customers that are connected to, or that may connect to, the relevant SAPS*
- *coverage would not generate costs that exceed the expected benefits*

in deciding whether or not the SAPS coverage criteria are satisfied, regard must be given to the national electricity objective.

...

Test feature 2 - There will be an exemption from coverage to accommodate the use of a competitive tendering process for the provision of SAPS infrastructure and to determine the associated terms (i.e., price and other matters). Specifically, a new development SAPS would not be covered for a period determined by the jurisdiction where the SAPS has been established through an approved competitive tender process.

...

Test feature 3 - There will be a further exemption from coverage for new development SAPS, where a new SAPS would not be expected to pass the coverage test for an extended period of time. This finding could be locked-in prior to development of the SAPS and would remain in place for a 15 year period. This test feature recognises that even if the coverage test is not expected to be met (at least when applied prior to the SAPS being developed), in the absence of a binding upfront commitment an investor would be exposed to the risk that access subsequently may be mandated (and losses thereby suffered), which may adversely affect the initial investment decision. Therefore, a no-coverage decision will offer protection to SAPS investments that are not expected, prior to construction, to meet the coverage test.

4.1 Consistency of regulatory frameworks across supply models

The Commission progressed the development of the regulatory frameworks for DNSP-led SAPS and third-party SAPS concurrently with embedded networks, recognising that the three reviews would have a number of interrelated areas of policy, and would touch on many of the same concerns. In addition, throughout the reviews, the Commission had regard to the regulatory framework for standard supply and, where possible, practicable and appropriate, extended or mirrored the existing national frameworks which apply to standard supply.

As noted earlier in this review, a key question for priority 2 of this review was whether the regulatory frameworks for third-party SAPS should be the same as those recommended in priority 1 for DNSP-led SAPS and standard supply, the same as those recommended for embedded networks, or whether there are necessary differences. Differences in some aspects of the regulatory framework for third-party SAPS compared to other electricity supply models may be appropriate to reflect the differences in the underlying supply models, costs

involved in supplying the customer, the potential for effective competition in retail markets, the need for consent obligations and customer choice and control over system specifications. Further, differences in the regulatory frameworks for each category of third-party SAPS may be appropriate.

In submissions to the draft report, some stakeholders expressed concern that there appeared to be inconsistencies between the frameworks governing the various electricity supply models. The consistencies between the frameworks, and the rationale behind the differences, are explored in this section of the report.

4.1.1 Background

The Commission has recently completed the *Updating the regulatory framework for embedded networks review,* where the Commission made recommendations on the regulatory framework which should apply to new embedded networks. In addition, the Commission recently delivered its recommendations on the framework to apply to DNSP-led SAPS under priority 1 of this review.

Under both the embedded network review and this review into SAPS, the Commission has considered potential incentives for parties to leverage regulatory arbitrage across different regulatory frameworks. The Commission's recommendations aim to create incentives around efficiency and consumer benefits, rather than opportunities for regulatory arbitrage.

Key features of the current regulatory framework for standard supply and the recommended regulatory frameworks for DNSP-led SAPS and embedded networks are discussed below.

Standard supply

Under standard supply, market participants are subject to national regulation under the NEL, NER, NERL and NERR, as well as jurisdictional regulation in areas including safety, technical standards, reliability, retail price protection, concessions and rebates, access to energy ombudsman schemes and land access arrangements.

In relation to the seven dimensions the Commission has focused on in this report, key features of the regulatory framework for standard supply include:

- **Registration and licensing** — Distributors are required to be registered by jurisdictions and, in some jurisdictions, generators are also required to be licensed. Retailers are required to obtain a national retail authorisation from the AER. Distributors, generators and retailers intending to purchase electricity in the wholesale market, must also be registered with AEMO.
- **Access and connections —** Under the NERL, an authorised retailer must make an offer to supply a customer under a standing offer for those NMIs for whom it is a designated retailer. There are also obligations on DNSPs to provide connection services under the NER and NERR. In the NEM, these businesses have obligations to offer to connect both load (end-users) and generators.
- **Economic regulation** — In the NEM, the scope for effective competition is weaker for the provision of transmission and distribution network services, than generation or retail

services. For network businesses, revenues are set at an efficient level by the AER under a NER Chapter 6 revenue determination, with various incentive regimes in place to encourage efficient outcomes. In addition, there are various 'network pricing principles' guiding the development of network tariffs. Retail price regulation also occurs under the Commonwealth's Default Market Offer, or jurisdictional retail price regulation.

- **Consumer protections —** Energy specific consumer protections are provided under the NECF as well as under complementary jurisdictional regulations. Consumer protections under NECF include protections relating to rights to access, informed consent requirements, dispute resolution, minimum contractual standards, billing, tariff and payment minimum requirements, disconnection and reconnection obligations and protections for vulnerable customers. Customers also have access to jurisdictional concessions and rebates as well as energy ombudsman.
- **Reliability** — In the NEM, different reliability frameworks exist for generators, transmission networks and distributors.[61] The Reliability Panel sets a national reliability standard relating to generation and transmission interconnector capacity. For distribution, jurisdictions set reliability standards and guaranteed service levels relating to supply interruptions, although the AER also sets a reliability incentive target for each DNSP under its incentive scheme.
- **Network operations and system security** — AEMO, in its role as system operator, is responsible for maintaining the power system in a secure operating state. The power system is secure when technical parameters such as voltage and frequency are maintained within defined limits. Among other things, technical standards negotiated between AEMO and network businesses, and AEMO and connecting parties, assist AEMO in meeting its power system security obligations. Jurisdictional instruments also impose a number of obligations on parties in respect of system security — for example, network power quality obligations are imposed on DNSPs. In addition, AEMO in its role as market operator is responsible for dispatching controlled generation. It also settles wholesale sales and purchases in the NEM using metered data. This requires market participants to adhere to metering procedures, guidelines and processes prescribed by AEMO.
- **Safety** — The safety of electricity networks is governed by jurisdictional instruments. DNSPs, when designing their grid connected networks, are generally required to comply with a range of detailed safety obligations, taking all reasonable steps to make the network safe. Most 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.

DNSP-led SAPS

Having regard to the outcomes of the Commission's priority 1 review, key features of the recommended regulatory framework for DNSP-led SAPS under each of the seven dimensions include:

61 The majority of outages in the NEM are the result of outages on distribution networks.

- **Registration and licensing** — Arrangements applicable to standard supply in respect of the authorisation, registration and licensing of retailers, distributors and generation will be maintained. That is, distributors will be licensed by jurisdictions, as will generators where required. Retailers will be required to obtain a national retail authorisation from the AER. Consistent with the arrangements for standard supply, distributors, generators and retailers must be registered with AEMO.
- **Access and connections** — The existing obligation on designated retailers to offer supply will be maintained. So too will the existing obligation on distribution businesses to offer to connect new customers. However, the Commission recommended that distributors would not be allowed to meet their obligation to offer a connection to a new customer by offering a connection to a new SAPS.
- **Economic regulation** — The network functions provided by a DNSP using a SAPS will be economically regulated under the existing arrangements in Chapter 6 of the NER. Existing retail arrangements will be maintained with the DMO or jurisdictional price regulation applying.
- **Consumer protections** — On the basis of the Commission's recommendation that customers being supplied via a DNSP-led SAPS will be supplied by a registered DNSP and an authorised retailer, the protections under NECF will be extended to these customers, as should jurisdictional concessions, rebates and ombudsman schemes. It was considered that equivalent consumer protections were required on the basis that DNSPs will be able to transition customers from standard supply to SAPS supply without obtaining consent.
- **Reliability** — Jurisdictional reliability standards and guaranteed service levels for unplanned outages will be extended to cover DNSP-led SAPS. The Commission recommended that jurisdictional schemes should be reviewed and amended, if required, to facilitate the coverage of DNSP-led SAPS. In addition, it was recommended that the AER's incentive scheme should include DNSP-led SAPS in the calculation of DNSPs' targets.
- **Network operations and system security** — The existing arrangements for metering and settlement will apply to DNSP-led SAPS, as will the existing technical standards. DNSPs will be responsible for abiding by power quality obligations. AEMO will generally not be required to perform the system operator role for a DNSP-led SAPS.
- **Safety** — As licensed DNSPs will be operating the DNSP-led SAPS, it is likely that the same jurisdictional safety requirements which apply to DNSP's interconnected networks would apply to DNSP-led SAPS.

Embedded networks

Having regard to the Commission's recommendations in the embedded review, key features of the proposed regulatory framework for embedded networks under each of the seven dimensions include:

- **Registration and licensing** — The creation of two new types of market participants, the Embedded Network Service Provider (ENSP) and the off-market retailer, were recommended. The ENSP and off-market retailer will be assessed for registration by

AEMO and the AER, respectively. These market participants will have obligations within embedded networks, and will interact with DNSPs and standard retailers.

- **Access and connections** — Under the recommendations, ENSPs will be required to allow and facilitate access to customers in their network for all authorised retailers. 'Shadow pricing' of the local DNSP's tariff allows for retail competition. A designated retailer will be appointed by the ENSP for new connections, after which the designated retailer provisions in the NEM apply. It was recommended that ENSPs be required to make offers to connect new customers and make requested alterations within a geographically identified area, to the extent they do not require augmentation at the parent connection point.
- **Economic regulation** — Competing retailers will have better access to customers within embedded networks under recommendations in the embedded networks review. ENSPs will be prohibited from charging more than the amount that the local DNSP would charge an equivalent customer connected to its network.
- **Consumer protections** — The majority of the consumer protections under the NERL and NERR will be extended to customers in new embedded networks. Amendments to the NERL and NERR to accommodate the multiple parties and broader relationships within an embedded network were recommended. A number of minor obligations were not extended, such as notification of price increases in a national newspaper, as they were not considered to be proportionate.
- **Reliability** — The Commission considered that consumers in embedded networks would benefit from some reliability protections, for example under a type of guaranteed service level scheme, as embedded networks generally have a much smaller number of customers connected to their networks than DNSPs. Jurisdictions would need to extend their guaranteed service level schemes to ENSPs, or create a new guaranteed service level scheme applicable to ENSPs, to provide this reliability protection to embedded network customers.
- **Network operations and system security** — Metering requirements in new embedded networks will be the same as metering requirements in the NEM under the recommendations, with AEMO carrying out settlement. System operation in an embedded network will be consistent with the interconnected grid, and any technical standards to be imposed on the ENSP will be determined by jurisdictions. The ENSP must abide by the DNSP's service and installation rules for the embedded network's connection to the DNSP's network.
- **Safety** — The Commission recommended that jurisdictional electrical safety regulators analyse the safety obligations in their jurisdiction, and the appropriateness of applying them to embedded networks, to determine if current obligations can be extended either in full or with amendment, or whether alternative safety obligations may be more appropriate.

Further details on the current obligations in the NEM, as well as recommended obligations for embedded networks and DNSP-led SAPS, can be found in appendices C to H of this report.

4.1.2 Commission's views in the draft report

In the draft report, the Commission noted it had endeavoured to achieve equivalency of consumer experience by applying consistent principles between priority 1 (DNSP-led SAPS) and priority 2, and standard supply, when developing a regulatory framework for third-party SAPS. However, the Commission also noted that there may be instances where it is appropriate to vary the means of achieving equivalency of consumer experience, and the application of the key principles, between the supply models to recognise differences in factors such as the size and overall risks of the system in question.

Whether there should be differences between the regulatory frameworks to reflect differences in the consent requirements, potential ownership structures and operating models, and the customers' level of control over system specifications and requirements, was also identified as a key question for priority 2 of the review.

Having regard to the above, the Commission proposed a three-tiered regulatory framework that would provide appropriate protections for consumers, but with these applied in a proportionate manner. Three categories of SAPS would be identified, with regulatory obligations tailored to fit each category. The largest systems would be regulated under national frameworks, but smaller systems would be subject to jurisdictional arrangements.

The Commission considered its draft regulatory framework for third-party SAPS, though not identical to the recommended regulatory frameworks developed for DNSP-led SAPS or embedded networks, would nevertheless deliver an equivalent consumer experience and outcomes consistent with these other models of supply and, importantly, consistent with the long term interests of consumers.

4.1.3 Stakeholder views

In submissions to the draft report, some stakeholders questioned whether the principles guiding the Commission's review had been applied consistently between the different models of supply. In general, stakeholder comments relating to consistency of frameworks appear to primarily focus on the proposed regulatory framework for category 2 third-party SAPS. Most stakeholders considered that the protections and obligations recommended under the proposed regulatory frameworks for category 1 and category 3 third-party SAPS were appropriate, with some stakeholders having differing views on the threshold for category 1 SAPS (discussed further in chapter 3 and section 4.3 of this report).

Equivalent outcomes between models of supply

Stakeholders generally considered that customers should receive equivalent outcomes, regardless of the manner in which their energy is supplied. Equivalent outcomes were seen as important to reduce forum shopping and regulatory arbitrage, and provide surety of consumer protections. However, some stakeholders considered there were points of differences in the energy supply models which may necessitate differences in how those consistent outcomes are achieved.

Mondo, in its submission, agreed with the Commission's position that choice was a key point of difference for priority 2 of the SAPS review. Additionally, Mondo considered that the

framework proposed by the Commission in the draft report allows for better reflection of the underlying costs of a third-party SAPS. Cost structures of third-party SAPS will exhibit very different cost characteristics compared to large scale power systems.[62]

Red/Lumo Energy considered that the regulatory framework should, as far as possible, be competitively neutral and ensure that consumers received the same entitlements and protections, irrespective of the mechanism through which they receive their supply.[63]

Ausgrid, Essential Energy, Energy Queensland and ENA recommended that, in developing the regulatory framework for third-party SAPS, the Commission should focus on consistent outcomes. A level playing field was considered to assist in reducing forum shopping and regulatory arbitrage, as well as providing surety in consumer protections and supplier obligations.[64]

To minimise regulatory arbitrage, the AER recommended that the Commission work with jurisdictional regulators in the implementation of a regulatory regime for categories 2 and 3 SAPS, to ensure that the consumer protections recommended in the report are implemented at the jurisdictional level.[65]

Consistency between DNSP-led SAPS and third-party SAPS frameworks

A number of DNSPs considered there were inconsistencies between the regulatory arrangements for DNSP-led SAPS and third-party SAPS. These comments related primarily to the treatment of generation. Generally, DNSPs considered that the arrangements in category 2 and 3 third-party SAPS which would allow the SAPS provider to own generation should be applied to DNSP-led SAPS on the basis that the systems may be of similar sizes.[66]

For example, the ENA considered that DNSP-led SAPS and third-party SAPS are similar in that they both supply customers with an essential service, using assets which are independent of the grid. The ENA noted that, while some third-party SAPS were envisaged as being provided by a vertically integrated entity, such an arrangement would not permitted under the recommended DNSP-led SAPS model of supply.[67]

Consistency between embedded networks and third-party SAPS frameworks

The consistency of the frameworks proposed for category 2 third-party SAPS and the recommended framework for embedded networks was also raised by stakeholders. Most stakeholder comments related to consumer protections, particularly the application of the NECF, and access to retail competition.

The AEC considered that category 2 third-party SAPS might be vulnerable to outcomes comparable to those recently experienced in the context of embedded networks. Consequently, the AEC considered that equal access to minimum consumer protections on

62 Mondo, submission to the draft report, p. 2.
63 Red/Lumo Energy, submission to the draft report, p. 1.
64 Submissions to the draft report: Ausgrid, pp. 3-4; Essential Energy, p. 2; ENA, pp. 9-10; Energy Queensland, pp. 3-4.
65 AER, submission to the draft report, p. 5.
66 Submissions to the draft report: ENA, p. 4; Endeavour Energy, p. 1; Essential Energy, pp. 1-3.
67 ENA, submission to the draft report, p. 4.

billing information, payment options, customer support and notification of planned outages should apply to category 2 microgrids.[68]

EWON also considered that third-party SAPS may emerge similar to embedded networks. That is, the growth in embedded networks may be driven by developers and specialist billing retailers, not by consumer choice. EWON expressed concern that, like embedded networks, customers may not know that they are moving into a third-party SAPS.[69]

Energy Queensland expressed concerns around the perceived trade-offs between efficiency gains and consumer protections and choice. It considered that careful consideration of any vertically integrated system would be required to ensure consumer protections are not compromised. Energy Queensland considered that limiting access to competition is in contrast with the recommendations of the embedded networks review.[70]

Finally, Endeavour Energy requested clarity on the extent to which it might be appropriate to vary consumer protections between third-party SAPS and embedded networks.[71]

Other related stakeholder comments

Essential Energy expressed concern that category 2 or 3 third-party SAPS would be among the few in the market that would not have access to the competitive retail market or protections under the NERL and NERR, and that there was a risk of divergence between jurisdictional regulations.[72] Essential Energy provided a number of comparisons of the different regulatory arrangements in the appendix to its submission.[73]

4.1.4 Commission's analysis and rationale for final position

The Commission has applied consistent principles between SAPS priority 1, SAPS priority 2, embedded networks and standard supply, as far as possible while accounting for the differing SAPS characteristics and circumstances.

The application of the principles guiding this review (and the embedded networks review) have necessarily varied to some degree between these models of supply to account for differences in factors such as:

- the extent to which customers are able to exercise choice, and hence the role of customer consent
- the types, sizes and circumstances of third-party SAPS
- the cost of regulation, particularly in the context of very small SAPS, and
- the potential for effective competition in retail and generation markets to emerge, and hence the feasibility of vertical integration.

68 AEC, submission to the draft report, p. 2.
69 EWON, submission to the draft report, pp. 1-3.
70 Energy Queensland, submission to the draft report, pp. 3-4.
71 Endeavour Energy, submission to the draft report, p. 1.
72 Essential Energy, submission to the draft report, p. 3.
73 Essential Energy, submission to the draft report, pp. 6-14.

As discussed in chapter 3, the Commission has been cognisant of reducing opportunity for regulatory arbitrage between types of supply, and has taken steps to mitigate against forum shopping.

Nevertheless, the Commission considers that a tiered regulatory framework, with some necessary variations both between categories within the framework, and between regulatory frameworks for different supply models, is the most appropriate form of regulation for third-party SAPS. This approach ensures that customers will receive an equivalent experience in respect of their electricity supply, irrespective of the model through which they receive their supply.

The Commission has recommended that SAPS that fall within category 1 should be subject to the regulatory framework which applies to standard supply, which in turn is consistent in most respects with the framework applying to DNSP-led SAPS. For SAPS within category 3, the Commission has recommended that only light handed regulation apply. On the basis that the recommended regulatory arrangements governing SAPS in category 2 differ the most from other models of supply, the remainder of this discussion relates only to the proposed regulatory framework for category 2 third-party SAPS.

Consistency of category 2 third-party SAPS framework with other models of supply

The Commission does not consider that the complete regulatory framework applicable to the interconnected grid and DNSP-led SAPS is appropriate for category 2 SAPS. Nor is it likely to be appropriate to regulate these SAPS under all aspects of the framework recommended for embedded networks. Instead, the Commission has recommended that category 2 SAPS be regulated at a jurisdictional level, including those functions which are regulated under the national electricity laws and rules, and the national retail energy laws and rules, for other models of supply.

There are a number of reasons for the Commission's recommended approach to the regulation of category 2 SAPS. These include differences in the underlying costs to supply a customer in a third-party SAPS, limited potential for effective competition to emerge in the retail and generation markets, likely vertical integration of the SAPS provider, the potential breadth of sizes, risks and operating structures of category 2 third-party SAPS, differences in choice compared to other supply models, and proportionality. The Commission's rationale is discussed in more detail below.

Network tariffs and retail competition

One of the fundamental differences between third-party SAPS compared to other models of supply, is that the underlying costs to supply customers in the third-party SAPS are likely to be quite different to those costs for supplying customers either in the interconnected grid, or in embedded networks. As some stakeholders have noted in submissions,[74] it is likely that the costs to supply each customer in third-party SAPS will be greater than the costs to supply each customer in other supply models. In addition, these costs will vary between each microgrid, meaning network tariffs would be specific to each microgrid.

74 Submissions to the draft report: AER, p. 3; Mondo, p. 2.

In the NEM, customers in remote areas who are supplied via the interconnected grid pay electricity tariffs which are often significantly less than the cost to supply those customers. In part, this difference is due to jurisdictional requirements or policies to charge all grid-connected residential customers in the jurisdiction or distribution service area the same rates for electricity supply (known as postage-stamp pricing). Some jurisdictions also have subsidies for remote customers.

It is unlikely that jurisdictions would extend direct subsidies to customers being supplied via a category 2 SAPS to provide customers with equivalent prices to grid supply. Cross subsides, where the same type of customers in a distributor's network pay the same rates for electricity supply, could be applied *within* a category 2 SAPS. However, the prices will likely not be commensurate with those for grid-connected customers.

Under the recommended regulatory framework for DNSP-led SAPS, customers who are transitioned to a SAPS by a DNSP will continue to pay distribution charges equivalent to the (likely subsidised) price they would pay for distribution services if they had remained connected to the grid. Similarly, under the recommended regulatory framework for embedded networks, customers connected to an embedded network will pay distribution charges equivalent to the price they would pay for distribution services if they were directly connected to the distribution network.

Having the same underlying network tariff has meant that retailers should be largely agnostic as to whether customers are supplied via the interconnected grid, a DNSP-led SAPS or an embedded network as they will be able to extend their current offers to customers being supplied by any of these methods. In contrast, as mentioned, any network tariffs for a microgrid would be specific to that microgrid, and likely higher than the network tariffs under the other models of supply. Consequently, retailers would need to develop bespoke tariffs to supply customers in a third-party SAPS.

Further, should network tariffs to be set for a SAPS, retailers generally require many thousands to tens of thousands of customers for it to be cost effective to develop specific retail tariffs for a group of customers on a specific network tariff. Consequently, the Commission considers that effective retail competition is unrealistic in a category 2 SAPS.[75]

Regulatory determination under Chapter 6 of the NER

As noted in the AER's submission, regulatory determinations under Chapter 6 of the NER are costly and complex, and are not easily scalable for smaller networks.[76]

Regulatory determinations are not required for embedded networks as they are not allowed to charge more than the network tariff the customer would pay if they were connected directly to the DNSP's network. Further, separate regulatory determinations are not required for DNSP-led SAPS, as the SAPS would simply become part of the distribution network and so be included under the DNSP's standard regulatory determination. The DNSP is already

75 The coverage test to determine if a third-party SAPS will be classified as a category 1 SAPS considers if there is the prospect for effective competition within generation, and therefore retail. The coverage test is detailed in section 4.3.

76 AER, submission to the draft report, pp. 1-3.

required to participate in an AER regulatory determination, and will have adequate resources and expertise to do so.

In the context of category 2 SAPS, it is likely that full economic regulation by the AER to constrain network pricing (which would provide network tariffs that could, in theory, be used to facilitate retail competition) would be disproportionately costly relative to the benefits (that is, the harm that is being avoided) of imposing that regulation. In addition, as noted above, retailers will generally not develop specific tariffs unless they apply to tens of thousands of customers. Consequently, the Commission has recommended lighter forms of economic regulation for category 2 SAPS in appendix D of this review.

Consumer protections covered by the NERL and NERR

The Commission has not recommended extending the NERL and the NERR to category 2 third-party SAPS. However, this does not mean that customers within category 2 third-party SAPS would not be covered by extensive consumer protections covering many of the areas that are within the NERL and NERR.

The Commission considered whether there was merit in creating a new category of retailer in the NERL and NERR applicable for category 2 third-party SAPS. On assessment, the Commission considered that this approach would not provide the flexibility or adaptability required of the regulation governing this category of SAPS in light of the wide breadth of systems which category 2 may encompass. It would also not be proportionate to the risks that the regulation was trying to mitigate.

Given that effective retail competition is unlikely to emerge meaning microgrids in category 2 are likely to be vertically integrated, there are a number of obligations under the NERL and NERR which would not be applicable. These relate to the tripartite relationship between the customer, retailer and distributor along with obligations relating to Retailer of Last Resort, settlement, marketing and transfers (amongst others).

In addition, given the SAPS provider will likely be responsible for the generation, distribution and retail functions within the SAPS, the Commission considers there is merit in requiring the provider to obtain a jurisdictional license which encompasses all of these functions. This would reduce regulatory burden and administrative costs, both for the provider and the regulator, and allow for regulation to be applied in a proportionate manner to the risks posed by the system. The Commission considers that the appropriate consumer protections for category 2 third-party SAPS contained in the NECF can be applied via equivalent jurisdictional license conditions.

The Commission has recommended a comprehensive suite of consumer protections in appendix E. The recommended consumer protections are largely consistent with the consumer protections in other supply models, aiming to achieve consistent outcomes for customers as compared to those other models. The Commission has recommended that consumer protections in jurisdictional license conditions for category 2 SAPS should include:

- customers' rights to access energy services
- billing requirements including bill contents obligations

- payment minimum requirements including time to pay and payment methods
- pricing principles or price monitoring requirements
- payment plans and basic customer hardship obligations
- undercharging and overcharging provisions
- obligations relating to interruptions to supply
- debt recovery arrangements
- disconnection and reconnection obligations
- protections for vulnerable customers and obligations relating to life support customers
- internal complaints handling processes
- independent dispute resolution
- entry criteria for retailer authorisation
- reporting and compliance obligations
- concessions, rebates and emergency payment assistance, and
- SAPS specific information provisions.

Further, the Commission notes that it encourages jurisdictions to work together to develop nationally consistent regulations, and is happy to assist further in this process.

Consistency of other aspects of the regulatory framework

Although the consumer protections which are generally provided via the NECF will be provided by a different mechanism under category 2 third-party SAPS (that is, via jurisdictional licenses rather than the NECF framework), many of the other aspects of the regulatory framework may be consistent with other models of supply, particularly with embedded networks.

The Commission's recommendations relating to safety, reliability and technical standards are consistent between embedded networks and category 2 SAPS. For both models of supply, the Commission has recommended that jurisdictional oversight of these areas continues. In addition, the Commission has recommended that the jurisdictions develop proportionate regulations having regard to the size of the SAPS and the risks posed by the embedded network or third-party SAPS.

For example, in relation to reliability, the Commission considered that consumers in embedded networks would benefit from some reliability protections, most likely under a type of guaranteed service level scheme, as embedded networks generally have a much smaller number of customers connected to their networks than DNSPs. The same reasoning is appropriate for category 2 SAPS, with a type of guaranteed service level scheme likely the most appropriate form of reliability protection.

Similarly, the recommended obligations to connect new customers in embedded networks and category 2 SAPS are consistent. The party providing the distribution function under each supply model would be required to make an offer to connect new customers, and make requested connection alterations, within a defined geographic area.

4.2 Operator of last resort

It is generally very important, if not critical, to consumers that an uninterrupted supply of electricity is maintained. Consequently, if the system of checks put in place prior to the registration and/or licensing of a service provider proves ineffective, or circumstances change and the SAPS provider fails, pre-existing arrangements must already be in place to provide for supply continuity.

This section outlines the Commission's recommended approach to maintaining continuity of supply to customers supplied via a third-party SAPS in the event of the failure of a SAPS service provider. It includes recommendations in respect of the appointment of an alternative SAPS operator by an intending SAPS service provider as part of the jurisdictional licensing process. It also includes recommendations in respect of the registration/designation of an operator of last resort (OoLR) by jurisdictions, where an alternative provider has not been appointed by an intending SAPS service provider as part of the jurisdictional licensing process.

4.2.1 Background

Current arrangements to support continuity of supply in the NEM

In the NEM, the main mechanism to ensure continuity of supply to customers in the event of the failure of a retailer is the Retailer of Last Resort (RoLR) provisions contained in Part 6 of the NERL. The RoLR process can be triggered by a number of events, including the revocation of the retailer's authorisation, the cessation of the retailer's right to acquire electricity through the NEM wholesale exchange, or the appointment of an insolvency official.[77] Following the RoLR event, a designated retailer is assigned to take over the retail relationship.

In the event that a DNSP loses its licence or becomes insolvent, jurisdictional legislation and licences contain some provisions for continuity of supply. For example, in NSW the *Electricity Supply Act* 1995 (NSW) provides the regulator with the power to appoint a step-in operator to carry out network operations of a distributor which has failed, under the terms and conditions determined by the regulator.[78] That Act imposes obligations on the network operator and step-in operator as well as conferring rights on the step-in operator. While the Commission has not reviewed jurisdictional regulatory instruments in detail, a complete framework for continuity of network supply does not appear to be provided in all jurisdictions. Generally speaking, however, it is not expected that a regulated DNSP would fail.

Given the competitive nature of the generation market in the NEM, there is less of a need for additional regulation governing the failure of a generator. In general, the same mechanisms utilised outside of the electricity market — for instance, the sale of assets as part of an insolvency process — would be used in the context of generator failure in the NEM. The Commission has considered whether a similar approach should apply in relation to generating

77 NERL s. 122, definition of "RoLR event".

78 Part 6A, *Electricity Supply Act* 1995 (NSW).

plant in SAPS, which may have some different characteristics to NEM generation (for example, they are likely to be more easily moved than traditional large generating plant).

Given that third-party SAPS service providers are likely to be smaller and less established than service providers in the NEM, particularly network service providers, the Commission considers the potential failure of a third-party SAPS service provider is a key risk that must be addressed or mitigated through appropriate regulatory arrangements.

4.2.2 Commission's position in the draft report

In the draft report, the Commission noted that, in considering an operator of last resort scheme for third-party SAPS, there may be relevant comparators in other essential service industries, such as water. The NSW operator of last resort scheme for water was identified as a possible comparator and is discussed in the box below.

BOX 1: PROPOSED NSW OPERATOR OF LAST RESORT SCHEME FOR WATER

In NSW, the *Water Industry Competition Act* 2006 (NSW) (WICA) establishes a licensing regime for private sector entrants to ensure the continued protection of health, consumers and the environment. WICA licensees can include private sector utilities constructing, maintaining or operating any water industry infrastructure or supplying potable or non-potable water and providing sewerage services.

In 2014, the NSW government passed the *Water Industry Competition Amendment (Review) Act* 2014 (Amending WIC Act). Although the Amending WIC Act is not yet in force, it will provide for stronger provisions for last resort arrangements. The aim of the arrangements is to ensure the supply of essential services to customers of failed retailers and operators under the Amending WIC Act. Under the Amending WIC Act:

- The regulator cannot grant a licence for an operator of essential infrastructure, if the operator fails to designate a last resort provider (except for councils).
- The Minister has the power to appoint a person as a last resort provider of an essential service in case of operator failure. This is a further safeguard in addition to the point above.
- Last resort providers are required to undertake contingency planning and if necessary use step-in powers to operate the scheme of a failed licensee. The existing provider must allow the last resort provider to inspect infrastructure and the provider's operation as reasonably required and inform the last resort provider of any change in systems that may require modification of the contingency plan.
- The last resort provider must submit a contingency plan to the regulator within four months of being appointed. Contingency planning costs are recovered from the licensee and can be subject to a review by the regulator.
- The Minister may ask the regulator to assess the reasonable costs and expenses of the last resort provider for the purpose of cost recovery.

Source: *Water Industry Competition Act* 2006 (NSW); *Water Industry Competition Amendment (Review) Act* 2014; IPART, *Fact Sheet, Changes to the Water Industry Competition Act (2006)*, July 2017.

In submissions to the consultation paper, there was broad agreement that OoLR arrangements would likely be necessary for certain activities within third-party SAPS. A number of DNSPs (among other stakeholders) suggested that they would be well-placed to act as operators of last resort for third-party SAPS. DNSPs also suggested that any OoLR scheme be designed to guard against the risk that the costs associated with the failure of a SAPS service provider are passed onto the OoLR or, if the OoLR is a regulated network service provider, its broader customer base.

In developing an OoLR scheme, the Commission flagged for consideration a number of issues associated with the appointment of an OoLR for third-party SAPS, including when and how an OoLR should be appointed, and who should be eligible to be appointed an OoLR.

A further key issue considered by the Commission related to the costs of providing OoLR services. In submissions to the consultation paper, DNSPs in particular raised concerns that the existence of an OoLR scheme may dampen incentives to prudently manage third-party SAPS.

Having considered these issues, the Commission was of the view that there would likely be value in including the appointment of a nominated OoLR in jurisdictional licensing frameworks, with the OoLR for a third-party SAPS appointed upfront. DNSPs and other parties (including other third-party SAPS providers) would be able to compete for the provision of OoLR services.

For category 1 SAPS, the Commission noted that retail activities would be covered by the RoLR arrangements administered by the AER and so only the SAPS network and/or generation activities would likely need to be included under an OoLR scheme. For category 2, the Commission considered that an OoLR scheme would need to apply to the entire vertically integrated supply chain. For category 3 SAPS, the Commission did not consider that OoLR arrangements would be necessary.

The Commission also considered that some form of guidance would likely be required — either at a national or jurisdictional level — to provide transparency on how risks can be allocated between the different parties involved and how insurance could be used to manage residual risks. Ring-fencing guidelines would be included in this framework to ensure that existing customers of potential OoLR service providers do not cross-subsidise customers of a failed third-party SAPS.

A summary of the Commission's draft position in respect of OoLR arrangements for each of the three tiers of the regulatory framework for third-party SAPS is provided in the table below.

Table 4.1: **Proposed registration, licensing and supply continuity arrangements**

CATEGORY	LAST RESORT ARRANGEMENTS
Category 1	Existing NEM RoLR arrangements will apply. There may need to be jurisdictional OoLR schemes for network and generation activities.
Category 2	Jurisdictional OoLR arrangements should be introduced, with OoLRs nominated and resourced on a pre-emptive basis.
Category 3	No OoLR arrangements would apply. Such arrangements would likely be disproportionate given the small number of customers involved.

Source: AEMC

4.2.3 Stakeholder views

DNSPs, ENA and the AER provided feedback on the Commission's proposed OoLR scheme in their submissions to the draft report. These stakeholders provided specific comments in relation to potential providers of OoLR services, competition for the provision of OoLR services and the potential obligations on SAPS providers to prudently manage and operate the SAPS.

In general, DNSPs and ENA considered that the local DNSP should be appointed as the OoLR. The ENA and the majority of DNSPs did not agree with the Commission's view that there may be competition to provide an OoLR service.[79] Further, Ausgrid considered that the cost of implementing a competitive process would likely outweigh its benefits.[80] In contrast to this view, the AER expressed support for jurisdictionally appointed OoLR schemes should be provided on a competitive basis.[81]

DNSPs reinforced their views from the consultation paper that a framework should be in place to oblige the SAPS provider to prudently manage and operate the SAPS. Stakeholders considered it was important that third-party SAPS providers should bear some costs of an OoLR scheme. These stakeholders considered requirements placed on SAPS providers should include insurance or indemnity and bank guarantees, minimum technical standards for the SAPS and collaboration between the SAPS provider and the OoLR (in instances where aDNSP may be required to be the OoLR).[82] Ausgrid suggested a scheme similar to the NSW Accredited Service Provider Scheme where the Accredited Service Provider must provide the DNSP with a bank guarantee when performing contestable connection works on behalf of a customer.[83]

The AER and Energy Queensland both noted ring-fencing concerns if the DNSP were to be appointed as the OoLR. The AER considered that the appointment of a DNSP may conflict with its ring-fencing and cost allocation guideline — for example, if the OoLR services

79 Submissions to the draft report: Endeavour Energy, pp. 2-3; Ausgrid, p. 5; Essential Energy, p. 4; ENA, pp. 11-12.

80 Ausgrid, submission to the draft report, p. 5.

81 AER, submission to the draft report, p. 4.

82 Submissions to the draft report: Endeavour Energy, p. 3; Ausgrid, p. 6; ENA, p. 13; Energy Queensland, p. 6; Essential Energy, pp. 4-5; AER, p. 4.

83 Ausgrid, submission to the draft report, p. 6.

included generation.[84] Energy Queensland suggested that an automatic exemption from the AER's ring-fencing guidelines should be provided where the DNSP is appointed as a OoLR of a vertically integrated third-party SAPS.[85]

Finally, Endeavour and ENA both considered that category 3 SAPS require an OoLR.[86]

4.2.4 Commission's analysis and rationale for final position

Consistent with the Commission's view in the draft report, the potential failure of a retailer operating within a category 1 SAPS will be captured by the national RoLR arrangements. In addition, in respect of category 1 SAPS network activities, the Commission notes that the failure of SAPS distributor would be captured under the existing jurisdictional arrangements pertaining to DNSPs. Further, given that competition in generation is a pre-requisite of a SAPS being categorised as a category 1 SAPS, the Commission considers that specific arrangements to address the failure of a SAPS generator are unlikely to be needed.

In the context of category 3 SAPS, the Commission does not consider it necessary to establish a specific set of OoLR arrangements on the basis that doing so would likely be disproportionate given the small number of customers involved.

Therefore, the Commission's recommendations in respect of a third-party SAPS OoLR scheme are most relevant in the context of those likely vertically integrated SAPS which the Commission envisages would be categorised by jurisdictions as category 2 SAPS.

The Commission recommends that arrangements to ensure continuity of supply to customers of a third-party SAPS in the event of a SAPS service provider failure should be determined and implemented on a jurisdictional basis, by jurisdictional governments and regulators. This is consistent with the Commission's recommendation in the draft report that jurisdictions develop an appropriate licence and registration scheme to apply to activities within category 2 SAPS.

Generally, the underlying reason for a SAPS service provider failure event would be insolvency (although there could be other reasons). Such events would most likely represent 'disorderly exit' in that a SAPS operator could potentially cease to operate at very short notice. This highlights the importance of ensuring any arrangements supporting the continuity of supply to customers of a third-party SAPS are established and implemented well in advance of the event.

In addition, while continuity of supply for affected customers is critical, so too is ensuring that no other participant bears excessive costs as a result of a SAPS service provider's failure, and that possible disruptions to other markets are minimised following the exit.

In this context, consistent with its view in the draft report, the Commission's preference is for the relevant intending category 2 SAPS service providers to appoint an alternative operator via contractual negotiation, as a pre-condition of being granted a standard jurisdictional

84 AER, submission to the draft report, p. 4.
85 Energy Queensland, submission to the draft report, p. 6.
86 Submissions to the draft report: Endeavour Energy, p. 2; ENA, pp. 12-13.

licence. The advantage of such an approach is that it would ensure that appropriate arrangements are in place before customers are connected to a third-party SAPS. It would also provide clarity and assurance to consumers, investors and governments about the ongoing operation of a third-party SAPS and the costs involved.

If it is not possible for an intending category 2 SAPS service provider to appoint an alternative provider at the licensing stage — for example, if no alternative providers are available, if contractual agreement on terms and conditions of the transfer cannot be reached or a jurisdiction does not consider pre-appointment by the SAPS provider to be appropriate or necessary — a jurisdictional operator of last resort scheme will be necessary.[87]

It is the Commission's view that, to the extent it is appropriate, third-party SAPS OoLR schemes should be temporary and time-limited, minimising any unavoidable disruption to external parties and ensuring continuity of supply to the customers of third-party SAPS until they have had reasonable opportunity to choose an appropriate replacement electricity supply option.

To appoint an interim OoLR, jurisdictions should aim to identify, register and/or designate a party (or multiple parties) to provide OoLR services through a competitive process. The advantage of allowing parties to compete for the provision of OoLR services is that such a process would create a more competitive market for the service, with the aim of allowing the market to provide an efficient price for provision of the service. That said, the Commission recognises that the success of any competitive process requires that there are a number of potential providers willing to — and capable of —entering the relevant market segment. Where this is unlikely (for example, in jurisdictions where third-party SAPS are not yet well-established), jurisdictions would also have the option of appointing the local regulated DNSP as the provider of OoLR services.[88]

Consistent with the broader recommendations made in this report, arrangements supporting third-party SAPS should seek to enable third-party SAPS customers to retain choice and control over their long-term supply arrangements, and this should include situations following the disorderly exit of a SAPS service provider and subsequent appointment of an interim OoLR. In such circumstances, SAPS customers should then be given a reasonable opportunity to choose an ongoing electricity supply option that best suits their needs.[89]

Possible long term supply arrangements may include the following:

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87 In this instance, a jurisdiction may still choose to grant the intending SAPS service provider a jurisdictional licence to operate. However, there may be merit in that licence including a number of special conditions requiring the SAPS provider to meet more stringent technical requirements and financial obligations then if it had appointed its own alternative provider through contractual negotiation.

88 If a jurisdiction decides to appoint the local DNSP as the OoLR, the OoLR service would be expected to be provided as an alternative control service. This would enable the costs incurred by the DNSP in providing the OoLR service to be recovered directly from the third-party SAPS customers, and not cross-subsidised by the DNSP's broader customer base.

89 This is likely to be appropriate in the context of an OoLR scheme to protect customers of a category 2 third-party SAPS in the event of failure by the vertically integrated service provider. It is unlikely to be appropriate in the context of an OoLR scheme applicable in the event of failure by a category 1 network operator. In this case, jurisdictions would be best placed to decide the appropriate long-term supply arrangements for these customers.

- appointment of a new third-party SAPS provider (this could be the interim OoLR or, assuming more providers have entered the market, a new third-party SAPS provider, including a ring-fenced affiliate of the DNSP)
- re-connecting to the grid
- ceasing the category 2 SAPS supply arrangements (each customer would then source their own, new individual power system solutions)
- appointing the local DNSP as the ongoing SAPS provider (potentially under the DNSP-led SAPS framework where the provision of SAPS retail services would be transferred back to competitive retailers operating in the NEM).

Importantly, in respect of the final option above: if the continuation of the third-party SAPS supply arrangement is determined to be uneconomic by either the DNSP and/or the relevant jurisdictional government or regulator, the local DNSP *should not* be appointed as the *ongoing* SAPS service provider. The Commission does not consider it appropriate to establish arrangements which permanently transfer ownership and operation of a third-party SAPS to a regulated DNSP where the provision of supply to customers via the third-party SAPS assets is not economically efficient over the longer term. In this event, the other three options should be explored.

Under the Commission's recommended approach, the ultimate decision on the design of arrangements to ensure continuity of supply to relevant customers in the event of a failure of a category 2 third-party service provider would rest with jurisdictional governments and regulators. In designing these arrangements, jurisdictions will likely have regard to factors such as local conditions/circumstances, existing jurisdictional "last resort" arrangements and existing legal and regulatory responses to breaches of jurisdictional licence conditions by licensees.

Box 2 below sets out a number of principles which jurisdictions may wish to have regard to when developing appropriate OoLR arrangements which will ensure continuity of supply to customers of a category 2 SAPS.

BOX 2: GUIDING PRINCIPLES FOR CONTINUITY OF SUPPLY ARRANGEMENTS - CATEGORY 2

The primary objective is to secure continuity of supply for customers of a category 2 SAPS in the event of a disorderly exit by a failing SAPS services provider. In meeting this objective, jurisdictions should aim to achieve an appropriate balance between the following:

- Protect SAPS customers – ensure there is sufficient protection for SAPS customers in the event of a disorderly exit and deliver the best available interim price and service offering for directly-affected customers
- Promote customer choice - allow third-party SAPS customers to exercise choice and choose the appropriate course of action in respect of their long-term electricity supply following a failure event

- Facilitate competition – do not create barriers to entry for third-party SAPS providers where there are opportunities for the competitive provision of third-party SAPS
- Efficiency – be timely and efficient in order to minimise disruption to affected parties, and minimise the interim SAPS supply transaction costs as far as practicable
- Proportionality – be proportionate to the size of the SAPS and impact of the failure of the SAPS proponent.

Amendments to the national framework to support jurisdictional OoLR arrangements

If a jurisdiction develops OoLR arrangements which involve the appointment of the local DNSP as an interim (and/or potentially permanent) OoLR, a number of amendments will be required to the NER to enable DNSPs to take on this responsibility, either on a temporary or ongoing basis. These may include providing an ongoing waiver/standing exemption to existing ring-fencing restrictions to enable DNSPs to provide generation and (at least in the interim period) retail services, in addition to network services, to SAPS customers.

Careful thought would also need to be given to the cost recovery arrangements by jurisdictions. Where customers have provided EIC to receive SAPS supply from a third-party provider, arguably they should bear some of the costs of establishing alternative arrangements in the event of a provider failure (to the extent that these costs are not recoverable through bank guarantees, insurance etc as required by jurisdictional licences).

The necessary amendments to the NER to enable DNSPs to provide OoLR arrangements if required to do so by a jurisdiction will be considered further during the rule drafting stage of this review.

4.3 Coverage test

A key regulatory requirement placed on many electricity service providers is an obligation to offer to provide services to end-user customers, potential end-user customers and/or commercial parties wanting access to the electricity service in order to sell their own services, whether the service is the provision of electricity itself or relates to part of the electricity supply chain.

In the draft report, the Commission indicated that one of the key focuses of this stage of the review would be the design and governance of a coverage test to identify microgrids which it would be appropriate to regulate as category 1 SAPS.

This section outlines the Commission's recommended test to be applied in certain circumstances to determine whether a third-party SAPS should be subject to access requirements and price regulation under the national rules. This covers obligations to offer access to part of its system (for example to generators), to offer to supply electricity to customers and offer to connect new customers. This "coverage test" will also determine whether the third-party SAPS should be subject to a revenue determination by the AER.

4.3.1 Background

Access for other parties

Access regulation is most relevant in the context of energy where some unbundling of the supply chain is possible. For instance, in the electricity supply industry, competition has been introduced to the generation and retail sectors in most jurisdictions. However, these providers need to be able to access transmission and distribution networks, which have traditionally been viewed as natural monopoly infrastructure.

As a result, in the NEM, network service providers have obligations to offer to connect both load (end-user customers) and generators.[90] As such, these network service providers are prohibited from denying access to their network for any entity, provided that entity agrees to the connection offer and complies with the connection requirements placed on it.

In contrast, an access regime with a coverage test is set out in the National Gas Law (NGL) for gas pipelines.

Natural gas pipeline access framework

Access to transportation capacity on natural gas pipelines in Australia is regulated under a declaration and negotiation/arbitration regime that is set out in the NGL and National Gas Rules (NGR).

Whether or not a pipeline should be "covered" by this regime is determined by reference to a set of coverage criteria in s.15 of the NGL. The pipeline coverage criteria are:

(a) that access (or increased access) to pipeline services provided by means of the pipeline would promote a material increase in competition in at least 1 market (whether or not in Australia), other than the market for the pipeline services provided by means of the pipeline;

(b) that it would be uneconomic for anyone to develop another pipeline to provide the pipeline services provided by means of the pipeline;

(c) that access (or increased access) to the pipeline services provided by means of the pipeline can be provided without undue risk to human health or safety;

(d) that access (or increased access) to the pipeline services provided by means of the pipeline would not be contrary to the public interest.

An application for a coverage (or a revocation of coverage) determination can be made by any person to the National Competition Council (NCC). Once such an application is received, the NCC is required to assess the application and make a recommendation to the relevant Minister who makes the decision based on the national gas objective and the coverage criteria.

90 Connections are governed by chapters 5 and 5A of the NER.

The access regime for gas is modelled on the economy-wide third-party access regime contained in the Competition and Consumer Act, a summary of which is provided in Box 3.

BOX 3: NATIONAL ACCESS REGIME

Part IIIA of the *Competition and Consumer* Act 2010 (Cth) (CCA) establishes the National Access Regime for services provided by significant monopoly infrastructure. Such infrastructure may be a natural monopoly or otherwise uneconomical to duplicate. The regime sets out several pathways by which access seekers can gain a legally enforceable right to access services provided by publicly and privately owned facilities in order to enable them to compete (or compete more effectively) in markets where competition is dependent on such access, and access is not contrary to the public interest. These pathways include:

- **access undertakings**: Providers of infrastructure services may voluntarily submit access undertakings to the ACCC. An undertaking may concern existing or proposed infrastructure and it should set out the terms and conditions on which a provider will provide access to relevant services.
- **effective access regimes**: State and Territory governments may also create and implement access regimes for particular infrastructure services within their jurisdiction. A State or Territory government can apply to the NCC to have such an access regime certified.
- **declaration and negotiation/arbitration**: A party may apply to the NCC to have the service(s) provided by a facility regulated. This is the first step in a two stage process:
  - In stage 1, declaration, an application is made to the NCC to consider and make a recommendation to the decision-making Minister on whether the criteria for applying access regulation are met such that the service(s) should be declared. These criteria are similar to those in the gas regime, but not identical.
  - In stage 2, negotiation/arbitration, a service provider and access seeker can negotiate terms and conditions of access to a declared service, and failing agreement the ACCC can be called upon to arbitrate and make an access determination.

Various elements of the regime have been applied to services provided by facilities such as rail tracks, grain handling facilities at ports, water and waste water reticulation pipes, port terminals and natural gas pipelines.

Source: Part IIIA of the *Competition and Consumer Act* 2010 (Cth).

Some gas pipelines that are not covered by the negotiation/arbitration regime are subject to a lighter handed form of negotiate/arbitrate regulations under Part 23 of the NGL.

Obligation to offer to connect

In order to give effect to obligations to offer generators access and to offer potential customers supply, it is necessary for recipients of these offers to be able to connect to the system providing these services.

Obligation to offer to connect is discussed in more detail in appendix C.

4.3.2 Coverage test in the draft report

In the draft report, the Commission recommended the application of an access regime to those third-party microgrids expected to exhibit natural monopoly characteristics similar to the interconnected electricity grid. This would enable new customers — that is, generators and retailers — to access spare capacity where this is efficient.

The Commission proposed that a form of "coverage test" be used to identify those third-party microgrids large enough to potentially fall within Category 1 and therefore warrant the application of an access regime. This access regime would be the same as the regime that applies in the NEM. Authorised retailers would also have access to the customers of Category 1 SAPS in the same way they have access to grid-connected customers, thereby facilitating retail competition.

In addition, category 1 microgrid providers would be required to offer to connect both load (end-user customers) and generators. Provided that the party seeking connection agrees to the connection offer and complies with the connection requirements placed on it, category 1 microgrid providers would be prohibited from denying access to their network for any party.

Implementing an access regime for category 1 SAPS

While a declaration could be sought for a third-party microgrid under Part IIIA of the CCA, it is unlikely that the SAPS in question would be considered "infrastructure of national significance" or satisfy the criteria for declaration. For this reason, the Commission's draft recommendation was to establish an alternative coverage test to determine which third-party microgrids fall into category 1.

Further, to ensure that the access regime only captures the largest of third-party microgrids, the Commission highlighted the importance of establishing a test for coverage which reflects the features of those microgrids.[91]

The Commission considered the economy-wide third party access regime and the national gas pipeline coverage criteria in s.15 of the NGL were both likely to provide useful starting points for considering a new coverage test to apply to third-party microgrids.

The Commission noted that the considerations in designing a coverage test were likely to include:

- whether the microgrid is of sufficient scale to warrant the unbundling of services in order to support competitive markets upstream and/or downstream of the SAPS infrastructure
- whether the microgrid is of sufficient scale for the AER to be able to undertake a cost-effective regulatory determination, and
- more broadly, whether the microgrid is of sufficient scale that imposing an access regime would enhance economic efficiency and therefore be in the long term interests of consumers.

91 This differs from electricity networks in the interconnected national electricity system where regulatory "coverage" is universally applied and there is no coverage test.

4.3.3 Stakeholder views

A number of stakeholders provided suggestions for the coverage criteria to be used in the coverage test for third-party SAPS.

For example, the CEC considered that one of the criteria under the coverage test should be a requirement to demonstrate that the third-party SAPS could support effective retail competition. The definition for effective retail competition suggested by the CEC was at least five or six retailers, each with no more than 20 per cent market share. The CEC also considered that customer numbers could be used to determine thresholds.[92]

The ENA also suggested the use of customer numbers, or the amount of load to determine classification of the SAPS. Regardless of what criteria is used, the ENA considered that the classification criteria for each SAPS category should be closed to subjectivity to provide clarity to third-parties and licensing bodies on how SAPS will be classified.[93]

The AER suggested that one of the criteria which could be incorporated into a coverage test could be the cost of a revenue determination. This follows on from the AER's view that category 1 would necessarily require a high trigger given the costs and complexity involved in undertaking a Chapter 6 revenue determination.[94]

Endeavour Energy, ENA and Energy Queensland raised the issue of transition between the categories of third-party SAPS and the identification of triggers for movement between categories.[95] Further, Energy Queensland suggested that consideration should be given as to whether jurisdictions should have discretion to allow third-party SAPS providers to remain in a category, even a trigger for movement has been met.[96]

Finally, the AER provided comment on the administration of the category 1 SAPS coverage test. The AER recommend that jurisdictional regulators carry out an assessment of whether a third-party SAPS meets the coverage test. In addition, the AER suggested that jurisdictions should consult with the AER in conducting these assessments.[97]

4.3.4 Commission's analysis and final position

The Commission considers that coverage under the national framework should be applied only to the largest of third-party microgrids. To determine which third-party microgrids should be subject to coverage under the national framework and be classified as category 1, a coverage test needs to be applied.

Category 1 microgrids can be expected to exhibit natural monopoly characteristics similar to the interconnected electricity grid and, given the potential scale of these systems, there is likely to be potential for competition to develop in the generation and/or retail segments of the market. All category 1 third-party microgrid providers would be subject to an access

92 CEC, submission to the draft report, p. 3.
93 ENA, submission to the draft report, p. 9.
94 AER, submission to the draft report, p. 2.
95 Submissions to the draft report: Endeavour Energy, p. 4; Energy Queensland, pp. 4-5; ENA, pp. 9-10.
96 Energy Queensland, submission to the draft report, pp. 4-5
97 AER, submission to the draft report, p. 3.

regime which requires them to allow all authorised retailers to access customers of their microgrids, thereby facilitating retail competition. In addition, category 1 microgrid providers would be required to offer to connect both load (end-user customers) and generators. Provided that the party seeking connection agrees to the connection offer and complies with the connection requirements placed on it, category 1 microgrid providers would be prohibited from denying access to their network for any party.

The Commission noted in the draft report that the focus of criterion (a) of the coverage tests for both the National Access Regime and National Gas Regime is on the promotion of competition in related markets. In respect of third-party microgrids, the notion of competition is also central to the decision to apply access regulation. However, the Commission also notes that the objective of regulation in the electricity market — the National Electricity Objective — relates to economic efficiency for the long term interests of consumers with respect to a range of factors including price, quality, safety, reliability and security of supply of electricity.[98]

When determining the potential for the development of competition in the retail and generation segments of the market, consideration will also need to be given to whether the application of access regulation to a third-party microgrid would enhance economic efficiency and therefore be consistent with the NEO.

Third-party SAPS which do not meet the coverage test, that is category 2 and category 3 SAPS, will likely be vertically integrated with generation, distribution and retail services being provided by one party. The access and connection framework for these third-party SAPS will be governed at a jurisdictional level. The Commission's recommendations relating to access and connections with respect to category 2 and 3 are detailed in appendix C.

Development of the coverage test

To assist in developing an appropriate coverage test for third-party SAPS, the Commission engaged Incenta Economic Consulting to provide research and advice.

When developing the coverage test, the Commission requested that Incenta have regard to the following considerations:

- whether the microgrid is of sufficient scale to warrant the unbundling of services in order to support competitive markets upstream and/or downstream of the SAPS infrastructure
- whether the microgrid is of sufficient scale for the AER to be able to undertake a cost-effective regulatory determination, and
- more broadly, whether the microgrid is of sufficient scale that imposing an access regime would enhance economic efficiency and therefore be in the long term interests of consumers.

The Commission noted that, in respect of the design of the access regime, the intention is for category 1 third-party microgrids to be regulated in the same way as other electricity networks in the NEM. That is, most prices and services would be subject to regulation by the

98 NEL s 7.

AER, and there would be no ability for customers — that is, retailers and generators — to negotiate the price for access.

The Commission also requested that, in designing the coverage test, Incenta have regard to the assessment framework set out in the Commission's draft report. This included the following principles:

- The arrangements should, to the extent possible, facilitate competition and consumer choice in energy service and products
- The regulatory arrangements should be proportionate to the risks they seek to mitigate, with the costs of regulatory arrangements balanced with their expected benefits
- Appropriate consumer protections and compliance mechanisms should apply
- The regulatory arrangements should be clear and fit-for-purpose, with the regulatory arrangements flexible and resilient to future market developments
- The regulatory arrangements should be consistent and transparent.

The report prepared by Incenta Economic Consulting has been published with this final report.[99]

Recommended coverage test

Incenta has developed a new SAPS specific coverage test to be applied by the National Competition Council (NCC) who would then provide advice to relevant State Ministers to make the decision on coverage. The test has three distinct features:[100]

> *Test feature 1* - in general, a SAPS is to be covered, and classed as category 1, where
>
> - there is a reasonable prospect, within a reasonable timeframe, that effective competition will become established for the generation of electricity for all, or a substantial portion, of the supply of electricity to customers that are connected to, or that may connect to, the relevant SAPS, and
> - coverage would not generate costs that exceed the expected benefits.
>
> In deciding whether or not these SAPS coverage criteria are satisfied, regard must be given to the national electricity objective.
>
> ...
>
> *Test feature 2* - provides an exemption from coverage to accommodate the use of a competitive tendering process for the provision of SAPS infrastructure and to determine the associated terms (i.e., price and other matters). Specifically, that a new development SAPS could not be covered for a period of 15-years where it has been established through an approved competitive tender process.
>
> ...

99 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems*, October 2019. See: www.aemc.gov.au.

100 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems*, October 2019, pp. 3-4.

> *Test feature 3* - provides a further exemption from coverage for new development SAPS, namely where a new SAPS would not be expected to pass the coverage test for an extended period of time, this finding could be locked-in prior to development for a 15 year period. This test feature recognises that even if the coverage test is not expected to be met (at least when applied prior to the SAPS being developed), in the absence of a binding upfront commitment an investor would be exposed to the risk that access subsequently may be mandated (and losses thereby suffered), which may adversely affect the initial investment decision. Therefore, a no-coverage decision will offer protection to SAPS investments that are not expected, prior to construction, to meet the coverage test.

Although Incenta's recommended coverage test does not directly refer to competition for retail as well as competition for generation, Incenta considers that if there is competition for generation this would necessarily also require there to be competition for retail:[101]

> ...competition between generators of necessity requires those generators to be permitted to retail to final customers, which includes having the option of appointing a retail agent of their choice. This reflects the fact that if a generator is forced to use the incumbent as a retailer, then the incumbent could simply refuse to deal and so block the generator from entering. Accordingly, competition in generation requires competition in retail.

The design of Incenta's recommended test was driven by its view that the costs associated with coverage are likely to be quite material. These costs would include indirect costs, such as the risk that coverage, by facilitating entry by competitors, could potentially have a chilling effect on new SAPS investment. Another significant indirect cost that may result from coverage is a loss of efficiencies associated with the ability to optimise generation and network investment. Coverage would also mean that the direct costs associated with complying with regulation under the national regime would be imposed.[102]

In Incenta's view, the benefits of coverage are only likely to be large enough to compensate for these costs where effective competition is expected to emerge from mandated access within a reasonable timeframe. The required prospect of 'effective competition' under feature 1 of the proposed coverage test represents a higher hurdle than just the promotion of a material increase in competition as under the Part IIIA regime and the gas pipeline coverage test in the NGL. The need for this higher hurdle is a consequence of the higher administrative and compliance cost that follow from coverage of a third-party SAPS than is the case under declaration under Part IIIA.[103]

The costs associated with coverage also drove the focus of the test on facilitating competition in generation sector, noting (as above) that this would also require competition in retail. Given that the costs of generation are much more material than thse of retail activities, the

101 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems,* October 2019, p. 7.
102 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems*, October 2019, pp. 12-13.
103 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems*, October 2019, pp. 13, 18.

potential benefits from competition in generation are likely to be greater than those associated with competition in retail. Further, in Incenta's view, if the objective was to create competition in the retail function alone, then this could be done a more cost-effective way than imposing the national regime. Specifically, Incenta suggested that this could be done by requiring the vertically integrated incumbent to provide access to competing retailers under a 'retail minus' access price, potentially under category 2 arrangements.[104] I

The Commission agrees with Incenta that competition in generation in a third-party SAPS will necessarily also require competition in retail, but intends to give further consideration to the appropriateness (or otherwise) of also facilitating competition in retail alone through the national arrangements. In particular, the Commission notes that the administered wholesale price that is a feature of its recommended approach for DNSP-led SAPS might form the basis of a 'retail minus' access price. The Commission is currently undertaking work to develop the DNSP-led SAPS arrangements in more detail and this, together with the subsequent work on rules drafting for third-party SAPS, will provide opportunities to consider this issue further.

Incenta further concluded that there will be situations where the expectation of effective competition is not enough, on its own to justify the application of the national regime to SAPS. The two potential circumstances identified were where:

- the SAPS proponent seeks to run a competitive tender to deliver the SAPS infrastructure and simultaneously determine the terms of service provision (including price)
- the SAPS is a new development that faces substantial stranded asset risk, and where the additional risk of access may deter investment.

These concerns led Incenta to recommend the features 2 and 3 of the coverage test, respectively.

Further details on Incenta's analysis, design process, and rationale for each feature of the recommended test can be found in Incenta Economic Consulting's report.

The Commission considers that the test recommended by Incenta is generally appropriate in determining:

- whether the microgrid is of sufficient scale to warrant the unbundling of services in order to support competitive markets upstream and/or downstream of the SAPS infrastructure
- whether the microgrid is of sufficient scale for the AER to be able to undertake a cost-effective regulatory determination, and
- more broadly, whether the microgrid is of sufficient scale that imposing an access regime would enhance economic efficiency and therefore be in the long term interests of consumers.

In addition, the Commission considers the coverage test meets the objective of proportionality as it only applies coverage where the benefits of coverage exceed the costs of coverage.

104 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems*, October 2019, p. 13.

Recommended variation to test feature 2

The Commission generally considers that the coverage test recommended by Incenta Economic Consulting meets the requirements for the coverage test for third-party SAPS and is an appropriate test. Consequently, the Commission is recommending that the Incenta coverage test detailed above is used to determine if a third-party SAPS should be covered under the national framework, with one minor amendment.

Under test feature 2, the Commission recommends that jurisdictions be provided with discretion to determine the period of no coverage that would apply to the third-party SAPS if an approved competitive tendering process is followed when developing a new SAPS. Although the Commission agrees that a 15 year no-coverage period is likely to be appropriate in most instances, the Commission considers that the Minister of the relevant jurisdiction should be able to determine if a different no-coverage period would be more appropriate for a specific third-party SAPS. The Minister would have access to information to provide a more qualified view on the length of no-coverage under the circumstances of the specific tendering arrangement.

Recommended administration of the coverage test

Under Incenta's recommendations a SAPS proponent, or project sponsor, has the option to obtain a decision on coverage prior to construction of a new SAPS, or the sale of electricity in the case of a transferred SAPS. After this time, unless there is a current no-coverage decision in effect, anyone would be able to apply for the coverage test to be applied.[105] In addition, anyone can apply for coverage to be revoked from a covered third-party SAPS, at any time where there is not a current no-coverage decision.[106]

Incenta recommended that the decision on coverage should be undertaken by a body that is able to make decisions that impact on jurisdictional arrangements, understands the benefits and limitations of competition, is preferably independent from any implications of the coverage decisions, and has the capacity to draw on expert resources with strong experience in economics. Incenta suggested a model which would meet these requirements would be for the National Competition Council to apply the coverage test and provide advice to relevant State Ministers who would then subsequently make the decision on coverage.[107]

The Commission supports Incenta's recommendation in relation to the administration of the coverage test noting that these are largely consistent with those in Part IIIA of the CCA and the national gas access regime. Further, the Commission supports the State Minister making the final decision on whether a third-party SAPS will be covered, as an implication of coverage is that the third-party SAPS will move from jurisdictional to national regulation.

Implementation of the coverage test

Changes to the NEL and NER will be required to implement the coverage test for third-party SAPS. The changes to the NEL proposed to implement the coverage test are described in

105 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems,* October 2019, p. 22.
106 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems,* October 2019, p. 22.
107 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems,* October 2019, p. 23.

appendix A of this report, modelled on the equivalent provisions in the NGL. Any supporting rule changes will be developed as part of future rule drafting if the Commission's recommended framework for third-party SAPS is progressed by the COAG Energy Council.

5 IMPLEMENTATION

This final report sets out the Commission's recommended regulatory framework to support the provision of stand-alone power systems by third parties while providing appropriate consumer protections and compliance mechanisms in a manner that is proportionate and provides clarity.

As noted earlier, a three-tiered framework has been proposed for the regulation of third-party SAPS. The Commission recommends that those third-party SAPS classified as category 1 SAPS be regulated under the national framework, supported by jurisdictional regulations in line with the AEMA. The Commission also recommends that those third-party SAPS classified as category 2 and category 3 SAPS be regulated under relevant jurisdictional legislative instruments.

Along with the regulatory changes required to implement the priority 2 recommendations this report also contains details of proposed amendments to the NEL and NERL to implement the Commission's recommendations (developed as part of priority 1) regarding the transition of existing DNSP customers to SAPS provided by third parties.[108]

Consequently, the recommendations made in this final report in respect of the regulatory framework for stand-alone power systems relate to four groups of changes — that is:

- to the NEL and NERL, in order to enable the provision of electricity via category 1 SAPS as a regulated service and to allow rule changes to be made to implement the recommended framework for category 1 SAPS and the transition to third-party SAPS
- to the NER and NERR, in order to introduce rules to apply the recommended framework for category 1 SAPS, and to allow customers to transition from DNSP supply to third-party SAPS with explicit informed consent
- to jurisdictional legislative instruments, so that they are consistent with, and supportive of, the recommended framework for category 1 SAPS, and
- to jurisdictions' legislative instruments and licenses, to provide the regulatory framework for category 2 and 3 third-party SAPS.

In this context, this chapter sets out the Commission's proposed implementation plan for the recommended regulatory framework for SAPS provided by parties other than the local DNSP. It also outlines the key changes that jurisdictional governments and regulators will need to make to relevant jurisdictional legislative instruments to support, and ensure consistency with, the recommended national framework. An overview of the impacts on AEMO and the AER is also provided.

5.1 National law and rule changes

The Commission recommends that category 1 third-party SAPS be regulated under the national energy framework. On the basis that network, retail and generation services will be

108 The arrangements for transition of grid-connected customers to third-party SAPS were discussed in Chapter 8 of the Commission's priority 1 final report, but proposed amendments to the NEL and NERL in respect of that issue were not included with that report.

provided separately, existing obligations in the NEL, NERL, NER and NERR would apply to the distributor, retailers and generators operating in the third-party SAPS. Changes will also be required to the NER to impose explicit informed consent obligations on a third-party SAPS provider to allow for transition of existing DNSP customers to a third-party SAPS.

5.1.1 Implementation options — law and rule changes

As for priority 1 of this review, the Commission has developed this package of recommendations having regard to the benefits of timely implementation by the COAG Energy Council.

To this end, the Commission has prepared recommended drafting instructions for amendments to the National Electricity Law and the National Energy Retail Law, set out in Appendix A. If the COAG Energy Council approves the approach described in this report, these drafting instructions are intended to be submitted to Parliamentary Counsel for consideration. The purpose of these drafting instructions is to explain in detail the legislative changes the Commission considers are needed for the final recommendations made in this report on third-party SAPS to take effect.[109] The next stage of work involves the development of detailed revisions to the National Electricity Rules and National Energy Retail Rules to apply the final recommendations.

Importantly, the regulatory framework for category 1 third-party stand-alone power systems, and the arrangements to enable transition of existing grid-connected customers to a third-party SAPS (including separation of part of the interconnected grid to form a third-party SAPS), will not be implemented until the complete package of national energy law and rule changes have been made. There are a number of ways this could be achieved. However, in light of the approach to implementation of the priority 1 recommendations agreed by the COAG Energy Council's Senior Committee of Officials (SCO)[110] and being progressed by the Commission at present, the Commission anticipates the priority 2 recommendations set out in this report proceeding in a similar way — that is:

- The COAG Energy Council endorses the policy recommendations made in this final report, noting agreed changes by the Council (if any), and tasks the Commission with developing a package of draft changes to the NER and NERR to apply the recommended framework.
- The national law and rule changes would then be submitted by the COAG Energy Council for endorsement as a complete package of reforms. The South Australian Parliament would make the agreed amendments to the NEL and NERL while the South Australian Minister would make the Rules.

This approach would allow the Commission to commence work on developing detailed rule changes to implement the recommended framework following endorsement by the COAG Energy Council. If the Commission's recommended framework is endorsed at the next

109 Suggested amendments to the NEL and NERL to allow for rule changes in respect of transition to a third party SAPS have also been prepared in Priority 2 of this review.

110 On 10 September 2019, the COAG Energy Council's SCO wrote to the Commission to, among other things, advise that SCO had agreed to task the Commission with developing a set of initial rules for DNSP SAPS to come into effect following the making of the necessary legislative changes. See the webpage for *Updating the regulatory frameworks for distributor-led stand-alone power systems* at www.aemc.gov.au.

meeting of the COAG Energy Council on 22 November 2019, the Commission would be in a position to commence the development of a package of rule changes relatively quickly. This would enable the complete package of law and rule changes to be delivered to the South Australian Parliament and Minister in the first half of 2020. The Commission's recommended framework could then take effect as early as the first half of 2021, subject to jurisdictions finalising all necessary jurisdictional arrangements.[111]

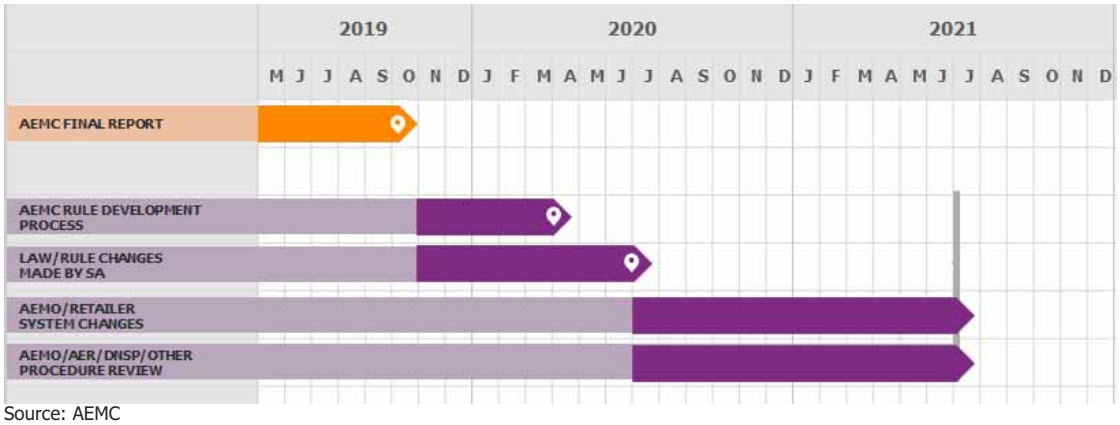
It should be noted that amendment of the NEL and NERL by the South Australian Parliament, and amendment of the NER and NERR by the South Australian Minister, will only give effect to the necessary law and rule changes required to implement the recommended framework for third-party SAPS. These changes alone will not enable third-party providers to provide SAPS under the Commission's recommended framework. It is not until jurisdictions develop new (or amend existing) jurisdictional regulatory frameworks in line with the Commission's recommendations in this report that the outcomes desired by this review will be achieved.

However, the development of these jurisdictional frameworks are not a prerequisite for the national changes. The Commission acknowledges that different jurisdictions are likely to require different periods of time to implement the necessary reforms (on the basis that the existing regimes and regulation of SAPS across jurisdictions differ significantly in terms of their completeness) it nevertheless encourages jurisdictions to commence this process as soon as possible in order to realise the benefits.

An overview of the anticipated approach to implementation of the recommended regulatory framework for third-party SAPS is set out in figure 5.1 below (noting that the date for law changes is uncertain under either option). This figure also highlights certain interdependencies later in the reform program.

111 Note that an alternative approach to implementation would involve (1) the COAG Energy Council agreeing, and the South Australian Parliament making, amendments to the NEL and NERL and (2) the COAG Energy Council, or any other person, submitting a rule change request to the Commission consistent with the policy recommendations made in this final report. However, the Commission understands that changes to the laws are likely to take some time and may not be made until mid 2020. Under the timeframes for the Commission's standard rule change process, this means that electricity and retail rules implementing the Commission's recommended framework would be unlikely to be made before mid-2021. Allowing time for implementation activities, the changes could take effect in mid-2022.

Figure 5.1: Implementing the recommended regulatory framework for third-party SAPS



Source: AEMC

5.2 Key changes to jurisdictional arrangements to adopt the category 1 framework

In conjunction with the enactment of the recommended law and rule changes to implement the recommended regulatory framework for category 1 third-party SAPS, jurisdictions will also need to make amendments to relevant jurisdictional instruments.

5.2.1 Changes to NERL application Acts in certain jurisdictions

In New South Wales, South Australia and Tasmania, the Acts adopting the NERL as a law of those jurisdictions currently contain provisions limiting the application of the NERL (in those jurisdictions) to the sale of electricity to customers whose premises are connected, or are to be connected, to the interconnected national electricity system within the meaning of the NEL.[112] These restrictions would prevent the consumer protections in the NECF applying to customers of SAPS even if the law and rule changes described in this report have been made.

In priority 1 of this review, the Commission recommended changes to the application Acts which will remove the restriction of the NECF to the interconnected grid. These changes will ensure that DNSP SAPS customers receive the protections of the NECF. Details of these changes can be found in section 9.2.1 of the priority 1 final report.[113] In New South Wales, South Australian and Tasmania, no further changes will be required to the application Acts to allow the consumer protections in the NECF to apply to customers of a category 1 SAPS (provided the changes to the NEL recommended in Appendix A of this report are made).

In Queensland, the application Act does not restrict the NECF to the interconnected grid. The NERL and NERR apply to Queensland stand-alone power systems unless the seller has an

112 *National Energy Retail Law (South Australia) Act* 2011 (SA) s. 16; *National Energy Retail Law (Adoption) Act* 2012 (NSW) Schedule 1, s. 11 and *National Energy Retail Law* (NSW) No.37a, s. 3A; *National Energy Retail Law (Tasmania) Act* 2012 (Tas) s. 17.

113 AEMC, *Review of the regulatory framework for stand-alone power systems - priority 1,* final report, p. 118.

exemption. Consequently, changes will need to be made to the Queensland application Act to restrict the NECF from applying to category 2 or 3 third-party SAPS.

5.2.2 Review of jurisdictional regulations

To provide a complete set of consumer protections and safety regulations, and to allow the proponent of a category 1 third-party SAPS to access land to distribute electricity via that SAPS, the Commission considers it is important the jurisdictional energy regulatory frameworks apply to category 1 third-party SAPS in an equivalent manner to standard supply. To this end, jurisdictions will need to review regulatory instruments, and if applicable, make amendments to remove any restrictions which would stop the jurisdictional consumer protections, safety regulations, and land access rights applying to category 1 third-party SAPS, prior to any category 1 SAPS being determined under the coverage test. For example, the Commission considers that any restrictions on customers supplied via a category 1 third-party SAPS accessing independent energy ombudsman schemes should be removed.

Some analysis of the jurisdictional consumer protections and safety regulations is provided in appendices C to H of this report. However, jurisdictions will need to review individual instruments to determine if any definitions or clauses restrict the application of the consumer protection, safety obligation or land access rights to named distributors only, or to connected grids or connected networks or similar. The Commission would anticipate these reviews will be undertaken prior to the jurisdictions opting into the regulatory framework for DNSP-led SAPS, and it is likely that further changes would not be required to most instruments.

In Victoria, in addition to the review of the consumer protections and safety standards which are jurisdictional functions under the AEMA, as NECF does not apply, the Victorian Government may wish to review its Energy Retail Code to determine if there is anything that would restrict its application to category 1 third-party SAPS.

The Northern Territory has applied certain chapters of the NER via its own legislative instruments. To the extent these chapters are amended as part of the rule making package for DNSP SAPS discussed above, those changes would apply in the Northern Territory (but would have no effect unless the Northern Territory opts in, as discussed below). However, the Northern Territory already has its own process for extending the application of those NER chapters to non-interconnected parts of the system through the definition of local electricity systems. The Northern Territory could apply the national framework for the regulation of category 1 SAPS if it considers it would be helpful to apply that framework for new stand-alone systems, while retaining its current approach to the regulation of local electricity systems. Alternatively, the Northern Territory could apply the national framework for the regulation of any current local energy systems which would pass the national coverage test.

As the NERL and NERR do not apply in the Northern Territory, if it applies the framework for category 1 SAPS in the NEL the Northern Territory may also wish to consider whether jurisdictional consumer protections would apply appropriately to customers of category 1 third-party SAPS.

5.3 Jurisdictional regulations for category 2 and 3 third-party SAPS

As noted above, category 2 and 3 third-party SAPS will be regulated entirely under jurisdictional frameworks (after any transition from DNSP systems is completed, as aspects of the transition will be regulated under the national framework).

To provide a regulatory framework for category 2 and 3 third-party SAPS, jurisdictions will need to determine license conditions to impose appropriate and proportionate obligations on third-party SAPS operators. The Commission has provided recommendations in this report for the access and connections obligations, consumer protections, economic regulations, reliability measures, network operations and system security obligations and safety requirements it considers appropriate for category 2 and 3 third-party SAPS. However, jurisdictions will ultimately decide the appropriate conditions for each category 2 and 3 third-party SAPS.

The regulatory frameworks for third-party SAPS currently in effect in some jurisdictions, for example in South Australia, may largely align with the Commission's recommended framework. These regulatory frameworks may require few, if any, amendments. In other jurisdictions where there are no current regulatory frameworks to support third-party SAPS, the development of a complete framework will be required.

As noted above, amendment of the NEL and NERL by the South Australian Parliament, and amendment of the NER and NERR by the South Australian Minister, will only give effect to the necessary law and rule changes required to implement the recommended framework for third-party SAPS. It is not until jurisdictions develop new (or amend existing) jurisdictional regulatory frameworks, including SAPS specific licensing regimes, that third-party providers will be able to operate in a jurisdiction under the Commission's recommended framework. For this reason, the Commission encourages jurisdictions to commence this process as soon as possible, however this is not a prerequisite for national changes.

The COAG Energy Council should consider whether sufficient information has been provided in this report and the appendices to provide for a consistent approach to the regulation of third-party SAPS between jurisdictions, or whether the COAG Energy Council will request the Commission to do further work to facilitate jurisdictions in developing a consistent approach.

The Commission is happy to work with jurisdictions and the COAG Energy Council in further developing consistent frameworks for the regulation of category 2 and 3 third-party SAPS.

5.4 Implementation roles - AEMO and the AER

Under the recommended regulatory framework for category 1 third-party SAPS, the various powers, functions and accountabilities allocated to AEMO and the AER to support the efficient operation and use of SAPS are largely unchanged from those allocated to these parties in respect of the interconnected grid. Category 1 SAPS will, in effect, be largely brought within the scope of existing roles and responsibilities.

There will, however, be some changes to AEMO's responsibilities in some category 1 SAPS, particularly in the area of system operation.

There are also a number of areas of the recommended regulatory framework which will necessitate some action be taken by AEMO and the AER in readiness for implementation of the arrangements. These activities are highlighted below.

5.4.1 AEMO

The Commission's recommended regulatory framework for category 1 SAPS will require AEMO to amend its settlement systems to accommodate any classification of a third-party SAPS as a category 1 SAPS (a possible outcome of the application of the recommended coverage test).

This will require AEMO to undertake a program of work to update systems and processes, including updating relevant AEMO guides and procedures, or the creation of new guides and procedures for third-party SAPS. A new market region for the category 1 third-party SAPS may also need to be established in AEMO's systems, to ensure AEMO can conduct settlement activities for the SAPS separately from NEM settlement.

5.4.2 AER

The Commission's recommended regulatory framework for category 1 third-party SAPS does not include any additional enforcement roles for the AER. Consistent with its existing powers and functions, the AER will be responsible for monitoring, investigating and enforcing compliance with the energy rules related to category 1 third-party SAPS, having regard to its own compliance and enforcement priorities. This includes undertaking regulatory determinations under chapter 6 of the NER.

However, following development of the rules to implement the national arrangements for transition to a third-party SAPS, the AER may need to review and, where appropriate, amend its ring-fencing guidelines to cover a situation where a DNSP may be appointed as the operator of last resort by the jurisdictional regulator for a vertically integrated third-party SAPS.

5.5 Final recommendations and implementation plan

The Commission's final recommendations for each category of the three-tiered regulatory framework, in each of the key areas considered by the review, are set out in Table 5.1. For each recommendation, we have outlined the action required for implementation. In addition, we have included the final recommendations for transition of existing DNSP customers to third-party SAPS.

Changes to the National Electricity Law and National Energy Retail Law are required to implement the Commission's recommended framework. These NEL and NERL changes are not referred to separately throughout the table but are explained in Appendix A.

Table 5.1: Final recommendations and implementation plan

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
Category 1 third-party SAPS		
Registration and licensing	Network service providers require a jurisdictional license, generators may require jurisdictional licenses, depending on the jurisdiction.	Jurisdictions to consider licensing distributors and (depending on the jurisdictions) generators operating in a category 1 SAPS. This may require jurisdictions to review existing licenses and licence conditions, and amend these where required.
	Retailers would be required to hold a retail authorisation from the AER.	No change required.
	Network service providers, retailers and any connected generating units of a sufficient size would need to be registered with AEMO.	AEMO to review and update relevant procedures as necessary.
Access and connections	A "coverage test" will be used to determine those third-party microgrids large enough to warrant the application of an access regime (and therefore be classified as category 1 SAPS).	COAG Energy Council to submit NEL amendments to the South Australian Parliament. COAG Energy Council to task the Commission to develop the NER rule changes to apply the recommended framework.
	Distributors operating in a category 1 SAPS would be required to connect both load and generators.	No change required.

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	Retailers would also have access to the customers of category 1 SAPS in the same way they have access to grid-connected customers.	AEMO to review and update relevant systems and procedures (eg MSATS) as necessary.
Economic regulation	Distributors operating in a category 1 SAPS would be regulated in the same manner as DNSPs. This includes being subject to a NER Chapter 6 regulatory determination by the AER.	AER to review and update relevant guidelines for consistency where necessary. COAG Energy Council to task the Commission to develop the NER rule changes to apply the recommended framework.
	In jurisdictions where jurisdictional price regulations apply, the jurisdictional economic regulator should determine a retail price specific to the category 1 SAPS.	Jurisdictional economic regulator to consider and develop a retail regulated price specific to the category 1 SAPS.
Consumer protections	Retailers will be authorised by the AER, with the full suite of consumer protections applying under the NECF.	COAG Energy Council to submit NERL amendments to the South Australian Parliament. COAG Energy Council to task the Commission to develop the NERR rule changes to apply the recommended framework. NSW, SA and TAS to review and amend their NERL Application Acts to extend their application to category 1 SAPS. Victoria to review its Retail Code and Distribution Code to ensure they extend consumer protections to SAPS customers.
	Consumers should have access to jurisdictional energy ombudsman schemes and concessions, rebates and emergency payment assistance.	Jurisdictions to review and amend relevant jurisdictional legislative instruments to extend their application to category 1 third-party SAPS.
Reliability of supply	Reliability measures should be the same as those applicable to DNSPs, including jurisdictional reliability standards (SAIDI and SAIFI) and GSL schemes. Some variations to	Jurisdictions to review and amend relevant jurisdictional legislative instruments to extend their application to category 1 third-party SAPS.

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	jurisdictional standards may be required, as feeder categories may require review. Obligations to report to the jurisdictional regulator on the reliability performance of category 1 SAPS should be required, consistently with current requirements for DNSPs.	
	Reliability measures should be the same as those applicable to DNSPs, including STPIS. Some variations to the STPIS may be required, as feeder categories may require review.	AER to review and where necessary amend STPIS to extend its application to category 1 third-party SAPS.
	As category 1 SAPS will be regulated under the national framework, the reliability standard set in the NER would apply for generation.	COAG Energy Council to task the Commission to develop the NER rule changes to apply the recommended framework such that the reliability standard applies appropriately in the SAPS.
Network operations and system security	The designation of an independent system operator would be required in a category 1 SAPS. In some category 1 SAPS, this could be AEMO. The ISO will be responsible for operating the system, including maintaining system security and reliability.	COAG Energy Council to submit NEL amendments to the South Australian Parliament. COAG Energy Council to task the Commission to develop the NER rule changes to apply the recommended framework. May require updates to AEMO's systems and procedures.
	For category 1 SAPS, system security requirements, which may be a simplified version of the NER requirements, will be needed.	COAG Energy Council to task the Commission to develop the NER rule changes to apply the recommended framework. AEMO to review and amend relevant systems and procedures where necessary.
	Jurisdictional and NER technical standards that apply to DNSPs are recommended for category 1 SAPS, including the creation of service and installation rules for the SAPS, adoption of Australian standards covering quality of supply,	COAG Energy Council to task the Commission to develop the NER rule changes to apply the recommended framework. Jurisdictions to review and amend relevant jurisdictional legislative instruments to extend their application to category 1 third-party

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	and the development of an asset management plan by the SAPS distributor.	SAPS.
	For metering and settlement, existing NEM arrangements would apply, including AEMO settlement and metrology procedures and NEM compliant metering. In addition, retailers would be responsible for arranging metering services for small customers.	COAG Energy Council to task the Commission to develop the NER and NERR rule changes to apply the recommended framework. AEMO to review and amend relevant systems and procedures where necessary.
Safety	The same jurisdictional safety arrangements applied to DNSPs connected to the interconnected grid should also be applied to category 1 SAPS distributors. Mandatory jurisdictional reporting schemes for safety incident reporting should also be extended to category 1 SAPS.	Jurisdictions to review and amend relevant jurisdictional legislative instruments to extend their application to category 1 third-party SAPS.
Category 2 third-party SAPS		
All dimensions	Category 2 third-party SAPS will be regulated under a jurisdictional framework, with obligations imposed on SAPS providers via jurisdictional license conditions.	Jurisdictions to develop a regulatory framework for the regulation of category 2 SAPS under jurisdictional license conditions, or review and amend current third-party SAPS regulatory frameworks as required. In addition, jurisdictions to review and, where required, amend relevant jurisdictional legislative instruments to extend their application to category 2 third-party SAPS.
Category 3 third-party SAPS		
All dimensions	Category 3 third-party SAPS will be regulated under a jurisdictional framework, with obligations imposed on SAPS providers via jurisdictional license conditions or jurisdictional	Jurisdictions to develop a regulatory framework for the regulation of category 3 SAPS under jurisdictional license conditions or registered exemption conditions, or review and amend current

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	registered exemption conditions.	third-party SAPS regulatory frameworks as required. In addition, jurisdictions to review and, where required, amend relevant jurisdictional legislative instruments to extend their application to category 3 third-party SAPS.
Transition to third-party SAPS		
Transition to third-party SAPS	A third party should obtain written consent of each customer, based on a set of explicit informed consent requirements, before transitioning them to a third-party SAPS. The consent requirements should include requirements to disclose, in a readily understandable manner, information on: the third party, the SAPS system, the SAPS supply model (including service and maintenance responsibilities) and expected consumer outcomes such as prices, service standards and consumer protection safeguards.	COAG Energy Council to submit NERL amendments to the South Australian Parliament. COAG Energy Council to task the Commission to develop the NERR rule changes to apply the recommended framework.
	A third party should compensate the DNSP for costs related to stranded assets as a result of the transition, under AER guidance. The existing asset disposal methodology should apply to a DNSP's regulated assets that are sold to a third party.	COAG Energy Council to submit NEL amendments to the South Australian Parliament. COAG Energy Council to task the Commission to develop the NER rule changes to apply the recommended framework.

Source: AEMC

ABBREVIATIONS

ACCC	Australian Competition and Consumer Commission
ACL	Australian Consumer Law
ACT	Australian Capital Territory
AEC	Australian Energy Council
AEMA	Australian Energy Market Agreement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AS	Australian Standard
BTM	Behind the meter
CCA	Competition and Consumer Act
CEC	Clean Energy Council
COAG	Council of Australian Governments
Commission	See AEMC
Cth	Commonwealth
DER	Distributed energy resources
DMO	Default market offer
DNSP	Distribution network service provider
ECA	Energy Consumers Australia
EMPTP	Energy Market Transformation Project Team
ENA	Energy Networks Australia
ENSP	Embedded network service provider
ESC	Essential Services Commission of Victoria
ESCOSA	Essential Services Commission of South Australia
EWON	Energy and Water Ombudsman NSW
GSL	Guaranteed Service Level
GWh	Gigawatt hour
IEC	International Electrotechnical Commission
IGA	Intergovernmental Agreement
IPART	Independent Pricing and Regulatory Tribunal
IPS	Individual power system
LHIB	Lord Howe Island Board
MCE	Ministerial Council on Energy
MW	Megawatt
MWh	Megawatt hour
NCC	National Competition Council
NECF	National Energy Customer 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
NGR	National Gas Rule
NSW	New South Wales
OoLR	Operator of Last Resort
PIAC	Public Interest Advocacy Centre
PV	Photovoltaic
PWC	Power Water Corporation
RAES	Remote Area Energy Supply
RoLR	Retailer of Last Resort
RTAW	RTA Weipa Pty Ltd
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAPS	Stand-alone power system
SMS	Safety Management System
SRES	Small-scale Renewable Energy Scheme
STPIS	Service target performance incentive scheme
WA	Western Australia
WHS	Work health and safety
WICA	Water Industry Competition Act 2006 (NSW)

A PROPOSED CHANGES TO THE NEL AND NERL

A.1 Overview

Implementing the recommendations set out in this report will require changes to the NEL and NERL (together with changes to the laws applying the NERL in some jurisdictions, as recommended in Priority 1 of this review), and a review of jurisdictional regulations, as discussed in the body of this report. This Appendix outlines the changes to the NEL and NERL that the Commission considers would be necessary to allow third-party SAPS to be regulated under those laws and their rules in the manner outlined in the body of this report.

The Commission also recommended changes to the NEL and the NERL in Appendix C to its Final Report for the Review of the Regulatory Frameworks for Stand-Alone Power Systems—Priority 1 (30 May 2019). Some of the changes recommended below are very similar to those earlier recommendations. Apart from the suggested numbering, the amendments recommended in this Appendix do not assume the earlier recommendations have been implemented.

A.2 Proposed changes to the NEL

- The changes to the NEL are intended to result in category 1 third-party SAPS being regulated under the NEL in the same manner as regulated distribution systems forming part of the interconnected national electricity system.
- The gateway for regulation under the NEL for a category 1 third-party SAPS will be coverage of the distribution system forming part of the third-party SAPS. The NEL will define:
  - stand-alone networks as distribution systems that are not part of the interconnected national electricity system; and
  - covered stand-alone networks as stand-alone networks that are subject to a coverage determination.
- Much of the scope of operation of the NEL is defined by reference to the national electricity system – for example, the functions of the Commission, the Reliability Panel, the AER and AEMO, the NEO and the definition of the national electricity market. The national electricity system is in turn defined by reference to the interconnected national electricity system. To allow for the regulation of category 1 third-party SAPS under the NEL and NER, the term 'national electricity system' will be extended to encompass covered stand-alone networks and generation facilities and other facilities connected to them. (A similar change was recommended for regulated SAPS.)
- Amending 'national electricity system' in this way will in general extend the operation of the NEL in a manner consistent with the intended policy outcomes. For example:
  - the national electricity market will extend to electricity supplied by means of a covered stand-alone network;
  - the NEO will extend to matters relating to a covered stand-alone network;

    - the rule-making powers of the Commission and the functions of the Reliability Panel will extend to a covered stand-alone network.
- An exception is AEMO's functions with respect to power system security, which will not automatically extend to all covered stand-alone networks. A new provision in the NEL will allow the extension of those functions to be considered on a case by case basis under the NER.
- It is intended that the operator of a covered stand-alone network will become a regulated distribution system operator for the purposes of the NEL as the operator will be required to register under the NER (no exemptions will be available) and will be subject to a distribution determination.
- The obligations to register under the NER, or be exempt from registration, will be extended to generation connected to a covered stand-alone network. The registration obligation will also be extended to networks connected to a covered stand-alone network so as to allow for the connection of unregulated (embedded) networks to covered stand-alone networks.
- The changes to the NEL will introduce a framework to provide for coverage determinations, determinations to revoke coverage and determinations to exempt greenfields stand-alone networks from coverage for a 15-year period (test feature 3, as discussed in chapter 4 and appendix C). The framework will also allow the participating jurisdictions to nominate a process for approval of competitive tender processes. If used, this will result in an exemption from coverage, for a period determined by the jurisdiction, for stand-alone networks that are constructed and operated by a successful tenderer in an approved process (test feature 2, as discussed in chapter 4 and appendix C).
- The framework is proposed to be similar to the coverage application process under the National Gas Law (NGL) (as supplemented by the National Gas Rules (NGR)). The NEL will provide for coverage-related applications under the NEL to be made to the NCC, for the NCC to make a recommendation applying the coverage test having regard to the NEO, and for the relevant Minister to make a determination having regard to the coverage test, the NEO, the NCC's recommendation and other information provided to the Minister.
- Other matters addressed in the framework will include:
    - the coverage test, which is based on the test recommended in the Incenta report as discussed in chapter 4 and appendix C;
    - a requirement for the NCC to determine the relevant Minister where a network is located across jurisdictional borders, and the criteria to be used by the NCC in making its determination;
    - automatic coverage of augmentations to a covered stand-alone network (but not third party embedded networks connected to the covered stand-alone network);
    - provisions conferring new functions on the NCC under the coverage framework;
    - provisions to limit gaming of a NEL 15-year no-coverage determination based on those applicable under the NGL, and which require the network as built to be

materially similar to the network described in the application and specify the period within which the network must be built;
    - provisions to protect the confidentiality of information provided to the NCC and the Minister under the coverage framework;
    - a requirement similar to the NGL that covered stand-alone networks be operated by specified categories of legal entity.
- The changes to the NEL will allow rules to be made about projects for the conversion of a part of a regulated network to a stand-alone network. This may occur where a DNSP SAPS is sold to a third-party operator, or where a part of the interconnected network is disconnected and sold to a third-party operator. The NEL will provide for the NER to specify disputes about these projects as access disputes and for the disputes to be referred to the AER for resolution.
- The changes to the NEL will include a new head of power in Schedule 1 to allow rules to be made relating to the appointment of a DNSP as an operator of last resort for stand-alone networks that are not covered stand-alone networks. As described in this report, the Commission recommends that each participating jurisdiction determine the operator of last resort arrangements for category 2 stand-alone power systems. The purpose of the rule-making power in the NEL is to allow rules to be made about matters such as ring-fencing that might otherwise be a barrier to those appointments while also ensuring such an appointment does not result in cross subsidies from the customers connected to a regulated network to the customers of category 2 stand-alone power systems.
- A provision will be included to allow initial rules for these matters to be made as Minister-made rules.

These proposed changes, and related or consequential changes, are set out in the table below, in the order in which those changes would appear in the NEL.

Table A.1: **Proposed changes to the NEL**

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
Section 2(1)	Insert a definition of ***covered stand-alone network*** to mean a stand-alone network to which a NEL coverage determination applies.	The definition identifies the stand-alone networks that will be regulated under the national regime. A covered stand-alone network (a category 1 SAPS) will be part of the national electricity system regulated under the NEL and the NER.
Section 2(1)	Amend the definition of ***national electricity system*** to include: • the generating systems, transmission systems or distribution systems and other facilities owned, controlled or operated in the	This change brings covered stand-alone networks within the scope of the NEL and NER by treating them as part of the national electricity system. It also brings generating systems and other facilities connected to a covered

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	participating jurisdictions connected to covered stand-alone networks; and • covered stand-alone networks	stand-alone network within the scope of the national regime.
Section 2(1)	Insert a definition of ***NCC*** to mean the National Competition Council established by section 29A of the *Competition and Consumer Act* 2010 of the Commonwealth.	The definition will identify the NCC for the purposes of the NEL. The NCC will consider applications under new Part 12 and make coverage-related recommendations.
Section 2(1)	Insert the following definitions: ***NEL 15-year no-coverage determination*** to mean a determination of a relevant Minister under the relevant provision (proposed to be section 189) in new Part 12. ***NEL coverage determination*** to mean a determination of a relevant Minister that a third party SAPS is covered under the relevant provision (proposed to be section 173) in new Part 12. ***NEL coverage recommendation*** to mean a recommendation of the NCC under the relevant provision (proposed to be section 169) in new Part 12. ***NEL coverage revocation determination*** to mean a determination of a relevant Minister under the relevant provision (proposed to be section 180) in new Part 12. ***NEL coverage revocation recommendation*** will mean a recommendation of the NCC under the relevant provision (proposed to be section 178) in new Part 12. ***NEL no-coverage recommendation*** will mean a recommendation of the NCC under the relevant provision (proposed to be section 186) in new	These terms are used in connection with the coverage determination process. They are similar to the terms used in the coverage provisions in the NGL but 'NEL' has been added to each to avoid using the same term in both Laws. The terms are used in new Part 12 and in the new heads of power in Schedule 1.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	Part 12.	
Section 2(1)	Insert a definition of ***network conversion project***, to have the same meaning as in the National Energy Retail Law.	It is proposed to define 'network conversion project' in the NERL, as set out in the NERL amendment table below. The term will be used in section 2A of the NEL and section 123(2) so as to extend the defined term 'access dispute' to disputes about network conversion projects and to allow other rules to be made in the NER regulating the conduct of regulated distribution system operators in relation to these projects.
Section 2(1)	In the definition of ***network service provider,*** replace the term 'interconnected national electricity system' with 'national electricity system'.	This change extends the term to include a network service provider in relation to a covered stand-alone network, since the term 'national electricity system' will be extended to include a covered stand-alone network. This amendment has also been recommended in the Final Report for SAPS Priority 1.
Section 2(1)	Insert a definition of ***project proponent***, to have the same meaning as in the National Energy Retail Law.	This definition will be used in section 2A and 123(2) to identify the party to an access dispute about a network conversion project.
Section 2(1)	Insert a definition of ***relevant Minister***, to cross-reference the section in new Part 12 (proposed to be section 159) under which the term will be defined.	This is a consequential change, as the term is used in this section 2(1) as well as in new Part 12.
Section 2(a)	Insert a definition of ***stand-alone network*** to mean a distribution system that does not form part of the interconnected national electricity system.	This term is used to identify networks forming part of a third-party SAPS. A coverage application may be made only in respect of the network, and a coverage determination, if made, will apply only to the network.
Section 2A	Insert a new paragraph (c) to extend the definition of 'access dispute' to	Section 2A defines the term 'access dispute'. This new paragraph allows

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	include a dispute between a project proponent and a network service provider about an aspect of the network conversion project specified by the NER to be an aspect to which Part 10 applies.	for rules to be made identifying the disputes about network conversion projects that can be referred to the AER.
Section 11	Replace the term 'interconnected national electricity system' with 'national electricity system' in subsections (1) and (2).	Due to the change to the definition of 'national electricity system', this extends the obligation to register as a generator or network service provider (or obtain a registration exemption) to a generator or network service provider connected to a covered stand-alone network.
Section 15	Replace the term 'interconnected transmission and distribution system' with 'national electricity system' in subsection (1)(e).	Due to the change to the definition of 'national electricity system', this extends the power to grant exemptions to a generator or network service provider connected to a covered stand-alone network. However, it is not intended that the covered stand-alone network would be eligible for an exemption.
50A	In the heading to the section, replace 'relevant Minister' with 'Minister'.	A defined term 'relevant Minister' is proposed to be used in connection with the coverage test and as a consequence, should no longer be used in this heading to this section. The term is not used within the operative part of section 50A.
New Part 5C	Insert a new heading ***Part 5C—Functions and powers of NCC***	The NCC is established under the *Competition and Consumer Act* 2010 (Cth). The Act establishes the framework under which the NCC may perform functions and powers conferred on it by laws of the Commonwealth, a State or a Territory.
New section 57C	Insert a new section 57C providing for the NEL and the NER to confer functions and powers on the NCC. The section should provide for the NCC to:	The proposed section is based on the equivalent section in the NGL (section 89).

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• have the functions and powers conferred on it under the NEL, the Regulations or the NER; • have power to do all things necessary or convenient to be done for or in connection with the performance of its functions.	
New section 57D	Insert a new section 57D dealing with the confidentiality of information given to the NCC. This should provide for the following: • The NCC to take all reasonable measures to protect from unauthorised use or disclosure information given to it in confidence in, or in connection with, the performance of its functions or the exercise of its powers under the NEL, the Regulations or the NER. • The disclosure of information as required or permitted by the NEL, a law of the Commonwealth, a State or Territory to be taken to be authorised use and disclosure of the information. • Authorised use and disclosure of the information to include disclosure to the ACCC, the AER, the AEMC, any staff or consultant assisting any of those bodies in performing its functions or exercising its powers and any other person or body prescribed by the Regulations for this purpose. • A person or body to whom information is disclosed to be permitted to use the information for any purpose connected with the performance of the functions, or the exercise of the powers, of the person or body.	The proposed section is based on the equivalent section in the NGL (section 90).The inclusion of this provision in the NEL is intended to ensure that the NCC has consistent powers and obligations with respect to information in the NEL and the NGL. The section in the NGL allows disclosure to the Economic Regulation Authority of Western Australia; it is not proposed to allow for disclosure to that body in this new section.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• Allowing the NCC to impose conditions to be complied with in relation to information disclosed under the provision. • Providing for authorised use and disclosure of the information to include the use or disclosure of information by a person for the purposes of performing the person's functions, or exercising the person's powers, as a Councillor (as defined in the Competition and Consumer Act 2010 (Cth)) or a person referred to in section 29M of the Competition and Consumer Act 2010 (Cth) or a person who is authorised to perform or exercise a function or power of, or on behalf of, the NCC. • Regulations to be made for the purposes of the section to specify uses of information and disclosures of information that are authorised uses and authorised disclosures for the purposes of the section.	
New section 90EC	Insert a new section heading ***90EC—Minister to make initial rules relating to stand-alone networks***	The section is proposed to be numbered section 90EC as the Commission has recommended a new section 90EB for the initial rules for DNSP SAPS.
New section 90EC	Insert a power for the South Australian Minister to make the initial rules relating to stand-alone networks. This should extend to initial rules: • for or with respect to covered stand-alone networks including— • NEL coverage determinations, NEL coverage revocation determinations and NEL 15-year no-coverage determinations;	This allows the initial rules for stand-alone networks to be Minister-made rules (discussed as an option in chapter 5) and allows those rules to deal with the wide range of matters that may need to be addressed.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• the price, quality, safety, reliability and security of the supply of electricity in a covered stand-alone network; • electricity services provided by means of, or in connection with, a covered stand-alone network; • the activities of persons providing electricity services by means of, or in connection with, a covered stand-alone network; • the provision of connection services to retail customers in a covered stand-alone network; • wholesale settlement arrangements for electricity supplied by means of a covered stand-alone network; • retail customer transfer, metering and retail competition in respect of electricity supplied by means of a covered stand-alone network; and • network conversion projects; • for or with respect to the activities of regulated distribution system operators in relation to stand-alone networks that are not covered stand-alone networks; • for or with respect to any other subject contemplated by, or consequential on, the stand-alone network amendments (being the amendments made by the Acts amending the NEL and NERL as described in this appendix); and • that revoke or amend a rule as a consequence of the enactment of the stand-alone network amendments.	

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
New section 109B	Insert new section 109B on the application of Part 8 of the NEL to covered stand-alone networks, under which: • AEMO's functions with respect to power system security (including under Part 8 and section 49) and sensitive loads; and • AEMO's power to give directions under section 116, only extend to a covered stand-alone network or a sensitive load supplied by means of a covered stand-alone network to the extent provided for in the NER.	This section is intended to ensure that the change to the definition of national electricity system does not automatically extend AEMO's power system security functions and powers to covered stand-alone networks in all cases. The section allows the NER to address the extension of those functions on a case-by-case basis. It is proposed to be numbered section 109B as the Commission has recommended a new section 109A for DNSP SAPS (on the same terms as this provision).
New subsection 123(2)	Renumber current section 123 as subsection (1) and insert a new subsection to provide that in Part 10: • a reference to a prospective network service user or network service user includes a reference to a prospective project proponent or project proponent; • a reference to access includes a reference to the provision of a network conversion service as defined in the NERL; and • a reference to an electricity network service includes a reference to a network conversion service as defined in the NERL.	This is a consequential change arising out of the amendment to the definition of access dispute in section 2A. Part 10 contemplates disputes about access to electricity network services. The new form of dispute is about services required from a DNSP when a third party (referred to as the project proponent) is seeking to use a part of the network to create a stand-alone network. The proposed new section is an interpretation provision to allow for the application of Part 10 to the new category of dispute.
Section 157	Insert a new subsection (8) to provide that the prohibition on hindering access in section 157 does not apply to conduct engaged in to implement a network conversion project where that conduct is engaged in in accordance with the NEL, the NER, the NERL or the National Energy Retail Rules.	The prohibition on hindering access to a regulated network service should not apply where the conduct is engage in for the purpose of creating a stand-alone network through the separation and sale of a part of a regulated network.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
New Part 12	Insert a new Part heading: ***Part 12—Coverage of stand-alone networks***	It is proposed to insert the new framework for coverage of stand-alone networks as Part 12. The coverage process recommended in this table closely follows the pipeline coverage process under the NGL and NGR. As in that process, the Commission recommends that the provisions in the NEL allow more detailed requirements be left to the NER or (in the case of fees) the Regulations.
New division 1	Insert a new Division heading: ***Division 1—Interpretation and application***	Given the length of Part 12, it is proposed to break it into Divisions.

New section 159 for definitions used in Part 12	Insert new definitions as follows:
	• ***cross boundary stand-alone network*** to mean a stand-alone network that is partly situated in the jurisdictional areas of 2 or more participating jurisdictions;
	• ***jurisdictional determination criteria*** to cross reference the section in which the criteria are set out (proposed to be section 164);
	• ***relevant Minister*** to mean if, in a NEL coverage recommendation or NEL no-coverage recommendation the NCC determines the stand-alone network is:
	  • a stand-alone network situated wholly within a participating jurisdiction—the Minister of the participating jurisdiction;
	  • a cross boundary stand-alone network —the Minister of the participating jurisdiction determined by the NCC in the recommendation as being the participating jurisdiction with
		These definitions are used to determine the identity of the relevant Minister where there is a cross-boundary stand-alone network.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• which the cross boundary stand-alone network is most closely connected.	
New section 159 for definitions used in Part 12	Insert new definitions as follows: • ***greenfields stand-alone network project*** to mean a project for the construction of a stand-alone network or a major augmentation to an existing stand-alone network that is not a covered stand-alone network, but in each case excluding a network conversion project (defined in s 2(1)); • ***excluded infrastructure*** to mean in relation to a stand-alone network, equipment or other infrastructure that forms part of the stand-alone network but is classified by the NER as excluded infrastructure for the purposes of the NEL; • ***commissioned***, to mean in relation to a stand-alone network, when the stand-alone network is first used for the provision of an electricity network service on a commercial basis.	These definitions are used in connection with NEL 15-year no-coverage determinations. An application can only be made in relation to a greenfields stand-alone network project - one that does not involve existing network infrastructure. Under the provisions proposed below, excluded infrastructure will not be taken into account in determining whether the network as built is consistent with the network for which the determination was made. The date of commissioning is the start date for the 15-year no-coverage period.
New section 159 for definitions used in Part 12	Insert new definitions as follows: • ***competitive tender process*** to mean a process for inviting competitive tenders for the construction and operation of a stand-alone network and the provision of electricity services by means of the stand-alone network by the person who submits the successful tender on terms and conditions determined by the process;	These definitions are used to enable the jurisdictions to establish a competitive tender approval process that will result in networks that have been constructed and operated under an approved process to be exempt from coverage under Part 12 while the approval remains in effect (coverage test feature 2). As part of the jurisdictional competitive tender approval process, the period of exemption from

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• ***competitively tendered stand-alone network*** to cross refer to the section below under which this will be defined (proposed to be section 170); • ***jurisdictional competitive tender approval process*** to mean a process under which a Minister, jurisdictional regulator or other competent authority may grant or revoke a tender process approval and under which a tender approval period is determined, and which is declared by regulation made under the relevant section in Part 12 to be a jurisdictional competitive tender approval process for the purposes of the NEL; • ***tender approval period*** to mean the period during which a tender process approval remains in effect; • ***tender process approval*** to mean a decision by the competent authority under a jurisdictional competitive tender approval process to approve competitive tender process in respect of a proposed stand-alone network.	coverage (the tender approval period) will be determined – for example, 15 years.
New section 159 for definitions used in Part 12	Insert cross references to provisions under which other terms will be defined, as follows: • ***effective competition***; • ***stand-alone network coverage criteria***; • ***stand-alone network service provider***.	It is proposed to set out these definitions in full in stand-alone sections in Part 12 (proposed to be sections 162, 163 and 160, respectively).
New section 160	Include a new section to define a ***stand-alone network service provider*** as a person who owns,	The definition includes a proposed owner, controller or operator so that an application for a NEL 15-year no-

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	controls or operates or intends to own, control or operate, a stand-alone network, or any part of a stand-alone network.	coverage determination can be made before construction starts.
New section 161	Include a new section on the determination of a ***jurisdictional competitive tender approval process*** which allows the regulations under the application Act of a participating jurisdiction to declare a process established under an energy law of the jurisdiction to be a jurisdictional competitive tender approval process for the purposes of the NEL. Provide for the Minister responsible for administering the application Act (other than the application Act of South Australia) under which such a regulation is made to arrange for notice of the making and publication of the regulation to be published for information in the South Australian Government Gazette.	The first part of this new section provides the mechanism for a jurisdiction to nominate its tender approval process for the purpose of the NEL. This allows for the application of coverage test feature 2. (The use of this feature is optional for a jurisdiction.) The second part of the section reflects the notice requirements elsewhere in the NEL when such a mechanism is used.
New section 162	Include a new section to define ***effective competition*** for Part 12. The provision should require that when assessing whether there is effective competition within a market, regard must be had to: • whether there are active competitors in the market and whether those competitors hold a reasonably sustainable position in the market (or whether there is merely the threat of competition in the market); and • whether prices are determined on a long term basis by underlying costs rather than the existence of market power, even though a particular	The term 'effective competition' is used in the coverage test in Part 12. The term is also used in section 18B of the NEL in the context of a wholesale electricity market. The Commission recommends that the same matters be considered when determining whether there is (or will be) effective competition in relation to the SAPS for the purposes of Part 12.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	competitor may hold a substantial degree of market power from time to time; and • whether barriers to entry into the market are sufficiently low so that a substantial degree of market power may only be held by a particular competitor on a temporary basis; and • whether there is independent rivalry in all dimensions of the price, product or service offered in the market; and • any other matters that the NCC or the relevant Minister considers relevant.	
New section 163	Include a new section setting out the ***stand-alone network coverage criteria.*** These are: • that there is a reasonable prospect, within a reasonable timeframe, that effective competition will become established for the generation of electricity for all, or a substantial portion of, the supply of electricity to customers that are connected to, or that may connect to, the relevant stand-alone network; and • coverage would not generate costs that exceed the expected benefits.	The stand-alone network coverage criteria are applied by the NCC and the relevant Minister for making recommendations or determinations about coverage. These criteria are discussed in the Incenta report and in chapter 4 of this report.
New section 164	Include a provision setting out the ***jurisdictional determination criteria for cross boundary stand-alone networks.*** These are: • whether more electricity is to be delivered by a cross boundary stand-alone network in the jurisdictional area of 1 participating jurisdiction than in the jurisdictional area of any other participating	These criteria are applied by the NCC when determining the relevant Minister for a cross-boundary network. The proposed provision is based on criteria applied under the NGL for cross-boundary distribution pipelines.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	jurisdiction; • whether more customers to be served by a cross boundary stand-alone network are resident in the jurisdictional area of 1 participating jurisdiction than in the jurisdictional area of any other participating jurisdiction; • whether more of the network for a cross boundary stand-alone network is in the jurisdictional area of 1 participating jurisdiction than in the jurisdictional area of any other participating jurisdiction; • whether 1 participating jurisdiction has greater prospects for growth in the electricity market served or to be served by a cross boundary stand-alone network than any other participating jurisdiction; • whether the regional economic benefits from competition are likely to be greater for 1 participating jurisdiction than for any other participating jurisdiction.	
New section 165	Include a provision explaining how coverage applies where a covered stand-alone network is augmented. It should provide that for purposes of the NEL: • an augmentation of a covered stand-alone network must be taken to be part of the covered stand-alone network; and • the covered stand-alone network as augmented must be taken to be a covered stand-alone network. Include a provision clarifying that the connection of a transmission system or distribution system to a covered stand-	These provisions implement the Commission's recommendations that augmentations of covered stand-alone networks be automatically covered and that coverage should not extend to embedded networks connected to covered stand-alone networks.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	alone network is not an augmentation of the covered stand-alone network if the stand-alone network service provider does not own, operate or control the connected transmission system or distribution system.	
New division 2	Insert a new division heading: ***Division 2—NEL coverage determinations***	
New section 166	Include a provision allowing applications for coverage to be made. The provision should: • allow any person to apply for a NEL coverage determination; and • require the application to be made to the NCC in accordance with the NER, contain the information required by the NER and be accompanied by the fee prescribed by the Regulations (if any).	The application process is the starting point for coverage determinations. Any person may apply to the NCC for a coverage determination for a particular third-party SAPS, subject to content and form requirements in the NER and payment of the fee.
New section 167	Include a provision that, subject to the other provisions, requires the NCC on receiving an application, to deal with it in accordance with the NER.	This section and the following provisions, together with the NER, will set out the NCC's role in applications for NEL coverage determinations and the framework for making its recommendation.
New section 168	Include a provision that allows the NCC to defer consideration of an application for a NEL coverage determination where a decision under a jurisdictional competitive tender approval process is pending, or a tender process approval is in effect.	The NCC can defer consideration of a coverage application relating to a proposed SAPS which is the subject of an application for a tender process approval or for which a tender process approval has been made (and for so long as it remains in effect). Proposed new section 170 below prevents a coverage recommendation being made while a tender process approval is in force.
New section 169	Include provisions: • requiring the NCC to recommend to the relevant Minister that the stand-	The provisions set out the NCC's role in applications for NEL coverage determinations. The provisions

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	alone network be a covered stand-alone network or not be a covered stand-alone network; • requiring the recommendation to be made in accordance with the NEL and the NER, within the time specified by the NER, to contain the information required by the NER, to be given to the persons specified by the NER and to be made publicly available in accordance with the NER; • allowing the NCC to recommend an outcome different from the outcome sought in the application; and • requiring the NCC to deliver the recommendation to the relevant Minister without delay.	contemplate that the process requirements will be set out in more detail in the NER.

New section 170	Include provisions:
	• defining a ***competitively tendered stand-alone network*** as one that satisfies the following criteria:
	  • the stand-alone network is or will be constructed and operated pursuant to a competitive tender process;
	  • a tender process approval was granted in respect of the competitive tender process and has not lapsed or been revoked under the applicable jurisdictional competitive tender approval process; and
	  • the tender approval period has not expired; and
	• requiring the NCC not to make a NEL coverage recommendation for a competitively tendered stand-
		Proposed new section 168 allows the NCC to defer the consideration of a coverage application where a tender approval is being sought or has been made and has not lapsed or been revoked.
		This provision confirms that a NEL coverage recommendation (and therefore a NEL coverage determination) cannot be made in respect of a SAPS for which a tender process approval is in force (a 'competitively tendered stand-alone network').
		As part of the jurisdictional competitive tender approval process, the period of exemption from coverage under Part 12 will be determined (called the 'tender approval period') and the tender process approval will expire at the end

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	alone network; and • requiring the NCC to treat the application as having never been made.	of the period. A jurisdictional competitive tender approval process may also provide for the approval to lapse automatically without a further decision being required from the decision-maker, for example if the network is not constructed within a specified period (such as 3 years). This limits scope for gaming the approval process. The jurisdictional competitive tender approval process may also provide for the approval to be revoked by consent or on grounds set out in the jurisdictional competitive tender approval process, for example if the approval was granted on the basis of false or misleading information. Once the tender approval period has expired or the approval lapses or is revoked, the stand-alone network will cease to be a competitively tendered stand-alone network for the purposes of the NEL and so will cease to be exempt from coverage under this Part.
New section 171	Include provisions: • requiring the NCC in making a recommendation to give effect to the stand-alone network coverage criteria and in deciding whether the stand-alone network coverage criteria are satisfied to have regard to the NEO; • providing for the NCC to give effect to the stand-alone network coverage criteria as follows: • if the NCC is satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the	This provision sets out the principles the NCC must apply when making a recommendation. The NCC must: • determine if each of the stand-alone network coverage criteria are satisfied; and • in doing so, have regard to the NEO. Coverage can only be recommended if the NCC is satisfied that both coverage criteria are satisfied; and if both coverage criteria are satisfied, coverage must be recommended.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	recommendation must be in favour of the stand-alone network being a covered stand-alone network; • if the NCC is not satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the recommendation must be against the stand-alone network being a covered stand-alone network.	
New section 172	Include a provision requiring the NCC, as part of a NEL coverage recommendation, to determine whether the stand-alone network is also a cross boundary stand-alone network and if so, to determine the participating jurisdiction with which the stand-alone network is most closely connected, by applying the jurisdictional determination criteria.	For cross boundary networks, the Commission recommends the same approach as the NGL under which the NCC determines which Minister should make the determination, applying similar criteria to the NGL.
New section 173	Include provisions: • requiring the relevant Minister, on receiving a NEL coverage recommendation, to decide whether to make a NEL coverage determination; • requiring the relevant Minister to use best endeavours to make the decision within 20 business days after receiving the NEL coverage recommendation or if unable to do so, then as soon as reasonably practicable after the end of that period; • allowing the relevant Minister, for the purpose of making the decision, to request submissions or comments in relation to the application;	The provisions describe the process and timing for the relevant Minister's determination after it receives a NEL coverage recommendation. Like the NGL, the provision allows the NER to specify more detail about how the decision is made, the content of the decision, the persons to whom it must be given and how it must be published. The Minister is not obliged to follow the recommendation of the NCC.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• requiring the NEL coverage determination or a decision not to make a NEL coverage determination to be made in accordance with the NEL and the NER, contain the information required by the NER, be given to the persons specified by the NER and be made publicly available in accordance with the NER; • requiring a NEL coverage determination to specify the date the determination takes effect; and • allowing the Minister's decision to be different to the outcome sought in the application or the NEL coverage recommendation.	
New section 174	Include a provision on principles governing the making of a NEL coverage determination or decision not to do so: • The relevant Minister, in deciding whether to make a NEL coverage determination, must give effect to the stand-alone network coverage criteria. • The relevant Minister, in deciding whether the stand-alone network coverage criteria are satisfied in relation to the stand-alone network, must have regard to the NEO, the NEL coverage recommendation, and any submissions or comments the Minister receives in response to an invitation to comment. • The relevant Minister may also take into account any relevant submissions and comments made to the NCC by the public under the NER in relation to the application.	This provision sets out the principles the relevant Minister must apply when making a recommendation. The relevant Minister must: • determine if each of the stand-alone network coverage criteria are satisfied; and • in doing so, have regard to the NEO and the NCC's recommendation; and • take into account public submissions, if the Minister has requested these as part of that process. The SAPS must be covered if (and only if) the Minister is satisfied that both coverage criteria are met.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT

	• The relevant Minister is to give effect to the stand-alone network coverage criteria as follows:
	  • if the relevant Minister is satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the Minister must make a NEL coverage determination;
	  • if the relevant Minister is not satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the Minister must not make a NEL coverage determination.	

New section 175	Provide for a stand-alone network the subject of a NEL coverage determination to: • become a covered stand-alone network when the NEL coverage determination takes effect; and • continue to be a covered stand-alone network while the NEL coverage determination remains in effect.	This provision explains the effect of a coverage determination (the SAPS becomes covered, that is, regulated under the national framework as a category 1 SAPS), and allows the time during which the NEL coverage determination is in effect to be determined.
New division 3	Insert a new division heading: ***Division 3—NEL coverage revocation determinations***	
New section 176	Include a provision allowing applications for revocation of coverage to be made. The provision should: • allow any person to apply for a NEL coverage revocation determination; and • require the application to be made to the NCC in accordance with the NER, contain the information required by the NER and be	If a SAPS is covered, any party can seek to have the coverage determination revoked. The application process will be the starting point for a NEL coverage revocation determination.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	accompanied by the fee prescribed by the Regulations (if any).	
New sections 177 to 179	Include provisions: • requiring the NCC to deal with the application in accordance with the NER; • requiring the NCC to make a recommendation to the relevant Minister as to whether the covered stand-alone network the subject of the application should continue to be a covered stand-alone network; • requiring the recommendation to be made in accordance with the NEL and the NER, to be made within the time specified by the NER, to contain the information required by the NER, to be given to the persons specified by the NER and to be made publicly available in accordance with the NER; • allowing the NCC to recommend an outcome different from the outcome sought in the application; • requiring the recommendation to be delivered to the relevant Minister without delay; • requiring the NCC, in making a NEL coverage revocation recommendation, to give effect to the stand-alone network coverage criteria and in deciding whether or not the stand-alone network coverage criteria are satisfied, to have regard to the NEO; • providing for the NCC to give effect to the stand-alone network coverage criteria as follows: • if the NCC is satisfied that both stand-alone network coverage	The provisions set out the NCC's role in applications for revocation of coverage and the framework for making its recommendation.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	criteria are satisfied in relation to the stand-alone network—the recommendation must be in favour of the stand-alone network continuing to be a covered stand-alone network; • if the NCC is not satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the recommendation must be in favour of the stand-alone network no longer being a covered stand-alone network.	
New section 180	Include provisions: • requiring the Minister, on receiving a NEL coverage revocation recommendation, to decide whether to make a NEL coverage revocation determination in respect of the stand-alone network; • requiring the Minister to use best endeavours to make the decision within 20 business days after receiving the NEL coverage revocation recommendation or if unable to do so, then as soon as reasonably practicable after the end of that period; • allowing the relevant Minister, for the purpose of making the decision, to request submissions or comments in relation to the application; • requiring the NEL coverage revocation determination or a decision not to make a NEL coverage revocation determination to be made in accordance with the NEL and the NER, contain the information required by the NER,	The provisions set out the relevant Minister's role in applications for revocation of coverage.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	be given to the persons specified by the NER and be made publicly available in accordance with the NER; • requiring a NEL coverage revocation determination to specify the date the determination takes effect; and • allowing the Minister's decision to have an outcome different to the outcome sought in the application or of the NEL coverage revocation recommendation.	
New section 181	Include provisions: • requiring the relevant Minister, in deciding whether to make a NEL coverage revocation determination, to give effect to the stand-alone network coverage criteria; • requiring the relevant Minister, in deciding whether the stand-alone network coverage criteria are satisfied in relation to the stand-alone network, to have regard to the NEO, the NEL coverage revocation recommendation, and any submissions or comments the Minister receives in response to an invitation to comment; • allowing the relevant Minister to take into account any relevant submissions and comments made to the NCC by the public under the NER in relation to the application; and • providing for the relevant Minister to gives effect to the stand-alone network coverage criteria as follows: •	These provisions set out the framework for the Minister to use in deciding whether to revoke the coverage of a third-party SAPS. The Minister must revoke coverage unless satisfied that both coverage criteria are met in relation to the relevant SAPS.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• if the relevant Minister is satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the Minister must not make a NEL coverage revocation determination; • if the relevant Minister is not satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the Minister must make a NEL coverage revocation determination.	
New section 182	Provide that a stand-alone network the subject of a NEL coverage revocation determination ceases to be a covered stand-alone network when the NEL coverage revocation determination takes effect.	This provision explains the effect of a NEL coverage revocation determination (the SAPS ceases to be covered, that is, it will no longer be regulated under the national framework as a category 1 SAPS, and would instead be jurisdictionally regulated as a category 2 SAPS), and allows the time at which coverage ceases to be determined.
New division 4	Insert a new division heading: ***Division 4—General duties for provision of electricity network services by covered stand-alone networks***	
New section 183	Require that a stand-alone network service provider must not provide an electricity network service by means of a covered stand-alone network unless the stand-alone network service provider is: • a legal entity registered under the *Corporations Act* 2001 of the Commonwealth; or • a foreign company; or	This requirement also applies under the NGL to service providers for covered pipelines and supports enforcement of the coverage regime.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• a corporation established by or under a law of this jurisdiction or another participating jurisdiction, whether or not that corporation has been established for a public purpose; or • the Crown in right of this jurisdiction or another participating jurisdiction; or • a person referred to in this list, and that person provides a stand-alone network service by means of a covered stand-alone network together with another person referred to in this list.	
New division 5	Insert a new division heading: ***Division 5—Greenfields stand-alone network incentive***	This division addresses test feature 3 of the coverage test, discussed in chapter 4.
New section 184	Include a provision allowing applications for a NEL 15-year no-coverage determination to be made exempting the stand-alone network from being a covered stand-alone network. The provision should allow an application to be made by the stand-alone network service provider where a greenfields stand-alone network project is proposed or has commenced but before the stand-alone network is commissioned. The provision should require the application to be made to the NCC in accordance with the NER, include a description of the stand-alone network that meets the requirements specified by the NER, contain the information required by the NER, and be accompanied by the fee prescribed by the Regulations (if any).	A third-party SAPS proponent can apply for a 15-year exemption from coverage for new SAPS (that do not use existing grid infrastructure). The application process is the starting point for a NEL 15-year no-coverage determination.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	The provision should state that the application need not describe, or include details of, excluded infrastructure.	
New sections 185 to 188	Include provisions: • requiring the NCC to deal with the application in accordance with the NER; • requiring the NCC to make a recommendation to the relevant Minister that the stand-alone network the subject of the application be exempted from being a covered stand-alone network for a period of 15 years or not be exempted from being a covered stand-alone network for a period of 15 years; • requiring the recommendation to be made in accordance with the NEL and the NER, to be made within the time specified by the NER, to contain the information required by the NER, to be given to the persons specified by the NER and to be made publicly available in accordance with the NER; • allowing the NCC to recommend an outcome different from the outcome sought in the application; • requiring the recommendation to be delivered to the relevant Minister without delay; • requiring the NCC, in making a NEL no-coverage recommendation, to give effect to the stand-alone network coverage criteria and in deciding whether the stand-alone network coverage criteria are satisfied to have regard to the NEO;	The provisions set out the NCC's role in applications for NEL 15-year no-coverage determinations and the framework for making its recommendation. The provisions require the NCC to determine who is the relevant Minister (for cross-boundary SAPS) as part of the process.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT

	• providing for the NCC to give effect to the stand-alone network coverage criteria as follows:
	  • if the NCC is satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network – the recommendation must be against making a NEL 15-year no-coverage determination;
	  • if the NCC is not satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the recommendation must be in favour of making a 15 year no-coverage determination; and
	• requiring the NCC, as part of a NEL coverage recommendation, to determine whether the stand-alone network is also a cross boundary stand-alone network and if so, to determine the participating jurisdiction with which the stand-alone network is most closely connected, by applying the jurisdictional determination criteria.	

New section 189	Include provisions: • requiring the relevant Minister, on receiving a NEL no-coverage recommendation, to decide whether to make a NEL 15-year no-coverage determination in respect of the stand-alone network; • requiring the relevant Minister to use best endeavours to make the decision within 30 business days after receiving the NEL no-coverage recommendation or if unable to do so, as soon as reasonably	The provisions set out the relevant Minister's role in applications for NEL 15-year no—coverage determinations.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	practicable after the end of that period; • allowing the relevant Minister, for the purpose of making the decision, to request submissions or comments in relation to an application; • requiring the NEL 15-year no-coverage determination or a decision not to make a NEL 15-year no-coverage determination to be made in accordance with the NEL and the NER, contain the information required by the NER, be given to the persons specified by the NER and be made publicly available in accordance with the NER; and • allowing the Minister's decision to be different to the outcome sought in the application or the NEL no-coverage recommendation.	
New section 190	Include provisions: • requiring the relevant Minister, in deciding whether to make a NEL 15-year no-coverage determination, to give effect to the stand-alone network coverage criteria; • requiring the relevant Minister, in deciding whether the stand-alone network coverage criteria are satisfied in relation to the stand-alone network, to have regard to the NEO, the NEL no-coverage recommendation and any submissions or comments the Minister receives in response to an invitation to comment, and allowing the Minister to take into account any relevant submissions and comments made to the NCC by the	The provisions set out the framework for deciding whether to make a NEL 15-year no-coverage determination. The Minister must not make the no-coverage determination if both coverage criteria are satisfied.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT

	public under the NER in relation to the application; and
	• providing for the relevant Minister to give effect to the stand-alone network coverage criteria as follows:
	  • if the Minister is satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the Minister must not make a NEL 15-year no-coverage determination;
	  • if the Minister is not satisfied that both stand-alone network coverage criteria are satisfied in relation to the stand-alone network—the Minister must make a NEL 15-year no-coverage determination.	

New section 191(1)	Provide for a NEL 15-year no-coverage determination to take effect on and from the date specified in the determination and to continue in operation for a period of 15 years from the commissioning of the stand-alone network.	The provision allows the end of the 15-year no-coverage period to be determined.
New section 191(2)	Provide that an application for coverage of a stand-alone network to which a NEL 15-year no-coverage determination applies can be made before the end of the period for which the determination remains in operation only if the coverage sought in the application is to commence from, or after, the end of that period.	The provision allows a coverage application to be made before the end of the 15-year no-coverage period but only for coverage after the end of the period. The effect of the no-coverage determination is that the relevant SAPS cannot become a category 1 SAPS (regulated under the national framework) until after the 15-year period has expired.
New division 6	Insert a new Division heading: ***Division 6—Extended or modified application of NEL 15-year no-coverage determination***	

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
New sections 192 and 193	Provide that: • a NEL 15-year no-coverage determination applies to the stand-alone network as described in the description of the stand-alone network included in the application under section 184; • if the stand-alone network, as constructed, materially differs from the description, the NEL 15-year no-coverage determination does not attach to the stand-alone network and the stand-alone network service provider is not entitled to its benefit; • in determining whether a stand-alone network, as constructed, materially differs from the description, excluded infrastructure is not to be taken into account; • the relevant Minister may, on application by the stand-alone network service provider for a stand-alone network for which a NEL 15-year no-coverage determination has been made, amend the relevant stand-alone network description, but only if the amendment is made before the stand-alone network has been commissioned; • the relevant Minister may refer an application for amendment to a stand-alone network description to the NCC for advice; • if the amendment sought involves a substantial change to the stand-alone network description as it currently exists the relevant Minister must refer the application to the NCC for advice;	This provision limits the scope for gaming the 15-year no-coverage application process by requiring the facilities as constructed to be materially the same as those for which the no-coverage determination was sought, except as agreed by the relevant Minister applying the process in the provision.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• in giving its advice to the relevant Minister, the NCC must have regard to the criteria that were relevant to the grant of the NEL 15-year no-coverage determination; • in deciding whether to make the amendment sought, the relevant Minister must have regard to the criteria that were relevant to the grant of the NEL 15-year no-coverage determination, and if the application has been referred to the NCC for advice must consider the NCC's advice.	
New division 7	Insert a new division heading: ***Division 7—Early termination of a NEL 15-year no-coverage determination***	
New section 194	Provide that a NEL 15-year no-coverage determination lapses if the stand-alone network for which it was granted is not commissioned within 3 years after the incentive was granted, or such longer period as may be specified in the NEL 15-year no-coverage determination.	This provision limits the scope for gaming the 15-year no-coverage application process by setting a long-stop date for commissioning of the new facilities. The NGL requires any extension of the 3-year period to be set out in regulations. The Commission recommends allowing an extension to be included as part of the determination.
New sections 195 and 196	Provide for the relevant Minister to revoke a NEL 15-year no-coverage determination: • at the request of the stand-alone network service provider; • on application by the AER, on the ground that the applicant misrepresented a material fact on the basis of which the application was granted or the applicant failed to disclose material information that	This provision sets out the circumstances in which the Minister may revoke a NEL 15-year no-coverage determination.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	the applicant was required to disclose under this Part.	
New section 197	Provide that a NEL 15-year no-coverage determination does not terminate, and cannot be revoked, before the end of its term except as provided in the new Part.	This provision enhances certainty that a NEL 15-year no-coverage determination can only be revoked in very limited circumstances.
New division 8	Insert a new division heading: ***Division 8—Disclosure of confidential information held by relevant Ministers ad the NCC***	
New sections 198 and 199	Include provisions dealing with the confidentiality of information provided to the Minister or the NCC as part of the process under the new Part as follows: • the information is confidential information for the purposes of that procedure if the person who provides it claims, when providing it to the relevant decision maker, that it is confidential information and the relevant decision maker decides that the information is confidential information; • allowing the decision maker to disclose the confidential information in its decision under the new Part or to the other decision maker or the MCE, but requiring the decision maker to ensure that the information is identified as confidential when disclosed; and • providing that where information is omitted from a published version of a scheme decision as being confidential information, a note to that effect must be included in the decision at the place in the decision from which the information is omitted.	The provisions are based on the arrangements in the NGL for dealing with confidential information provided in an application under the coverage provisions.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
Schedule 1, item 7	Amend item 7 of Schedule 1 to refer to prices relating to electricity supplied through covered stand-alone networks.	This change clarifies that the wholesale exchange mechanisms in the NER may set prices relating to covered stand-alone networks. Different price setting mechanisms may be used for supply through covered stand-alone networks and supply through the interconnected system. The Commission has recommended a similar change for regulated stand-alone power systems.
Schedule 1, new items 24A to 24F	In Schedule 1, include the following matters as items 24A to 24F, to be preceded by a new heading 'Coverage of stand-alone networks': • The content of NEL coverage recommendations, NEL coverage revocation recommendations and NEL 15-year no-coverage determinations. • The content of decisions about NEL coverage determinations, NEL coverage revocation determinations and NEL 15-year no-coverage determinations. • Procedures to be followed by the NCC or a relevant Minister in dealing with an application for a NEL coverage determination, NEL coverage revocation determination or NEL 15-year no-coverage determinations. • The publication and the giving of NCC recommendations or decisions or Ministerial coverage decisions. • The establishment and maintenance of a register of all previous and current— •	These new heads of power allow rules to be made to support the operation of the coverage provisions.

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• NEL coverage determinations; and • NEL coverage revocation determinations; and • NEL 15-year no-coverage determinations; and • decisions under proposed section 173 not to make a coverage determination; and • decisions under proposed section 180 not to make a coverage revocation determination; and • decisions under proposed section 189 not to make a NEL 15-year no-coverage determination; and • tender process approvals; and • covered stand-alone networks; and • Time periods within which the NCC must make an NCC recommendation or decision and extensions to those periods.	
Schedule 1, new item 34D	Amend Schedule 1 to include the following as new item 34D: • The activities of persons including regulated distribution system operators in relation to network conversion projects.	This new head of power allows rules to be made relating to network conversion projects. Although it is expected that customer protections will for the most part be included in the NERL/NERR framework, other matters may be more appropriately dealt with in the NER.
Schedule 1, new item 34E	Amend Schedule 1 to include the following as new item 34E: • The activities of a regulated distribution system operator in relation to a stand-alone network that is not a covered stand-alone network and customers of those networks including—	This new head of power allows rules to be made relating to the appointment of a regulated distribution system operator as an operator of last resort for a category 2 SAPS. The Commission recommends that jurisdictions determine operator of last resort arrangements but

SECTION	PROPOSED NEL AMENDMENT	PURPOSE OF AMENDMENT
	• a regulated distribution system operator's appointment under or in accordance with jurisdictional electricity legislation as the operator of last resort for a stand-alone network; • the provision of connection services to retail customers in the covered stand-alone network (including obligations not to provide those services).	anticipates that rules may be needed to remove barriers to operation of those arrangements and to prevent cross-subsidies between the customers of the regulated network and the stand-alone network.

A.3 Proposed changes to the NERL

- The changes to the NERL are intended to result in customers in category 1 third party-SAPS enjoying the same customer protections under NECF as customers in regulated distribution systems forming part of the interconnected national electricity system. The changes are also intended to protect customers in a part of a regulated distribution system that is proposed to be converted to a third-party SAPS of any category.
- The proposed changes to the NERL assume that the application legislation of the participating jurisdictions will be amended to extend the application of the NECF to customers who are connected to the national electricity system within the meaning of the NEL (as amended in the manner proposed in the table above), and not limited to customers who are connected to the interconnected national electricity system.
- The stand-alone networks regulated under the NERL and NERR will be the same as those regulated under the NEL and NER since the proposed amendments to the NEL are intended to result in the operator of a covered stand-alone network (ie a category 1 SAPS) becoming a regulated distribution system operator for the purposes of both the NEL and the NERL. That is:
  - the operator will be a registered participant under the NER and will be subject to a distribution determination and so will also be a distributor within the meaning of the NERL; and
  - the covered stand-alone network will be a distribution system under the NERL.
- The inclusion of covered stand-alone networks as distribution systems in the NERL will automatically bring covered stand-alone networks within the scope of other key terms, such as 'connection'.
- While the term 'supply service' is not defined in the NERL, it is envisaged that it would include services provided by means of distribution systems, including covered stand-alone

networks. Thus supply via a covered stand-alone network would constitute a customer connection service.

- The retailer authorisation requirements are currently drafted broadly in the NERL. Authorisation is required if an entity sells energy to a person for premises (unless the entity is exempt). This would include premises served by a covered stand-alone network. Thus, no changes to these provisions are needed to ensure that entities selling electricity to customers in covered stand-alone networks are required to be authorised (provided the changes to jurisdictional application Acts are made as noted above).
- To allow for the possibility that, in future, retail tariffs for covered stand-alone networks may be developed that are not based on a per-kWh sale of electricity, the 'sale of energy' to covered stand-alone network customers should be deemed to include the provision of electricity even if there is no charge for the electricity consumed. This will avoid any doubt as to whether NECF protections apply to customers connected to covered stand-alone networks in these circumstances.
- The operation of the retailer authorisation provisions and the inclusion of covered stand-alone networks as a distribution system will extend the consumer protections of the NECF to customers of covered stand-alone networks. Covered stand-alone network customers, and service providers to covered stand-alone network customers, will be treated in the same way as other customers and their service providers.
- The governance architecture of the NECF, including the functions of the AER, AEMO and the AEMC, will also extend to covered stand-alone networks.
- The NERL and the NERR will also contain new consumer protections applicable where it is proposed to create a stand-alone network (of any category) by using a part of a distribution system of a regulated distribution system operator that has been separated from the interconnected national electricity system.
- The initial package of NERR amendments relating to covered stand-alone networks and network conversion projects may be made by the South Australian Minister, pursuant to a new proposed Ministerial rule making provision. Any further rules relating to covered stand-alone networks may be made by the Commission pursuant to its rule-making powers under existing sections 237 and 239 and proposed new provisions allowing rules to be made in respect of covered stand-alone networks and network conversion projects.
- To provide flexibility to ensure that the detailed provisions in the NERL will apply appropriately to covered stand-alone networks, the rule-making power (for both Minister-made and AEMC rules) will include the ability to make rules that vary the application of provisions of the NERL to covered stand-alone networks.

These proposed changes and related or consequential changes are set out in the table below, in the order in which those changes would appear in the NERL.

Table A.2: **Proposed changes to National Energy Retail Law**

SECTION	PROPOSED NERL AMENDMENT	PURPOSE OF AMENDMENT
Section 2(1)	Insert a definition of ***covered stand-alone network*** to have the same meaning as in the NEL.	The definition will apply to stand-alone networks that are the subject of current coverage determinations and so are subject to regulation under the national regime (category 1 SAPS).
Section 2(1)	Insert a definition of ***covered stand-alone network customer*** to mean a person: • to whom energy is sold for covered stand-alone network premises; or • who proposes to purchase energy for covered stand-alone network premises.	The new term is used in proposed new sections 7B and 238AB (see below) and is modelled on the definition of 'customer' in section 5(1). The Commission recommended a similar definition ('SAPS customer') for the DNSP-led SAPS amendments. That definition included a third limb to deal with the transition to a DNSP SAPS. That limb is not required for covered stand-alone networks.
Section 2(1)	Insert a definition of ***covered stand-alone network premises*** to mean premises connected to a covered stand-alone network.	The new term is used in the definition of 'covered stand-alone network customer' above and proposed new section 7B below.
Section 2(1)	Insert a cross-reference to the definition of ***network conversion project*** in section 203A.	It is proposed to define this term in new Part 7A. A cross reference should be included in section 2(1) as the term is also used in section 2A of the NEL.
Section 2(1)	Insert a cross-reference to the definition of ***project proponent*** in section 203A.	It is proposed to define this term in new Part 7A. A cross reference should be included in section 2(1) as the term is also used in section 2A of the NEL.
Section 2(1)	Insert a definition of ***stand-alone network*** to have the same meaning as in the NEL.	Although stand-alone networks that are not covered are not regulated under the national regime, the term is used in the context of the provisions dealing with network conversion projects and the appointment of distributors as operators of last resort for category 2 third-party SAPS.
New section 7B	Insert a new subsection that provides that the NERL, the National Regulations and the NERR apply in respect of	This proposed provision is intended primarily to clarify the position of category 1 SAPS customers and SAPS

SECTION	PROPOSED NERL AMENDMENT	PURPOSE OF AMENDMENT
	covered stand-alone network customers in the same way as those instruments apply to other customers.	service providers under the NERL and NERR, rather than being an operative provision in its own right. It is proposed to be section 7B as the Commission has recommended a new section 7A for regulated SAPS.
New section 7B	Insert a new subsection that provides that: • references in the NERL and the National Regulations to the sale of energy, or the activity of selling energy, to persons for premises include a reference to the sale or other arrangement for the provision of electricity to a person at covered stand-alone network premises even if there is no charge for the electricity consumed; and • references in the NERL and the National Regulations to the purchase of energy by persons for premises include a reference to the purchase of services for the provision of electricity at covered stand-alone network premises even if there is no charge for the electricity consumed.	In several key provisions the scope of the NERL is defined by reference to the activity of selling energy to persons for premises, or the activity of purchasing energy, including section 5 (definition of 'customer') and section 88 (requirement for retailers to be authorised). While the recommended supply model for covered stand-alone networks provides for customers to have access to authorised retailers and their retail tariffs, the model does not prevent specific retail tariffs being developed and offered to covered stand-alone networks customers in future. As in the case of DNSP SAPS, it is possible such tariffs may be based on charges other than a per-kWh charge for electricity. To avoid the risk that stand-alone network customers on such tariffs are removed from the scope of the NERL and NERR, this proposed provision extends the meaning of sale and purchase of energy to the provision of electricity to a person at stand-alone network premises even if there is no consumption-based charge for the electricity the customer uses.
New section 7B	Insert a new subsection that allows the NERR to make provision for or with respect to the provision of energy services to covered stand-alone	This provision is intended to allow rules to be made in the NERR (initially by the South Australian Minister and later by the AEMC) regarding the full

SECTION	PROPOSED NERL AMENDMENT	PURPOSE OF AMENDMENT
	network customers, including the manner in which provisions of the NERL and the National Regulations apply to covered stand-alone network customers or persons providing energy services to covered stand-alone network customers.	range of issues that may arise in relation to stand-alone network customers and the energy services provided to them. The term 'energy services' is not defined in the NERL but is also used in the national energy retail objective (section 13) and in the section on the subject matters of the NERR (section 237(1)(a)(i)). It includes customer retail services and customer connection services. The proposed new section allows for rules to modify the way in which provisions of the NERL and National Regulations apply to stand-alone network customers and their service providers. The recommended supply model provides for a high degree of consistency between the regulation of stand-alone network customers and other customers. However, given the level of detail contained in the NERL it may become apparent at a later stage that minor modifications to certain provisions of the NERL are required to ensure those provisions apply appropriately to stand-alone network customers.
New Part heading	Add a new Part heading: ***Part 7A—conversion of part of a distribution system to a stand-alone network***	The NERR will set out consumer protections applicable where it is proposed to create a stand-alone network (of any category) through conversion of part of a regulated distribution system. This new Part 7A will provide the legislative basis for the rules.
New section 203A	Insert a definition of ***network conversion project*** to mean a project to establish a stand-alone network that will comprise or include a separated part of a distribution system of a	Customer protections will be included in the NERR for customers that will cease to be connected to a regulated network due to their part of the network being converted to a third-

SECTION	PROPOSED NERL AMENDMENT	PURPOSE OF AMENDMENT
	distributor including a part that is or was a regulated stand-alone power system.	party SAPS. Conversion could occur either due to the sale of a regulated SAPS (a DNSP SAPS) to a third party, or the separation of a part of the interconnected network to create a new third-party SAPS.
New section 203A	Insert a definition of ***network conversion project activity*** to mean an activity that is carried on to promote, develop or implement a network conversion project or proposed network conversion project.	This definition is used to identify activities for which rules may be made and in the definition of 'project proponent' below.
New section 203A	Insert a definition of ***network conversion service*** to mean any or all of the following in relation to a network conversion project or proposed network conversion project— • a service relating to the separation of a part of a distribution system of a distributor; • a service relating to the sale of a part of a distribution system of a distributor; • a service prescribed by the NERR as a network conversion service for the purposes of this definition.	A network conversion project will require the network service provider to be involved, for example to provide information and (if the conversion is agreed) to undertake works. This definition frames the network service provider's role as a service, consistent with the approach to connections and the other regulated activities. This approach also allows for service classification under the NER. The first limb covers projects for newly created stand-alone networks and the second, the sale of a regulated SAPS. The third limb allows provisions in the NERR to identify other activities as network conversion services, provided that they relate to a network conversion project or proposed network conversion project.
New section 203A	Insert a definition of ***project proponent*** to mean a person who: • carries out a network conversion project activity; or • requests or is provided with a network conversion service.	This definition is used in Part 7A to identify those who must comply with rules about carrying out network conversion projects – refer to proposed new section 203D below. The definition covers persons promoting the project and persons provided with a network conversion

SECTION	PROPOSED NERL AMENDMENT	PURPOSE OF AMENDMENT
		service, even if not the project promotor.
New section 203A	Insert a definition of ***separate*** to mean, in relation to a part of a distribution system of a distributor, to separate the part from the interconnected national electricity system on a permanent basis (including through the removal of facilities) so that no electricity can flow between the interconnected national electricity system and the separated part.	This definition is used to cover the permanent disconnection of a part of a network. The term 'separate' has been used as 'disconnection' is already defined in the NERL in relation to premises and may occur only on a temporary basis.
New section 203B	Insert a new section that requires a distributor, subject to and in accordance with the energy laws, to provide network conversion services in relation to the distributor's distribution system to a person who requests the network conversion services.	This provision is intended to provide a basis for provisions in the NERR that require a distributor to cooperate with a network conversion project. It is also intended to allow the NERR to specify circumstances in which a distributor may refuse to provide the services – for example if it does not agree to the sale, or customers have already refused consent to the conversion project.
New section 203C	Insert a new section that requires a distributor not to separate any part of its distribution system for a network conversion project except as required or permitted under energy laws.	This provision is intended to provide support for provisions in the NERR that will require consent from customers before a network conversion project may proceed. It is intended the project proponent will have the obligation to obtain consent. This provision will support the operation of any provisions in the NERR intended to test compliance with consent requirements by or on behalf of the AER before the network service provider commences separation works.
New section 203D	Insert a new section that requires a project proponent to comply with the obligations of a project proponent under the NERR.	Customer protections will be included in the NERR and will apply to project proponents. A project proponent who breaches its obligations under those

SECTION	PROPOSED NERL AMENDMENT	PURPOSE OF AMENDMENT
		rules should also be in breach of the NERL. While the Commission has not recommended that this section be classified as a civil penalty provision, rules made for this Part may be so classified.

New section 203E	Insert a new section that allows rules to be made for or with respect to regulating the activities of persons involved in network conversion projects.
	
	The new section should specify that these may include rules:
	• for or with respect to—
	  • network conversion project activities;
	  • network conversion services;
	  • registration of network conversion projects and project proponents;
	  • requirements for customer consent to a network conversion project;
	• conferring functions and powers on the AER in relation to network conversion projects.
		This provision is intended to allow rules to be made in the NERR (initially by the South Australian Minister and later by the AEMC) regarding the full range of issues that may arise in relation to network conversion projects. These may include rules conferring functions on the AER such as registration of projects or the grant of consent to the commencement of separation works.

New section 238AB	Insert a new section with the heading ***South Australian Minister to make initial rules related to stand-alone networks***	To allow the changes to the NERR to be developed in parallel with the changes to the NERL, one option is for the package of NERR changes to be made by the South Australian Minister. To allow for this approach, a new provision giving the Minister the power to make rules for this purpose is proposed, similar to existing section 238A. The section is proposed to be numbered section 238AB as the

SECTION	PROPOSED NERL AMENDMENT	PURPOSE OF AMENDMENT
		Commission has recommended a new section 238AA for the initial rules for distributor-led SAPS.

New section 238AB	Insert a new section under which the South Australian Minister may make rules:
	• for or with respect to covered stand-alone networks including:
	  • energy services provided by means of, or in connection with, a covered stand-alone network; and
	  • the activities of persons providing energy services by means of, or in connection with, a covered stand-alone network;
	• for or with respect to regulating the activities of persons involved in network conversion projects including the matters referred to in section 203E;
	• for or with respect to any other subject contemplated by, or consequential on, the stand-alone network amendments; and
	• that revoke or amend a rule as a consequence of the enactment of the stand-alone network amendments.
		The power for the Minister to make rules in connection with covered stand-alone networks is intended to be broad and to cover all aspects associated with:
		• covered stand-alone network customers and service providers to those customers; and
		• network conversion projects
		The power is intended to include rules related to or consequential on the amendments to the NEL and NERL outlined in this appendix, and changes to existing rules resulting from these amendments.

B SCALE AND ARRANGEMENTS FOR CURRENT THIRD-PARTY SAPS

This appendix provides an overview of some third-party stand-alone power systems currently regulated under jurisdictional frameworks. The overview is not comprehensive, but is provided to illustrate some current examples of third-party stand-alone power systems across Australia.

Jurisdictional governments would decide whether to apply any recommendations from this review for new third-party SAPS to existing microgrids within their jurisdictions.[114]

To help inform the Commission's analysis of issues relevant to priority 2, Renew (previously Alternative Technology Association) assisted the AEMC in surveying its members on their experiences with off-grid supply. The survey respondents primarily reside in rural Victoria. Box 4 summarises the main survey outcomes.

BOX 4: SURVEY OF OFF-GRID CUSTOMERS

Renew (previously Alternative Technology Association) assisted the AEMC in surveying its members in relation to their experiences in off-grid electricity supply. The AEMC has treated the results of this survey as illustrative rather than comprehensive or conclusive, due to the sample and methodology limitations.

Of of 130 survey participants, 57 have disconnected from the national grid, generally for cheaper and more sustainable energy. Survey respondents cited the following objectives as driving their decision to disconnecting from the grid:

- cost savings
- self-sufficiency
- environmental reasons and emission reduction
- reliability of power supply.

These participants established their own individual power systems, and report them being easy to look after and offering good reliability.

The participants, however, raised the following issues and propositions:

- Off-grid systems should be tailored to the users and must be designed to manage winter shortages and summer excesses
- Information on system efficiencies and cost comparators are not readily available
- Upfront costs are large and mostly cannot be offset or covered by rebates
- Technical information is fragmented and incomplete, and there is no centralised register of suppliers and maintenance service providers

114 Terms of Reference, *Review of the regulatory frameworks for stand-alone power systems*, p. 6.

- Enabling power-sharing between neighbours would be useful to manage system shortages and excesses.

Source: AEMC and Renew.

B.1 New South Wales

In New South Wales, the Commission is aware of one microgrid that is regulated under site-specific legislation: Lord Howe Island.[115]

Lord Howe Island is a small remote island in the Tasman Sea around 600km east of Port Macquarie. The permanent population at the time of the 2016 census was 382 with up to an additional 400 tourists at any one time.[116]

The island's electricity generation and transmission system is operated by the Lord Howe Island Board (LHIB), servicing 275 customers. The generation system consists of three 300kW diesel generators and one backup 425kW generator.[117] There are two inclining block tariff structures, for domestic and commercial customers, with the rates set annually by the LHIB.

The LHIB is required to have Electricity Network Safety Management System under the *Electricity Supply (Safety & Network Management) Regulation 2014 (NSW)*. In addition, all electrical installations on the island must comply with *Lord Howe Island Electrical Service Rules*, which regulate electrical installations and connections, and *AS/NZS 3000:2007 Electrical Wiring Rules*.

B.2 Northern Territory

In the Northern Territory, Indigenous Essential Services Pty Ltd, a subsidiary of Power and Water Corporation (PWC), performs the installation, operation and management of remote electricity supply to parties outside of the Darwin-Katherine network, Alice Springs and Tennant Creek networks. This organisation operates numerous remote community microgrids (diesel and solar hybrid based generation and distribution) under PWC's network, retail, generation and system control licenses issued by the Utilities Commission of the Northern Territory.

Other parties operating microgrids can also apply to the Utilities Commission of the Northern Territory for an isolated system license, or an exemption. Currently, one microgrid operator holds an isolated system license and another one has been granted an exemption. Both operators serve mining operations and associated towns.

115 Lord Howe Island Service Rules, 2011.
116 2016 Census QuickStats Code SSC12387.
117 Lord Howe Island Board, https://www.lhib.nsw.gov.au/infrastructure/electricity

B.3 Queensland

Among the NEM jurisdictions, Queensland is unique in that it applies the NECF and certain parts of the NER to SAPS. In addition, under Queensland law entities providing distribution services are required to obtain either a distribution authority, which may have conditions attached to it, or a special approval to provide such services without a distribution authority. Customers of SAPS operated under special approvals (for example, by resources companies and island resort operators) are less protected than customers of SAPS with distribution authorities.

Ergon Energy owns and operates 33 isolated and remote power stations that are not part of the interconnected grid in Western Queensland, the Gulf of Carpentaria, Cape York, Torres Strait Islands, and Palm and Mornington Islands. Ergon Energy also operates the Mount Isa-Cloncurry microgrid that supplies approximately 10,000 customers. These systems do not constitute third-party SAPS for the purposes of this review.

As an example of the regulation of a third-party SAPS, the AER has approved a selling exemption for RTA Weipa to operate a microgrid in a far-north settlement.[118] Box 2 describes this project.

BOX 5: WEIPA MICROGRID

RTA Weipa Pty Ltd (RTAW) holds a mining license, and to fulfil one of its license conditions, owns power stations and a distribution network that constitute the sole power supply source for residents and businesses in the far north off-grid Queensland settlement of Weipa. Weipa is a mining town on the Gulf of Carpentaria with a population of 3,905 as at 2016.

Since Queensland applies the NERL to third-party microgrids, RTAW sought from the AER and has obtained a selling exemption. The following are the main features of RTAW's selling exemption:

- Obligation to supply does not apply to new large customers, or current large customers that significantly alter their annual load, due to RTAW's concerns over generation capacity.
- RTAW is permitted to charge small customers prices that are higher than the standing offer due to the lack of a comparable local area retailer.
- RTAW is not required to base a bill on a meter read, as RTAW faces difficulties in accessing customer premises.

Source: AER submission to EMTPT consultation on regulatory implications of stand-alone energy systems in the electricity market, 4 October 2016; AER, RTA Weipa Pty Ltd - notice of instrument - individual exemption, 2 June 2016; ABS 2016 Census.

118 AER submission to EMTPT consultation on regulatory implications of stand-alone energy systems in the electricity market, 4 October 2016; and RTA Weipa Pty Ltd - notice of instrument-individual exemption, 2 June 2016, available on the AER website.

B.4 South Australia

With the most centralised population in the NEM, South Australia provides an informative case study of the potential for third-party SAPS as the Australian population becomes more centralised in the future.[119]

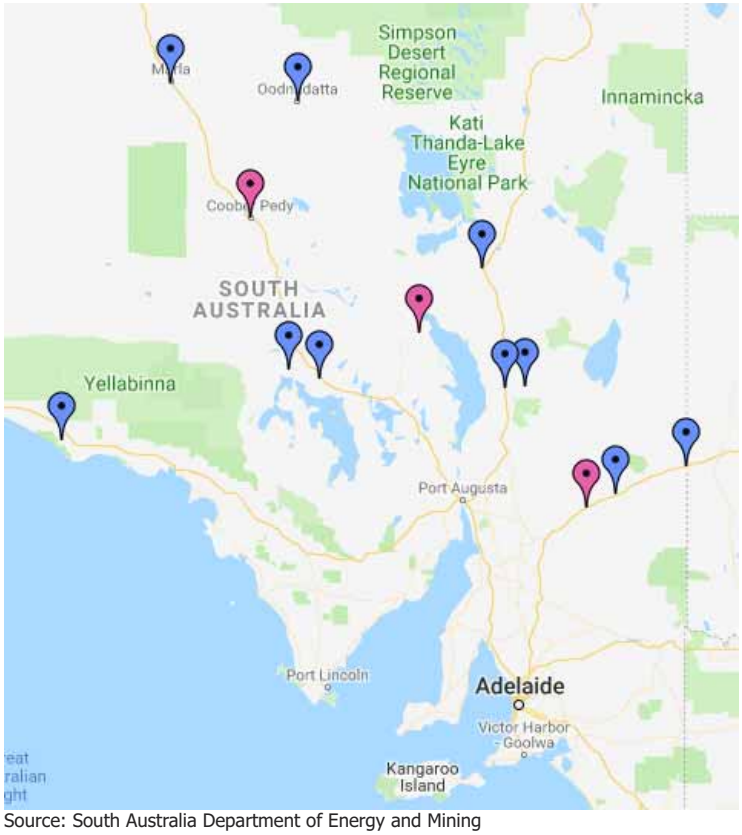
In South Australia, the Essential Services Commission (ESCOSA) regulates off-grid electricity networks under the Remote Area Energy Supply (RAES) scheme that is run by the South Australian government and includes the RAES State/Independent scheme and the RAES Aboriginal Communities scheme. The RAES scheme is regulated under comprehensive jurisdictional license conditions enforced by ESCOSA, in addition to contract conditions with the providers running the RAES on behalf of the South Australian Government. License conditions include consumer protection obligations, safety, technical and reliability standards, compliance and reporting obligations. Other SAPS in South Australia which are not part of the RAES schemes are regulated under license conditions.

The RAES State/Independent scheme covers around 2,400 customers in 13 towns and supplies more than 15 GWh of electricity annually.[120] The South Australian government supplies the electricity infrastructure for 10 of the towns. The remaining three towns, Andamooka, Coober Pedy and Yunta, are supplied by independent electricity providers, displayed as the pink icons in Figure B.1.

119 Over 77 per cent of South Australia's population (around 1.7 million people) live in metropolitan Adelaide. Australian Bureau of Statistics, Australian Demographic Statistics, March 2018.

120 Department for Energy and Mining, http://www.energymining.sa.gov.au/energy_and_technical_regulation/energy_resources_and_supply/south_australias_energy_supply_and_market/remote_area_energy_supply. Accessed 21/9/2019.

Figure B.1: RAES State/Independent scheme locations



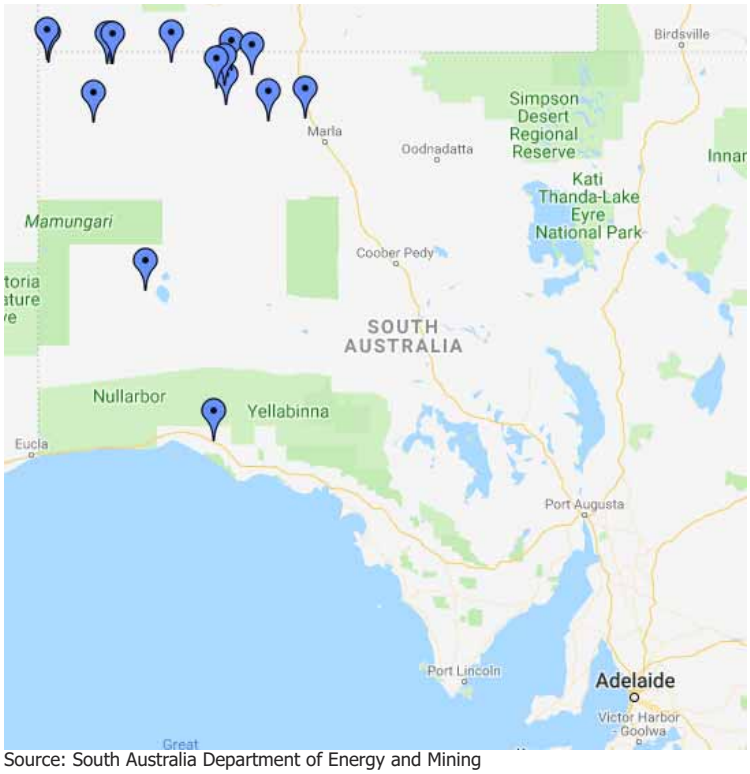
Source: South Australia Department of Energy and Mining

Note: The blue icons denote RAES schemes owned by the SA Government. Pink icons are settlements supplied by independent third parties.

Under the RAES Aboriginal Communities scheme, a further 1,000 off-grid customers are supplied with 14 GWh of electricity annually. The scheme is currently operated by Cowell Electric Supply and covers the areas shown in Figure B.2.[121]

121 ESCOSA Off-grid networks performance report 2016-17.

Figure B.2: RAES scheme locations



Source: South Australia Department of Energy and Mining
Note: The blue icons denote RAES Aboriginal Communities scheme locations operated by Cowell Electricity Supply

The experience of the RAES scheme in South Australia provides an example of remote and sparsely populated communities that may be serviced by third-party SAPS.

B.5 Victoria

In Victoria, the Retail Code applies protections similar to many of those in the NECF to customers of retailers.[122] A licence is required for the supply or sale of electricity, among other activities, and exemptions from the licence requirement would not be available to SAPS retailers.[123] There do not appear to be any restrictions limiting the protections in the Retail Code to NEM-connected customers, so SAPS customers should also receive the benefit of these protections if they are supplied by an authorised retailer.

The Distribution Code contains additional customer protection provisions that would apply to microgrid customers, including:[124]

122 For example, there are provisions on customer retail contracts, customer hardship, disconnection of premises, and life support equipment: Energy Retail Code Parts 2, 3, 6 and 7.

123 Electricity Industry Act 2000 (Vic), s. 16. General Exemption Order 2017, Victoria Government Gazette N. S 390, 15 November 2017, ss. 4-5.

124 Electricity Distribution Code cl 9-13. It is unclear whether these provisions would also apply to IPS customers.

- restrictions on disconnection and requirements regarding reconnection
- provision of information to customers, including on reliability standards and customers' rights
- requirements regarding complaint handling and dispute resolution.

Mt Stirling (a ski resort) is an known example of a microgrid in Victoria.

B.6 Tasmania

In Tasmania, the regulation of electricity generation, distribution and sale to customers in the Bass Strait Islands (principally under the Electricity Supply Industry Act and the Tasmanian Electricity Code) provides an example of a relatively complete regulatory regime for an existing microgrid. These provisions are specific to the Bass Strait Islands.

Hydro Tasmania operates the microgrids on King and Flinders Islands (the Bass Strait Islands) supplying around 2,500 people. In addition to regulation under the Electricity Code, all tariffs, charges and conditions relating to retailing on these islands are subject to approval by the Tasmanian Economic Regulator.

The King Island system is the larger of the two systems supplying around 12 GWh annually with a system comprised of around 3 MW of combined wind and solar generation, a 3 MW/1.5 MWh battery and a diesel generator.[125]

The Flinders Island microgrid is smaller, meeting an annual consumption of 6.7 GWh through diesel generation, a 900 kW wind turbine, a 200 kW solar array and a 750 kW/300 kWh battery.[126]

Customers of any new SAPS in Tasmania would receive the benefit of the electrical safety requirements which have broad application, and would also be protected by the general provisions of the Supply Act and the Code that apply to licensed electricity entities if the SAPS services are provided by licensed electricity entities. The NECF does not apply to Tasmanian SAPS. Customers of new SAPS would not be covered by the customer billing provisions and reliability standards that are set for the Bass Strait Islands power system.

Box 3 discusses research in Tasmania around customers that may have chosen to move off-grid due to battery storage performance, feasibility of household scale electricity generation, relatively higher costs of mains generation or environmental and social considerations.

BOX 6: INDIVIDUAL POWER SYSTEMS IN TASMANIA

The University of Tasmania has undertaken research into the experiences of off-grid customers in Tasmania.

The key findings were as follows:

125 Hydro Tasmania KIREIP, https://www.hydro.com.au/clean-energy/hybrid-energy-solutions/success-stories/king-island
126 Hyrdo Tasmania FIREIP, https://www.hydro.com.au/clean-energy/hybrid-energy-solutions/success-stories/flinders-island

- Data on how many households are already off-grid in Tasmania is not currently being collected. Estimates of off-grid households range from 200 to 10,000, which indicates uncertainty.
- There has been a shift over time in the motivations for households to leave the electricity grid. For households that have recently moved off-grid, financial considerations have been an important factor in their decision. In contrast, households who have been off-grid for longer were more likely to mention environmental concerns or personal values.
- The decision to go off-grid has mostly been taken on an individual household basis, facilitated by key organisations such as specialist battery and renewable energy installers.
- Living off-grid has given rise to heightened awareness of energy use. Households typically demonstrated a high degree of flexibility in their routine, for example only doing certain tasks such as vacuuming and ironing when the sun was shining and their PV panels were generating electricity.

Source: Associate Professor Heather Lovell, School of Social Sciences, University of Tasmania, Hobart; Australian Research Council Future Fellow (2015-2018); November 2015.

C ACCESS AND CONNECTIONS

RECOMMENDATION 3: ACCESS AND CONNECTIONS

The Commission has been guided by the overarching principle that service providers should be obligated to connect and supply customers within a defined boundary area, other than for very small SAPS where this may be too onerous or disproportionate. In addition, if the SAPS is large enough to support competition, service providers should be obligated to provide access to services in order to facilitate competitive markets. The Commission considers that the below recommendations will facilitate competition and consumer choice, in a proportionate manner.

The recommended access and connections framework for each category of third-party SAPS is:

Category 1

A "coverage test" will be used to determine those third-party microgrids large enough to warrant the application of an access regime (and therefore be classified as category 1 SAPS). This access regime would be the same as the regime that applies in the NEM. Retailers would also have access to the customers of Category 1 SAPS in the same way they have access to grid-connected customers.

Category 2

An obligation to offer to supply and connect would be placed on third-party microgrid providers, implemented through a jurisdictional licensing regime. The obligations to connect would cover end users, including micro embedded generators. Jurisdictions may also decide to extend these obligations to generators less than 5MW. Alternatively, jurisdictions may decide to implement a negotiate/arbitrate regime for some category 2 SAPS, providing an avenue for generators to negotiate with the SAPS provider for access. This could be restricted to generators less than 5MW, or it could be opened up to larger generators as well.

Category 3

The Commission does not recommend imposing any obligations on providers of category 3 microgrids and IPS to connect and supply customers.

C.1 Background

A key regulatory requirement placed on many electricity service providers is an obligation to offer to provide services to end-user customers, potential end-user customers and/or commercial parties wanting access to the electricity service in order to sell their own services, whether the service is the provision of electricity itself or relates to part of the electricity supply chain.

The extent to which it would be appropriate to place such requirements on third-party SAPS providers has been considered in this review. This covers any obligations that could be placed on a SAPS service provider to offer access to part of its system (for example to generators), to offer to supply electricity to customers and to offer to connect new customers. Issues related to the prices that service providers might charge for such services are discussed in the following appendix on economic regulation.

C.1.1 Access for other parties

Commercial negotiation is usually the preferred means to determine the prices and other terms and conditions of access to services provided by infrastructure or other facilities. Where services are available in a competitive market environment, access to those services can be expected to be provided efficiently and at an appropriate competitive price. In this situation, access regulation is generally unnecessary.

However, in some circumstances there may only be one facility that provides necessary services and it may be uneconomical to duplicate such a facility due to economies of scale or scope. Single supply could confer market power on the entity that owns or operates that facility, and the entity may exercise its market power, for instance by denying access to all or part of its facility to potential access seekers.

Access regulation is most relevant in the context of energy where some unbundling of the supply chain is possible. For instance, in the electricity supply industry, competition has been introduced to the generation and retail sectors in most jurisdictions. However, providers of these services need to be able to access transmission and distribution networks, which have traditionally been viewed as natural monopoly infrastructure.

As a result, in the NEM, network service providers have obligations to offer to connect both load (end-user customers) and generators.[127] As such, these network service providers are prohibited from denying access to their network for any entity, provided that entity agrees to the connection offer and complies with the connection requirements placed on it.

Natural gas pipeline access framework

Natural gas pipelines provide an interesting case study for microgrids in that they are privately owned and operated infrastructure that need not be interlinked and could confer substantial market power on their service providers that might lead them to limit access for other entities.

Access to transportation capacity on natural gas pipelines in Australia is regulated under a declaration and negotiation/arbitration regime that is set out in the National Gas Law and National Gas Rules (NGR).

Whether or not a pipeline should be "covered" by this regime is determined by reference to a set of coverage criteria in s.15 of the NGL. The pipeline coverage criteria are:

(a) that access (or increased access) to pipeline services provided by means of the

127 Connections are governed by chapters 5 and 5A of the NER.

pipeline would promote a material increase in competition in at least 1 market (whether or not in Australia), other than the market for the pipeline services provided by means of the pipeline;

(b) that it would be uneconomic for anyone to develop another pipeline to provide the pipeline services provided by means of the pipeline;

(c) that access (or increased access) to the pipeline services provided by means of the pipeline can be provided without undue risk to human health or safety;

(d) that access (or increased access) to the pipeline services provided by means of the pipeline would not be contrary to the public interest.

An application for a coverage (or a revocation of coverage) determination can be made by any person to the National Competition Council. Once such an application is received, the NCC is required to assess the application and make a recommendation to the relevant Minister who makes the decision based on the national gas objective and the coverage criteria.

A covered pipeline can be subject to either full or light regulation. Pipelines that are fully regulated under the NGL and NGR have regulator-approved access arrangements. Access arrangements set the reference price and non-price terms and conditions for pipeline access, and provide a default negotiation offer. If negotiations for access to these pipelines fail, the access arrangement is used to determine the arbitration outcome. Pipelines that are lightly regulated under the NGL and NGR are subject to information disclosure and arbitration requirements.

The access regime for gas is modelled on the economy-wide third-party access regime contained in the Competition and Consumer Act, a summary of which is provided in Box 7.

It is important to note that some gas pipelines that are not covered by the negotiation/arbitration regime are subject to a lighter handed form of negotiate/arbitrate regulations under Part 23 of the NGL.

BOX 7: NATIONAL ACCESS REGIME

Part IIIA of the *Competition and Consumer* Act 2010 (Cth) (CCA) establishes the National Access Regime for services provided by significant monopoly infrastructure. Such infrastructure may be a natural monopoly or otherwise uneconomical to duplicate. The regime sets out several pathways by which access seekers can gain a legally enforceable right to access services provided by publicly and privately owned facilities in order to enable them to compete (or compete more effectively) in markets where competition is dependent on such access, and access is not contrary to the public interest. These pathways include:

- **access undertakings**: Providers of infrastructure services may voluntarily submit access undertakings to the ACCC. An undertaking may concern existing or proposed infrastructure and it should set out the terms and conditions on which a provider will provide access to relevant services.
- **effective access regimes**: State and Territory governments may also create and implement access regimes for particular infrastructure services within their jurisdiction. A State or Territory government can apply to the NCC to have such an access regime certified.
- **declaration and negotiation/arbitration**: A party may apply to the NCC to have the service(s) provided by a facility regulated. This is the first step in a two stage process:
  - In stage 1, declaration, an application is made to the NCC to consider and make a recommendation to the decision-making Minister on whether the criteria for applying access regulation are met such that the service(s) should be declared. These criteria are similar to those in the gas regime, but not identical.
  - In stage 2, negotiation/arbitration, a service provider and access seeker can negotiate terms and conditions of access to a declared service, and failing agreement the ACCC can be called upon to arbitrate and make an access determination.

Various elements of the regime have been applied to services provided by facilities such as rail tracks, airports, grain handling facilities at ports, water and waste water reticulation pipes, port terminals and natural gas pipelines.

Source: Part IIIA of the *Competition and Consumer Act* 2010 (Cth).

C.1.2 Obligation to offer supply

As discussed previously, the Commission considers electricity to be an essential service regardless of the source or service provider. Substitutes for electricity are very limited and, as such, supply and sale of electricity to consumers is generally regulated.

To ensure that consumers are able to access a supply of electricity, the NERL establishes the concept of a designated retailer such that each existing or newly connecting customer has a default retailer from which it is able to obtain supply.[128]

In jurisdictions that have adopted the NERL, an authorised retailer must make an offer to provide customer retail services to small customers for whom it is the designated retailer.[129] This offer forms the standing offer. While customers are free to enter into a market offer with any retailer, the standing offer means that any small customer is guaranteed to be able to obtain a supply of electricity if connected to a registered DNSP's network.

128 Where there is an existing connection, the existing financially responsible retailer for the premises is the designated retailer. Where there is no existing connection, the local area retailer is the designated retailer. NERL s. 2, s. 11.

129 Section 22(1) of the NERL.

The designated retailer concept also applies to gas, and similarly means that a small customer is able to obtain a supply of gas on standing offer terms if connected to a covered distributor's network.

C.1.3 Obligation to offer to connect

In order to give effect to obligations to offer generators access and to offer potential customers supply, it is necessary for recipients of these offers to be able to connect to the system providing these services.

As noted, the NER contains extensive provisions governing connections in chapters 5 and 5A. In jurisdictions that have adopted it, an obligation to provide connection services is also imposed on distributors under the NERL. This obligation provides that the distributor must provide connection services to a customer:[130]

- who requests those services, and
- whose premises are connected, or who is seeking to have those premises connected, to the distributor's distribution system.

In NECF jurisdictions, since third-party access is an intrinsic feature of the regulatory regime for electricity, this obligation applies to all regulated distribution system operators. However, in gas the obligation to offer to connect is driven by the access regime. As such, the above provision only applies to covered distribution pipelines.

C.1.4 SAPS comparator arrangements

This subsection contains information relating to useful comparators for a potential regulatory regime for third-party SAPS. These include the Commission's final recommendations for priority 1 of this review and the embedded networks review, in addition to current jurisdictional frameworks that apply to third-party microgrids.

SAPS priority 1 review

In priority 1 of this review, the Commission recommended replicating the current NEM arrangements for the provision of SAPS by distribution businesses. Specifically, the Commission's recommended ongoing SAPS service delivery arrangements would maintain the ability for retailers to provide retail services to customers with an existing connection.[131] The existing obligation on designated retailers to offer supply would be maintained, as would the existing obligation on distribution businesses to offer to connect new customers.

However, the Commission recommended that distributors not be allowed to meet their obligation to offer a connection by use of a new SAPS. Rather, distributors would only be able to offer to connect a new customer to the interconnected grid, or to a pre-existing DNSP-led SAPS where it is more efficient to do so than to connect that customer to the interconnected grid.

130 Section 66(1) of the NERL.

131 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019.

Embedded networks review

The Commission's final recommendations in the embedded networks review would expand obligations on certain legacy, and all new, embedded networks to offer embedded network customers (with or without small generating units) access to retail competition.

Under the framework proposed in the final report, embedded network operators would be required to register as an ENSP (unless the activities of the embedded network operator fit into one of the exempt network categories) and, like a DNSP, they would be required to allow and facilitate all authorised retailers access to customers in their network. Although it would not be economic or appropriate for each ENSP to be subject to an AER revenue determination, the use of 'shadow pricing' to enable ENSPs to calculate network costs for each on-market customer (effectively, the use of the local network service provider's distribution tariffs) means that retail competition would be feasible in even the smallest embedded networks.

Whereas in the past, embedded network operators selling energy to their exempt embedded networks were subject to AER exemption conditions (and in turn, obligations to supply to those networks), the new framework strengthens obligations on those sellers by requiring them to register as off-market retailers, subject to consumer protection obligations under the NERL and NERR.

The off-market retailer (where appointed as such for an embedded network) would be the designated retailer for the purposes of the NERL for new connections and where it was already the financially responsible retailer.

Further, ENSPs would have new obligations to make offers to connect new customers (with or without small generating units), and to make requested alterations to existing connections within the embedded network (to the extent they do not require augmentation to the parent connection point of the embedded network). However, the obligation on ENSPs to extend their networks to facilitate new connections would be limited to the area they have geographically identified as being the embedded network site for which they will be responsible.[132]

Current jurisdictional frameworks for third-party SAPS

In South Australia, the Essential Services Commission of South Australia (ESCOSA) includes obligations relating to the connection, sale and supply of electricity in licence conditions for those activities. For example, the licence conditions for a SAPS provider with combined generation, distribution and retail licences will typically include obligations to connect and reconnect customers' premises in a timely manner and to have ESCOSA approve the standard terms and conditions on which the provider will connect customers and sell and supply electricity to them.[133]

132 AEMC, *Updating the regulatory frameworks for embedded networks*, Final report, 20 June 2019.

133 ESCOSA, Cowell Electric Supply Pty Ltd Electricity retail, distribution and generation licence 26 September 2018, sections 24 and 27-29.

In New South Wales, the Lord Howe Island Board is a statutory authority that is responsible for the supply of electricity through the Lord Howe Island microgrid.[134] LHIB is exempt from the NERL and NERR due to the limitation of their application in New South Wales to NEM connected customers.[135] However, LHIB is required to provide connection services and retail services to local customers on request.[136]

C.2 Commission's draft position

In the draft report, the Commission considered it appropriate to apply an access regime to those third-party microgrids that can be expected to exhibit natural monopoly characteristics similar to the interconnected electricity grid (that is, very large microgrids).

The Commission considered that for most third-party microgrids, an obligation to offer to supply and connect load (that is, end-user customers) is likely to be relevant, whereas access arrangements for generators and retailers may not be. The scale of most of these microgrids is likely to imply a vertically-integrated business model.

In respect of access regulation, subjecting microgrids that can be expected to exhibit natural monopoly characteristics similar to an access regime would enable new customers — that is, generators and retailers — to access spare capacity where:

- the duplication of such capacity would be inefficient, and
- there is sufficient potential to develop competition "upstream" or "downstream" in the SAPS infrastructure — that is, in generation or retail sectors through multiple generators or retailers.

The Commission proposed the following access and connections obligations for each category of third-party SAPS in the draft report.

Table C.1: Draft report proposed access, supply and connection obligations

CATEGORY	APPLICATION OF OBLIGATIONS TO OFFER ACCESS, SUPPLY AND CONNECTION
Category 1	A form of "coverage test" would be used to determine those third-party microgrids which are large enough to warrant the application of an access regime. This access regime would be the same as the regime that applies in the NEM. Retailers would also have access to the customers of Category 1 SAPS in the same way they have access to grid-connected customers.
Category 2	An obligation to offer to supply and connect would be placed on third-party microgrid providers, implemented through a jurisdictional licensing regime. The obligations to connect would cover end users, including micro embedded generators, but would not apply to the connection of generators greater than 5MW.

134 *Lord Howe Island Act* 1953 (NSW) s. 12.
135 National Energy Retail Law (NSW) No 37a, s. 3A.
136 National Energy Retail Law (Adoption) Regulation 2013 (NSW) cl. 22.

CATEGORY	APPLICATION OF OBLIGATIONS TO OFFER ACCESS, SUPPLY AND CONNECTION
Category 3	No obligations would be placed on third-party SAPS providers to offer to connect and supply customers on the basis that these obligations would be onerous and disproportionate to the scale of the SAPS in this category.

Source: AEMC

C.3 Stakeholder submissions

Stakeholders commented on issues relating to the coverage test and access for retailers in submissions to the draft report.

ENA was generally supportive of the access and connections principles outlined in the draft report.[137]

A number of stakeholders provided suggestions for the coverage criteria to be used in the coverage test for third-party SAPS. For example, CEC suggested that the test include a requirement to demonstrate that a third-party SAPS is able to support effective retail competition. The ENA suggested the use of a firm methodology such as customer numbers or customer load. Endeavour Energy considered that further clarification was required on how to apply a coverage test that can determine the prospect of competition and value of allowing authorised parties to access to category 1 SAPS.[138] Further details of stakeholder submissions relating to the coverage test can be found in section 4.3.3 of this report.

In relation to retail competition, the AER was of the view that retailers would be unlikely to offer SAPS-specific retail tariffs unless a large proportion of their customer base is directly affected. The AER considers that the costs of supply in a third-party SAPS may be higher than in the broader interconnected network. Both the costs of generation and network services may be spread across a relatively small number of customers, which could lead to higher per unit costs. This would in turn impact a retailer's willingness to offer SAPS customers retail tariffs at the same level as for customers connected to the interconnected grid.[139]

C.4 Commission's analysis and final position

The Commission's thinking on this dimension has been guided by the overarching objective that an obligation to connect and supply customers within a defined boundary area should be applied where it is considered to be not too onerous or disproportionate. Further, access to services required to facilitate competitive markets should be provided if the SAPS is large enough to support competition.

137 ENA, submission to the draft report, p. 15.
138 Submissions to the draft report: CEC, p. 3; ENA, p. 9; Endeavour Energy, p. 3.
139 AER, submission to the draft report, p. 3.

In respect of access regulation under the national access regime, it is the Commission's view that such arrangements should be applied to those third-party microgrids that can be expected to exhibit natural monopoly characteristics similar to the interconnected electricity grid and large enough to support competition. Jurisdictions could choose to develop arrangements to allow access to smaller microgrids by negotiation with the SAPS provider.

The Commission considers that the potential for the development of competitive generation and/or retail markets within third-party microgrids would only be likely in the largest of microgrids — for instance, of a comparable size to the Mount Isa grid in Queensland or the Darwin-Katherine or Alice Springs systems in the Northern Territory. Therefore, for most third-party microgrids, an obligation to offer to supply and connect load (that is, end-user customers) is likely to be more relevant. The scale of most microgrids is likely to imply a vertically-integrated business model, without scope for competing generators and retailers. An obligation to supply and connect is also likely to be less complex than a comprehensive access regime and so represents a more proportionate response.

The Commission's recommendations on the appropriate obligations in respect of access regulation, the supply of electricity and network connections, for each category of third-party SAPS are discussed below.

C.4.1 Category 1

The Commission recommends that category 1 third-party microgrids be identified by a coverage test. This test would determine whether the application of access regulation to these microgrids would be appropriate. Details of the Commission's recommended coverage test can be found in section 4.3 of this report and in Appendix A.

Category 1 microgrids would be expected to exhibit natural monopoly characteristics similar to the interconnected electricity grid. In addition, given these SAPS would have passed the coverage test, there is the potential for effective competition to emerge in generation.[140] For these reasons, the Commission considers it appropriate that access to category 1 microgrids be regulated under the access regime applying in the interconnected grid.

In respect of access, this means that all category 1 third-party microgrid providers would be required to offer to connect both load (end-user customers) and generators. In addition, category 1 microgrid providers will be subject to an access regime which requires them to allow all authorised retailers to access customers of their microgrids, thereby facilitating retail competition. Provided that the party seeking connection agrees to the connection offer and complies with the connection requirements placed on it, category 1 microgrid providers would be prohibited from denying any party access to their network.

No firm access for generators

In terms of the ability of generators (and, indeed, customers with distributed energy resources (DER) such as rooftop solar panels) connected to a third-party microgrid to provide generation services to the relevant market, these parties, like grid-connected generators and

140 If there is effective competition in generation, competition in retail will also necessarily occur, for the reasons described in section 4.3.

customers in increasingly constrained open-access networks, may be physically limited in their ability to provide their services to the relevant market.[141] The ability to "access" these markets to provide generation services requires that there must be both sufficient spare capacity on the network and sufficient demand on the system to absorb the generation.

Ultimately, decisions on whether there is value to be gained from connecting to a third-party microgrid would need to be made by each generator on a case by case basis, having regard to the specific characteristics of the microgrid – for example, the availability of capacity and system constraints, current and forecast load as well as other technical limitations of the microgrid.

To this end, as category 1 third-party microgrids are recommended to be regulated in a manner equivalent to distribution networks in the NEM, an obligation to offer to connect generation to a third-party microgrid would not necessarily provide the generator an automatic right to access the relevant markets within that microgrid to sell the electricity it generates. Similar to current arrangements in the NEM, the third-party microgrid operator would have the discretion to constrain generation export down to zero if required to meet regulatory obligations.

Implementing an access regime for category 1 SAPS: the recommended coverage test

As noted above, the Commission has recommended that regulatory 'coverage' under the national framework should be applied only to the largest of third-party microgrids (forming category 1). Therefore, there was a need to establish a test for coverage which reflects the features of the microgrids that the access regime is intended to capture.[142]

The Commission notes that the focus of criterion (a) of the coverage tests for both the National Access Regime and National Gas Regime is on the promotion of competition in related markets. In respect of third-party microgrids, the notion of competition is also central to the decision to apply access regulation. However, the Commission also notes that the objective of regulation in the electricity market — the National Electricity Objective — relates to economic efficiency for the long term interests of consumers with respect to a range of factors including price, quality, safety, reliability and security of supply of electricity.[143]

To this end, the Commission engaged Incenta Economic Consulting to develop a coverage test for third-party SAPS. This test has been modelled closely on the economy-wide third party access regime, and the national gas pipeline coverage criteria in s.15 of the NGL. Changes have been made to reflect the characteristics of third-party microgrids.

The coverage test, recommend by the Commission to determine which third-party SAPS will be classified as a category 1 SAPS, is detailed in the box below.

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141 In the NEM, distribution networks, like transmission networks, operate under an open access regime. While all parties have a right to connect to the network, there is no firm access. For generation (including DER) connected to the distribution network, this means that 'access' to the NEM to provide generation services is available only when there is sufficient spare capacity on the network to export their electricity.

142 This differs from electricity networks in the NEM where regulatory "coverage" is universally applied and there is no coverage test.

143 NEL s 7.

BOX 8: COVERAGE TEST FOR THIRD-PARTY SAPS

Test feature 1 - In general, a SAPS is to be covered, and classed as category 1, where

- *there is a reasonable prospect, within a reasonable timeframe, that effective competition will become established for the generation of electricity for all, or a substantial portion, of the supply of electricity to customers that are connected to, or that may connect to, the relevant SAPS*
- *coverage would not generate costs that exceed the expected benefits*

in deciding whether or not the SAPS coverage criteria are satisfied, regard must be given to the national electricity objective.

...

Test feature 2 - There will be an exemption from coverage to accommodate the use of a competitive tendering process for the provision of SAPS infrastructure and to determine the associated terms (i.e., price and other matters). Specifically, a new development SAPS would not be covered for a period determined by the jurisdiction where the SAPS has been established through an approved competitive tender process.

...

Test feature 3 - There will be a further exemption from coverage for new development SAPS, where a new SAPS would not be expected to pass the coverage test for an extended period of time. This finding could be locked-in prior to development of the SAPS and would remain in place for a 15 year period. This test feature recognises that even if the coverage test is not expected to be met (at least when applied prior to the SAPS being developed), in the absence of a binding upfront commitment an investor would be exposed to the risk that access subsequently may be mandated (and losses thereby suffered), which may adversely affect the initial investment decision. Therefore, a no-coverage decision will offer protection to SAPS investments that are not expected, prior to construction, to meet the coverage test.

Under the recommended coverage test a SAPS proponent, or project sponsor, has the option to obtain a decision on coverage prior to construction of a new SAPS, or the sale of electricity in the case of a transferred SAPS. After this time, unless there is a current no-coverage decision in effect, anyone would be able to apply for the coverage test to be applied.[144] While a no-coverage decision is in force, the third-party SAPS would be regulated as a category 2 SAPS.

In addition, anyone can apply for coverage to be revoked from a covered third-party SAPS, at any time, where there is not a current no-coverage decision. If coverage is revoked the third-party SAPS will become a category 2 third-party SAPS, regulated under jurisdictional arrangements.[145]

144 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems,* October 2019, p. 22.
145 Incenta Economic Consulting, *Third Party Access to Stand-alone Power Systems,* October 2019, p. 22.

Further details of the coverage test can be found in section 4.3 of this report and in Appendix A.

In respect of the design of the access regime, the Commission considers that category 1 third-party microgrids should be regulated in the same way as other electricity networks in the NEM — that is, most distribution prices and services would be subject to regulation by the AER, and there would be no ability for customers — that is, retailers and generators — to negotiate the price for access.[146]

C.4.2 Category 2

Microgrids falling into category 2 of the tiered framework would be those that are not large enough to support competition in generation (but do not satisfy the test for category 3). Third-party microgrids of this category will generally range from those that supply smaller towns to microgrids connecting more than a few customers. At this scale, effective retail competition is unrealistic as network tariffs would be specific to each microgrid.

The Commission considers that as category 2 third-party microgrids will likely be vertically integrated, an obligation to offer to supply customer load is likely to be appropriate whereas offering access to additional retailers and generators may not be. An obligation to supply is also likely to be less complex than a comprehensive access regime and so represents a more proportionate response.

The considerations in respect of network connections are similar to those in respect of the supply of electricity. As such, it is the Commission's recommendation that, in addition to obligations to offer supply, category 2 microgrids should have obligations to offer to connect customer loads and certain generation.

In respect of generation, the Commission is of the view that the obligation on third-party SAPS providers to offer connection services would, in the first instance, apply to the connection of micro embedded generators — for example, residential rooftop solar systems and battery storage.[147] That said, while the connection of micro embedded generators to a microgrid would be more straightforward than the connection of larger generating systems, the ability of these smaller systems to be able to receive value from generating activities will depend on the technical limitations of the microgrid in question.

The Commission considers that embedded generators that are larger than micro embedded generators but with generating systems smaller than 5MW may be able to connect to category 2 SAPS, depending on the size and characteristics of the system. While these generators would be simpler to connect than large generators, it is likely that some augmentation would be required to connect them. In addition, the ability of a category 2 microgrid to be able to absorb the generation from these systems will depend on the technical characteristics of the microgrid, and whether there is enough demand for supply.

146 Regulatory coverage of electricity networks in the NEM differs from the national gas regime in that, in gas, only some services are subject to full price and service regulation (reference services) and there is the ability to negotiate away from the reference tariff ("full regulation") or negotiate/arbitrate ("light regulation").

147 Micro embedded generators are retail customers who propose to operate embedded generating units for which a connection of the kind contemplated by Australian Standard AS4777 is appropriate. NER cl 5A.A.1.

Jurisdictions should determine whether an obligation should be placed on each category 2 provider to offer connection, or whether a negotiate/arbitrate regime or no access obligations may be more appropriate for that SAPS.

For the avoidance of doubt, the obligation on third-party microgrid providers to offer to connect would not be extended to large generators — that is, those with generating systems large enough to require registration with AEMO under NER chapter 2 (currently 5MW or greater), consistent with the Commission's recommendations for embedded networks. However, for large microgrids, a jurisdiction could decide to provide access under a negotiate/arbitrate regime.

Implementing obligations to supply and connect for category 2 SAPS

The Commission recommends that category 2 microgrids are subject to obligations to connect via a jurisdictional licensing regime. This will allow the regulatory framework to be tailored as required to best manage risk and balance regulatory costs associated with the breadth of microgrids within this category.

Similar to the regulatory framework for SAPS in South Australia,[148] supply, sale and connection obligations for third-party microgrid service providers would be included in licence conditions for those activities. For example, the licence conditions for a SAPS provider with combined generation, distribution and retail licences should include obligations to connect and reconnect customers' premises in a timely manner. They should also include standard terms and conditions on which the licence holder would connect customers and sell and supply electricity to them.

If a category 2 third-party SAPS increases in size, an application for coverage is made and it is determined that the SAPS meets the coverage test for a category 1 SAPS, it would then transition to a category 1 SAPS and be regulated under the framework for category 1. It is likely this would rarely occur, and that the third-party SAPS provider would be able to anticipate in advance that it was likely to meet the criteria for category 1 coverage and therefore prepare for the transition to the higher category.

C.4.3 Category 3

Category 3 third-party SAPS would include microgrids with very few customers (or only large customers), and IPS where there is a sale of energy. These third-party microgrids and IPS would be regulated through jurisdictional registered exemptions or jurisdictional licenses with more limited conditions.

In all cases, the Commission considers that these systems will not be large enough to support competition in upstream or downstream markets, and therefore providing access to generation and retail services for the purposes of developing competition is unnecessary.

In addition, while there would still only be one facility providing the necessary services to the customers of category 3 microgrids, these customers would have much greater bargaining

148 See, for example, chapter 4 'Connection, Sale and Supply' of the license of Jeril Enterprises Pty Ltd for generation, distribution and retail in regional South Australia, ESCOSA, 21 June 2007.

power and a higher degree of control over system specifications and requirements than customers of larger microgrids are likely to have.

For these reasons, the Commission's recommendation is not to impose any obligations on providers of category 3 microgrids and IPS to connect and supply customers on the basis that such obligations are unnecessary and, in any case, would likely be too onerous and disproportionate.

D ECONOMIC REGULATION

RECOMMENDATION 4: ECONOMIC REGULATION

The Commission considers that proportionate, risk based forms of economic regulation should apply to govern access and connection, and to provide protection to customers. The Commission has sought to apply this principle consistently between third-party SAPS, DNSP-led SAPS, embedded networks and standard supply.

The recommended economic regulations for each category of third-party SAPS are:

Category 1

The Commission recommends that distributors of category 1 SAPS be regulated in the same manner as DSNPs. This includes being subject to a NER Chapter 6 regulatory determination by the AER.

In addition, the Commission recommends that category 1 SAPS be subject to the same retail price regulation applicable in the relevant NEM jurisdiction. Consequently, where jurisdictional price regulations apply, jurisdictions should determine a retail price specific to the category 1 SAPS. If there is no retail price regulation in a jurisdiction, no retail price regulation would be required for the category 1 SAPS.

Category 2

A light-handed approach to economic regulation is recommended for category 2 SAPS, with economic regulation to be dealt with through license conditions. To reduce the risk of third-party vertically integrated SAPS providers misusing its monopoly power, some form of price transparency and price monitoring would be required for both retail and connection charges at a minimum.

More prescriptive forms of economic regulation could also be considered by jurisdictions to apply to larger category 2 SAPS. This could include requirements for the provider to report on reasons for price changes, regulations specifying permitted reasons for increasing prices, or caps on the amount of any price increases.

In addition, for larger customers a negotiate/arbitrate regime should be considered by jurisdictions.

Category 3

No economic regulation is recommended for category 3 SAPS.

D.1 Background

The previous appendix discussed the potential services that a third-party SAPS provider might be obliged to offer to provide. This appendix discusses whether and how those services

might be economically regulated. The application of economic regulation would, to a greater or lesser extent, constrain the price that a SAPS service provider could charge.

The purpose of economic regulation is to capture the efficiency benefits (economies of scale) of provision by a single entity, whilst reducing the risks of inefficiencies arising from the use of substantial market power by that single entity.[149] Put another way, in those markets where competition is weak or absent, economic regulation is intended to act as a 'visible hand' to guide service providers towards pricing outcomes that would have occurred had the market been subject to effective competition.

The Commission uses economic regulation in this report to refer to potential regulations to create outcomes equivalent to effective competition in the absence of effective competition for or within a SAPS. The Commission was conscious that the same considerations may not apply to third-party SAPS as for the NEM, with arguments for or against the application of economic regulation affected by the size and risks posed by the third-party SAPS as well as the business model or operating structure of the third-party SAPS provider.

D.1.1 Forms of economic regulation

Broadly speaking, there are three approaches that an economic regulator may take to control the prices and/or service standards of the businesses that it regulates. When determining the appropriate form of economic regulation, the key issues the regulator should consider include:

- whether prices/revenue and service standards are set or approved directly by the regulator ('direct' regulation); or whether a more indirect approach (e.g. price monitoring) or commercial negotiation with mandatory arbitration is adopted, and
- if prices or revenue are set or approved directly, the methodology by which maximum prices or revenue should be established (e.g. building blocks versus yardstick benchmarking).

The three forms of economic regulation are:[150]

1. **Direct regulation -** where either an independent regulator sets prices (or allowable revenues) or makes recommendations to Ministers who set prices. There are various forms of direct regulation including:
    a. cost of service (or 'rate of return' regulation), where prices are set to cover the regulated entity's costs, typically comprising a return on and of capital, and operating costs
    b. profit sharing, where the regulated entity is permitted to retain only a proportion of the earnings it receives in excess of a defined level
    c. CPI-X incentive regulation via a 'building blocks' approach, where prices are again set to cover the regulated entity's efficient costs (again comprising a return on and of

149 Beale, R., Houston, G., Kenny, P., Morton, E., and Tamblyn, J., *Expert panel on energy access pricing*, Report to the Ministerial Council on Energy, April 2006.

150 The discussion here draws on Frontier Economics, *Improving economic regulation of urban water*, A report prepared for the Water Services Association of Australia, August 2014.

capital, and operating costs), but the difference with a. is that the risk of any over-runs or under-recovery of costs lies with the regulated entity

   d. Setting prices via an external benchmark, potentially with periodic price resets from a cost of service review at defined intervals or when predefined triggers are reached

2. **Indirect regulation -** where the regulator or other agency observes and reports on pricing behaviour, but does not involve the direct regulation of prices. Often this approach is supplemented by the threat of imposing a form of direct regulation or divestiture orders, if needed. Forms of indirect regulation include:
   a. price monitoring, where the economic regulator tracks prices, profits and/or service quality over time. This form of regulation is typically the most "heavy-handed" form of indirect regulation
   b. performance monitoring, where the regulator conducts ex post reviews of the entity (and the industry more generally) to check for evidence of excessive returns/pricing, usually in response to competition concerns
   c. regulator-specified pricing principles with which the entity must comply, and
   d. price disclosure, under which entities are required to transparently publish their price schedule This is typically the most "light-handed" form of indirect regulation.
3. Commercial negotiation with mandatory arbitration. This approach is more commonly associated with determining the price of access to a monopoly network (e.g. rail, telecommications).

Within each of these three broad approaches to economic regulation, there is a range of potential approaches, sitting on a spectrum from direct ex-ante approaches to more indirect ex-post approaches.[151]

D.1.2 Economic regulation in the NEM

In the NEM, the scope for effective competition is weaker in respect of the provision of transmission and distribution network services, than for the provision of generation or retail services. Consequently, the breadth and depth of economic regulation in the electricity supply chain is greatest for network services, with revenues being subject to direct regulation.

Concern about the potential exercise of market power by transmission and distribution network businesses in the NEM has driven the design of the following aspects of the economic regulatory framework for network businesses:[152]

- revenues are set at an efficient level by the AER
- there are various incentive regimes in place to encourage network businesses to achieve efficient outcomes
- there are various 'network pricing principles' that influence both the level and structure of network tariffs.

151 Frontier Economics, *Improving economic regulation of urban water*, A report prepared for the Water Services Association of Australia, August 2014.

152 Chapters 6 and 6A of the NER.

Another type of economic regulation exists in the NEM in the form of retail price regulation. Although there is more scope for competition to provide effective outcomes for consumers in the retail sector than for networks, retail price regulation has continued to be used in some jurisdictions where there are concerns regarding the competitiveness of the retail sector.

In addition, the AER has also developed a default market offer (DMO) price at the request of the Commonwealth Treasurer and Minster for Energy. The DMO came into effect from 1 July 2019 for standing offer customers in network distribution areas which are not subject to jurisdictional price regulation.[153] In addition, the DMO has been designed to be used as a reference point for retailers in these jurisdictions to provide discounts off for market offers.[154]

D.1.3 SAPS comparator arrangements

When considering the appropriate economic regulation of third-party SAPS, the Commission considers it may be useful to review the final recommendations for priority 1 of this review and the embedded networks review, as well as existing conditions imposed on licensees or operators of current jurisdictional microgrids in South Australia and Queensland.

In addition, the Commission has reviewed the regulatory approaches adopted for recycled water services in NSW. The regulatory approaches adopted for recycled water provides insights into potential approaches that jurisdictions may adopt for economic regulation of category 2 and 3 third-party SAPS, as recycled water services are often delivered off a vertically integrated structure, much like electricity services delivered via category 2 and 3 third-party SAPS (an overview is provided below).

SAPS priority 1 review

In priority 1 of this review, the Commission recommended that the network functions provided by a DNSP, including in DNSP-led SAPS, should be economically regulated under the existing arrangements in chapter 6 of the NER.[155]

Under the Commission's proposed service delivery model, existing retail arrangements would be maintained, with competition forming a pricing discipline for retailers in areas with effective retail competition. In jurisdictions with existing price regulation, that pricing regulation will be maintained. The DMO would apply in those jurisdictions without an alternative form of retail pricing regulation.

Embedded networks review

The Commission's final recommendations in the embedded networks review aim to increase the scope for, and effectiveness of, retail competition by allowing competing retailers better access to customers in embedded networks. The introduction of these arrangements will reduce the current reliance on a form of price regulation, whereby the AER restricts all exempt sellers in embedded networks from selling at a price in excess of the local retailer's standing offer.

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153 The DMO applies in New South Wales, South Australia and South-Eastern Queensland.

154 AER, *Default Market Offer Prices 2019-20*, Final determination, 30 April 2019. Competition and Consumer (Industry Code - Electricity Retail) Regulations 2019 (Cth), section 12.

155 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 57.

As part of the recommended new arrangements to facilitate competition, embedded network service providers will be subject to a form of network price regulation, whereby they would be prohibited from charging more than the amount that the local DNSP would charge an equivalent customer connected to its network.[156]

Jurisdictional energy frameworks

In South Australia, ESCOSA does not currently regulate SAPS pricing, although it does review pricing information annually as part of information received from licensees. However, in practice those customers supplied by microgrids covered by the South Australian government's RAES scheme (discussed in Chapter 2) benefit from price protection in the form of a subsidy paid by the government to reduce prices to approximately the level of the local retailer's standing offer in those parts of South Australia that are part of the NEM.[157]

In the remote areas of Queensland where microgrids operated by Energy Queensland are located, retail electricity prices are regulated by the Queensland Competition Authority and set at a level derived from the competitive market in South-East Queensland. In practice, this requires Energy Queensland to sell electricity at a substantial loss, with the shortfall being funded by the Queensland government.

The prices of network services for the Mount Isa-Cloncurry microgrid are regulated by the AER under the NER. The Commission understands that there is some competition in the wholesale sector (i.e. generators and large loads) in this larger microgrid.

Regulatory form for the NSW recycled water sector

Jurisdictional regulators economically regulate recycled water services. In NSW, the Independent Pricing and Regulatory Tribunal (IPART) is responsible for setting the maximum prices that public water utilities can charge for all government monopoly services. In its review of pricing arrangements for recycled water and related services, IPART decided to adopt an indirect form of economic regulation. This is in the form of a set of pricing principles coupled with the threat of direct regulation under a scheme-specific review.[158]

In economically regulating the recycled water section, IPART distinguishes between voluntary and mandatory recycled water services based on the criteria of consumers' effective choice. If customers cannot choose their water supplier, or there are practical barriers to opting-out of recycled water services, then there is potential for the exercise of monopoly power. On this basis, the associated recycled water service is considered 'mandatory'.[159] The key criterion for determining whether a recycling water scheme is 'mandatory' is whether there is an obligation on someone other than the water utility (such as the customer or the developer) to connect to the scheme or to use recycled water from the scheme.[160]

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156 AEMC, *Updating the regulatory framework for embedded networks,* Final report, 20 June 2019, p. 146.

157 http://www.escosa.sa.gov.au/electricity-overview/pricing-access.aspx as accessed on 18 January 2019.

158 IPART, *Review of pricing arrangements for recycled water and related services*, Final report, July.2019

159 In contrast, where customers choose whether to purchase recycled water instead of, for example, potable water, the associated recycled water service is considered to be 'voluntary', and thus the need to economically regulate is diminished.

160 As a practical example, IPART categorises recycled water schemes as mandatory when customers are required to connect to the scheme due to a Government policy (such as BASIX or the Metropolitan Water Plan).

Mandatory services are subject to indirect economic regulation, whereas voluntary services are only subject to indirect economic regulation if IPART is requested to do so by either party to the service (i.e. a customer or the public water utility). If requested, IPART will undertake a scheme-specific review to determine whether to apply indirect economic regulation, with the public water utility required to propose prices for the scheme, by submitting a pricing proposal including the proposed prices, the key information and methodologies relating to these prices, and details of the negotiation to date. [161]

If IPART concludes that voluntary services need to be economically regulated, the pricing principles for mandatory services will apply.

IPART's pricing principles set out how costs should be recovered from consumers through the structure of prices. Some constraints are imposed on recycled water usage and fixed charges (such as the need to have regard to the price of substitutes and willingness-to-pay) to protect customers and balance supply and demand. IPART's pricing principles are set out in Box 9 below.

BOX 9: IPART'S PRICING PRINCIPLES

IPART's pricing principles for mandatory recycled water services are that the structure and level of recycled water prices:

1. Should ensure appropriate price signals are sent to recycled water users with the aim of balancing supply and demand, and should entail an appropriate allocation of risk.
2. Should include a usage charge, which must have regard to the price of substitutes. Where the usage charge exceeds the substitute price, water utilities must demonstrate willingness-to-pay by the recycled water customer.
3. May include a fixed service charge, which should have regard to customer impacts, willingness-to-pay and not act as a material incentive for customers to disconnect from the recycled water scheme.
4. Should have regard to an efficient distribution of costs between recycled water customers and developers, in line with our funding framework for mandatory recycled water services.
5. Should be simple and understandable.

Source: IPART, *Review of pricing arrangements for recycled water and related services*, Final report, July 2019

IPART is required to monitor compliance with its pricing principles, by reviewing public water utilities' prices for mandatory services alongside the public water utilities' broader retail pricing reviews. Where IPART considers a water utility's approach is inconsistent with the pricing principles, IPART can set scheme-specific prices in accordance with the pricing principles.[162]

161 IPART, *Review of pricing arrangements for recycled water and related services*, Final report, July.2019

162 In addition, if water utilities and their customers are unable to reach an agreement, IPART could then set prices under a scheme-specific review, also having regard to the pricing principles when setting prices.

To promote accountability, transparency and efficiency, public water utilities are required to make their calculations of prices for mandatory services publicly available.

D.2 Commission's draft position

In developing its draft recommendations, the Commission considered that for third-party SAPS, practical application of the overarching principles and assessment framework will necessarily result in some variations in the economic regulation of each category of third-party SAPS.

The Commission considered that the extent of economic regulation, if any, that should apply to third-party SAPS was likely to depend on:

- the extent to which the services offered in a SAPS can be practically unbundled and made individually contestable
- the size of the SAPS — all else equal, the case for economic regulation is likely to be weaker the smaller the SAPS (and weakest in the case of an individual power system) as the potential exercise of market power is less material and the costs of regulation proportionately greater, and
- the relationship between the SAPS provider and the end-users.

The Commission noted that for category 1 SAPS, services will be unbundled and individually contestable. In category 2 and 3 SAPS this will not be the case, with the suite of SAPS services generally expected to be provided by a vertically integrated entity.

In addition, SAPS in category 1 will include the largest microgrids, whereas the SAPS in category 3 will include the smallest microgrids and IPS (where there is a sale of energy).

Consequently, the economic regulation recommended by the Commission in the draft report was lighter for category 2 than category 1, and lightest for category 3.

The Commission proposed the following economic regulations for each category of third-party SAPS in the draft report.

Table D.1: Proposed economic regulation of third-party SAPS

CATEGORY	APPLICATION OF ECONOMIC REGULATION
Category 1	Economically regulated by the AER in the same manner as existing DNSPs, including revenue determinations and incentive schemes (which would cover the SAPS provider's arrangements for generation in the SAPS). Retail competition would be available to the same extent it is currently available in different regions of the NEM, and price regulation would apply to SAPS in jurisdictions with current retail price regulation.
Category 2	Some form of light-handed economic regulation by jurisdictions such as price monitoring or a negotiate/arbitrate regime.
Category 3	Not economically regulated.

Source: AEMC

D.3 Stakeholder submissions

A number of stakeholder submissions addressed pricing or economic regulation within third-party SAPS.

In its submission, the AER noted that revenue determinations under NER chapter 6 are resource intensive and complex. The AER considered that full economic regulation of network services would only be proportionate where the cost of a regulatory determination would be small on a per customer basis relative to the normal network costs. The AER considered that full economic regulation would not be appropriate for systems with fewer than 50,000 customers.[163]

Energy Networks Australia advocated for a high degree of consistency of the economic regulations to apply in third-party SAPS between jurisdictions. ENA considered this would reduce regulatory barriers and costs for providers operating in multiple jurisdictions. Further, the ENA recommended that the Commission provide guidance to jurisdictions on the appropriate economic regulations.[164]

In its submission, the AEC considered there would be benefit in developing principles to guide jurisdictional regulation on price setting.[165] The CEC considered that price transparency and price monitoring would be required for retail and connection charges.[166]

Finally, Mondo considered that cost structures for category 2 and 3 SAPS will exhibit very different characteristics to large scale power systems and that the third-party SAPS provider should be able to develop pricing and service models that reflect the different underlying costs.[167]

D.4 Commission's analysis and final position

The rationale for economically regulating a third-party SAPS (or a component of it) would be a concern that efficient outcomes would not be achieved due to the exercise of market power within the SAPS. A microgrid, either in whole or in part, is likely to display natural monopoly characteristics. However, not all parts of the electricity supply chain will typically exhibit the same extent of natural monopoly attributes.

The general approach to the provision of electricity in the NEM is to unbundle services to facilitate competition where possible. For distribution and transmission networks, the type of technology, diminishing marginal costs of use within capacity constraints and the lumpy and fixed nature of the assets dictate that one supplier rather than two or more can provide the service more efficiently, i.e. monopoly service provision. Generation may have less economies of scale than distribution and transmission, which means that there may be lower barriers to competition in generation, and it is often the case in electricity systems that a competitive

163 AER, submission to the draft report, p. 2.
164 ENA, submission to the draft report, p. 15.
165 AEC, submission to the draft report, p. 2.
166 CEC, submission to the draft report, p. 4.
167 Mondo, submission to the draft report, p. 2.

market for generation can be established. For retail competition, a minimum scale is likely to be needed before competition becomes effective.

For a third-party SAPS, there may be instances where it is economically efficient for only one party to supply one of the following:

- the entire SAPS, including the generation assets, network assets and metering assets, or
- certain components of the SAPS, such as the network assets.

In a third-party SAPS, there is likely to be less scope for competition with respect to retail services, and to a lesser extent for generation, than within the NEM, given the latter's larger scale. As there is less scope for unbundling of services, many third-party SAPS are likely to be vertically integrated. While a single supplier may represent the most efficient market structure, the lack of competition may confer substantial market power on the SAPS provider. In such circumstances, the owner of these assets would have both the capacity and the commercial incentive to take advantage of this market power to monopoly price.

However, customers who are seeking to be supplied by a third-party SAPS are likely to have choices as to whether to connect to the third-party SAPS or obtain electricity supply elsewhere. Customers being supplied by a third-party SAPS would generally not be able to access the jurisdictional pricing cross- or direct subsidies that NEM customers would benefit from. Therefore, supply via IPS could be a comparable financial cost to supply via a third-party microgrid. In addition, customers would have the choice to request a connection offer from the local DNSP.

The availability of competition and customer choice will influence the approach taken for economic regulation of third-party SAPS, with a broad spectrum of options from:

- no economic regulation with no controls placed either on the amounts third-party SAPS providers can recover from their customers or the structure of network and retail tariffs within a third-party SAPS
- a 'light-handed' approach to economic regulation that is limited to tendering, price disclosure, price monitoring requirements and potentially a negotiate/arbitrate regime.
- 'full' economic regulation, under which prices for the end customers or access within the SAPS chain are regulated.

The Commission considers that the extent of economic regulation, if any, that should apply to third-party SAPS depends on:

- the extent to which the services offered in a SAPS can be practically unbundled and made individually contestable
- the size of the SAPS — all else equal, the case for economic regulation is likely to be weaker the smaller the SAPS (and weakest in the case of an individual power system) as the potential exercise of market power is less material and the costs of regulation proportionately greater, and
- the relationship between the SAPS provider and the end-users.

The forms of economic regulation recommended for each category of third-party SAPS are detailed below.

D.4.1 Category 1

Category 1 SAPS are very large microgrids, and the Commission has recommended that the provider of these third-party SAPS be required to register with AEMO as a DNSP. As for DNSPs in the NEM, it would be economically efficient for only one party to supply the network assets, with the DNSP providing a monopoly service.

To alleviate any concerns surrounding the potential for the SAPS distributor to exercise its market power, the Commission recommends that the national economic regulatory framework for network businesses under the NER would apply for category 1 third-party SAPS with:[168]

- revenues set at an efficient level by the AER through a regulatory determination
- incentive regimes encouraging network businesses to achieve efficient outcomes (including in respect of their contracts with generators for the provision of electricity for the SAPS), and
- 'network pricing principles' influencing both the level and structure of network tariffs.

The Commission considers that in areas with retail competition (NSW, South-Eastern Queensland, Victoria, South Australia and Tasmania), category 1 third-party SAPS should be open to retail competition.

Jurisdictional retail price regulation is used in areas where the jurisdiction has determined that retail competition is not effective. If a jurisdiction considers that retail competition is not effective in a category 1 SAPS, then that jurisdiction could also choose to apply a form of retail price regulation to that SAPS.

The Commission considers that, should a jurisdiction determine that price regulation for a category 1 SAPS is appropriate, retail prices specific to that SAPS will likely be required to reflect the underlying differences in costs to supply customers connected to the SAPS (unless a jurisdiction with existing direct or cross subsidies decides to extend those subsidies to the category 1 third-party SAPS).

D.4.2 Category 2

Economic regulation will be carried out by jurisdictions for category 2 SAPS. The Commission assumes category 2 SAPS will be vertically integrated, with the generation assets, network assets, metering assets and retail functions the responsibility of the same entity.

Network and retail pricing regulation

Vertical integration could potentially provide opportunities for the provider to misuse its market power. Not only would network services be provided on a monopoly basis, but customers would also be unable to access retail competition within the microgrid. However, the Commission has determined that full economic regulation by the AER to constrain network pricing (providing network tariffs that would also be used to facilitate retail competition) would be disproportionately costly. The costs of full economic regulation would

168 Chapters 6 and 6A of the NER.

be greater than the harm that is trying to be avoided given the relatively small number of customers. Additionally, economic regulation will be carried out by jurisdictions for category 2 SAPS.

For customers in a category 2 third-party SAPS, supply via an IPS may be a comparable financial cost, and therefore provide an alternative to supply via the microgrid (in addition to the option of staying connected to, or requesting an offer for connection to, the national grid). In addition, customers may be able to protect themselves to an extent by signing a long-term pricing contract with the provider at the time of entering the SAPS. Considering the costs of full economic regulation, and the potential availability of financially comparable alternatives, a light-handed form of economic regulation would be more appropriate for category 2 SAPS.

Possible options for light-handed regulation could include the following (noting they are not mutually exclusive):

- transparent tendering process
- price monitoring
- negotiate-arbitrate regime.[169]

A form of indirect economic regulation, similar to that used by IPART in its regulation of mandatory recycled water, would likely be appropriate for the regulation of category 2 third-party SAPS, particularly larger category 2 SAPS. Pricing principles could be determined by the regulator, with these pricing principles being required to be used to determine prices within the category 2 SAPS. The SAPS provder should be required to make its calculations of prices publicly available, with the regulatory required to monitor compliance with its pricing principles. If the SAPS provider was found to be applying an approach to pricing which is inconsistent with the pricing principle, the regulator could set prices for that SAPS in accordance with the pricing principles.

To reduce the risk of third-party SAPS providers misusing their monopoly power, the Commission considers that some form of price transparency and price monitoring would be required for both retail and connection charges at a minimum. More prescriptive forms of economic regulation should also be considered by jurisdictions. This could include a requirement for the provider to report on reasons for price changes, regulations specifying permitted reasons for increasing prices, or caps on the amount of any price increases.

For larger category 2 third-party SAPS, jurisdictions would need to determine whether a cost-based regulatory pricing regime is required to regulate the price paid by customers for the supply of electricity.

Connection charges

In relation to connection charges, an arrangement similar to the connection charge framework the Commission has recommended for ENSPs in the embedded networks review would be appropriate. Under the recommended framework, the ENSP will be required to

169 This is discussed in appendix C.

apply the connection charge principles under section 5A of the NER when determining connection charges, along with the AER's connection charge guidelines, to prepare a connection policy. The connection policy specifies the circumstances under which charges will apply and how they will be calculated, and is required to be consistent with both the connection charge principles and the AER's guideline. The jurisdiction could implement an equivalent connection charge framework through jurisdictional license conditions.

Alternatively a similar approach to the NEM connection charge framework could be taken for retail and/or connection charges in a category 2 SAPS. Under such an approach, the jurisdictional regulator could determine pricing principles and guidelines for the development of prices/connection charges. The third-party SAPS provider could then develop a pricing policy in line with the principles and guidelines, with customers being able to raise disputes on pricing or terms and conditions with the jurisdictional regulator for a determination.

For large customers, a negotiate-arbitrate regime might be appropriate. Such a regime could operate in conjunction with or instead of price monitoring of connection charges for larger customers. Under a negotiate-arbitrate regime a service provider and access seeker can negotiate terms and conditions of access to the microgrid. If negotiation fails, parties would be able to escalate the issue to the regulator for arbitration and to make an access determination.

Any form of economic regulation to apply to category 2 SAPS would be included in jurisdictional license conditions and/or jurisdictional regulatory instruments for a category 2 SAPS. Whichever form of light economic regulation is chosen by the jurisdiction, the Commission recommends the jurisdiction monitors compliance with these provisions. Additionally, the Commission recommends jurisdictional regulators be given powers to require the SAPS provider to justify, and potentially revise, prices if a misuse of market power was found to be occurring.

D.4.3 Category 3

Category 3 third-party SAPS are either very small microgrids, microgrids supplying only large customers, or IPS with one party providing energy services to another party. The customer in a category 3 third-party SAPS is likely to have a reasonable degree of countervailing market power. In addition, the customer has the option to source supply via their own IPS, or to request a connection to the interconnected grid, should the customer have any concerns regarding the services provided by the third-party SAPS operator. Should they wish to do so, customers may be able to protect themselves to an extent by signing a long-term pricing contract with the provider at the time of installation. Consequently, the Commission considers that no economic regulation is required for category 3 SAPS.

E CONSUMER PROTECTIONS

RECOMMENDATION 5: CONSUMER PROTECTIONS

In developing the consumer protection framework for third-party SAPS, the Commission has focused on providing appropriate consumer protections with consistent outcomes between supply models. In applying consistent principles between DNSP-led SAPS, embedded networks and standard supply, the Commission has been guided by the overarching principle that energy-specific consumer protections should apply to customers in a proportionate manner where there is a sale of energy. The size and, more importantly, the risks of the SAPS, as well as the customers' control and bargaining power, may impact the level of consumer protections required.

The recommended consumer protections for each category of third-party SAPS are:

Category 1

Retailers would be authorised by the AER, with the full suite of consumer protections under the NECF and any applicable jurisdictional consumer protections to apply. Consumers should have access to jurisdictional energy ombudsman schemes and concessions, rebates and emergency payment assistance.

Category 2

Comprehensive consumer protections largely consistent with the consumer protections in other supply models would be applied through jurisdictional license conditions. Consumer protections should include:

- customers' rights to access energy services
- informed consent requirements to enter into a supply arrangement
- billing requirements including bill contents obligations
- payment minimum requirements including time to pay and payment methods
- pricing principles or price monitoring requirements
- payment plans and basic customer hardship obligations
- undercharging and overcharging provisions
- obligations relating to interruptions to supply
- debt recovery arrangements
- disconnection and reconnection obligations
- protections for vulnerable customers and obligations relating to life support customers
- internal complaints handling processes
- independent dispute resolution
- entry criteria for entities to be approved to supply energy

- reporting and compliance obligations
- concessions, rebates and emergency payment assistance, and
- SAPS specific information provisions.

Category 3

Minimum consumer protections such as billing information, payment minimum requirements and disconnection and reconnection obligations would apply through exemption/license conditions.

E.1 Background

Under the national electricity regulatory framework there are a number of energy-specific consumer protections for grid-connected customers. These protections are found primarily in the NECF, the main legal instruments of which are the NERL and the NERR. The NECF:[170]

- 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 ACL and state and territory safety and concession regimes.[171]

State and territory governments retain energy functions in respect to certain protections, complementing the NECF to provide a complete set of consumer protections. These functions include access to state and territory concessions and rebates and access to independent dispute resolution for both distribution and retail services. Consumer protections provided to third-party SAPS customers under the ACL were also considered as part of the review.

This section provides background information on the NECF and jurisdictional protections, as well as national protections under the ACL and proposed protections under the New Energy Tech Consumer Code.

E.1.1 Current energy-specific consumer protections in the NEM

Consumer protections provided to grid-connected customers under the NECF relate primarily to:

- rights to access energy services, including obligations to offer supply as a designated retailer and for distributors to offer connection services
- informed consent requirements

170 The NECF currently applies, with jurisdiction specific amendments, in Queensland, New South Wales, South Australia, Tasmania and the Australian Capital Territory. The NERL and NERR do not apply in Victoria or the Northern Territory.

171 The relative scopes of the NECF and the ACL are discussed in more detail in the Commission's *2019 Retail Competition Review*, published on 28 June 2019.

- dispute resolution procedures
- minimum contractual standards
- billing, tariff and payment minimum requirements
- disconnection and reconnection obligations, and
- protections for vulnerable customers.

As discussed in section 1.2, depending on the jurisdiction, customers receiving supply via a third-party SAPS may not currently be covered by the consumer protections under the NECF. Customers receiving supply from a microgrid in Queensland and the ACT (if any) may be covered by the consumer protections under the NECF if they are supplied by an authorised retailer.[172] Similarly, SAPS customers in Victoria would likely be covered by protections under the Victorian Energy Retail Code if they are supplied by a licensed retailer. Consumers in NSW, Tasmania and South Australia who move off-grid would currently lose their energy-specific consumer protections under the NECF, even if they are supplied by an authorised retailer.[173]

E.1.2 Other national consumer protections

In addition to energy-specific consumer protections under the NECF there are broader national consumer protections provided under the ACL. The ACL applies nationally to all Australian businesses, and provides protections to consumers including:

- provisions on unfair contract terms covering standard form consumer and small business contracts
- provisions guaranteeing certain consumer rights when buying goods and services
- product safety requirements
- penalties, enforcement powers and consumer redress options.

The ACL applies for goods or services that are priced at less than $40,000, or that are priced at more than $40,000, but are 'of a kind ordinarily acquired for personal, domestic or household use or consumption'.[174]

The consumer protections that are likely most relevant to the issues discussed in this chapter include unfair contract terms and consumer guarantees. The unfair contract terms provision voids contract terms which cause a significant imbalance in the parties' rights and obligations where those terms are not reasonably necessary to protect the legitimate interests of a party and would cause financial or non-financial detriment to the other party.[175] Products under the ACL are subject to consumer guarantees, for example, a suppliers' and manufacturers' guarantee that products are of acceptable quality when sold to a consumer, including being

172 The Acts adopting the NERL in Queensland and in the ACT do not limit the application of the NECF to the sale of energy to customers connected to the interconnected national grid. The seller of electricity in a microgrid in those jurisdictions would need to be an authorised retailer, and therefore subject to the full provisions of the NECF, unless it was exempt.

173 The Acts adopting the NERL in each of these jurisdictions specify that, in relation to electricity, the NERL applies only in relation to the sale of electricity to customers connected to the interconnected national grid. *National Energy Retail Law (South Australia) Act* 2011 (SA) s. 16; *National Energy Retail Law (Adoption) Act* 2012 (NSW) Schedule 1, s. 11 and National Energy Retail Law (NSW) No.37a, s. 3A; *National Energy Retail Law (Tasmania) Act* 2012 (Tas) s. 17.

174 Section 3, Australian Consumer Law.

175 Part 2-3, Australian Consumer Law.

fit for all the purposes for which products of that kind are commonly supplied, and being safe, free from defects, and reasonably durable.[176]

Consumers supplied energy from certain third-party SAPS may receive some further protections under the proposed national New Energy Tech Consumer Code. Details of the New Energy Tech Code are provided in box 10 below.

BOX 10: NEW ENERGY TECH CONSUMER CODE

The New Energy Tech Consumer Code (previously the Behind the Meter Code) stems from work the COAG Energy Council commenced through the EMTPT. The EMTPT undertook consultation on the consumer protections required for behind the meter (BTM) products in 2016. Although it was found that current consumer protections provided by the NECF and ACL were generally sufficient for BTM products, the development of an industry-led code of conduct to support consumer protections for customers acquiring new energy products and services was considered to be of benefit.

A Working Group was established to develop a code of practice for behind the meter and distributed energy resource products such as solar, battery storage systems, energy management systems, electric vehicle charging products and off-grid systems supplying one site (individual power systems). The draft New Energy Tech Consumer Code was submitted to the ACCC for authorisation on 30 April 2019. The ACCC released a draft determination on 1 August, proposing to grant authorisation for five years. The ACCC will release its final determination in October 2019.

Obligations in the Code relate to marketing and promotion, quoting, sale, payment and finance, installation, operating, complaint handling and warranty, and business management, and will apply to those entities that voluntarily become signatories to the Code (once it is finalised).

The Code could provide some protections over and above those in the ACL for off-grid customers purchasing a SAPS where the NECF does not apply. However, it will not have the same enforcement regime as the ACL or NECF, and may not cover all entities providing SAPS services (unless all such entities choose to become signatories to the Code). In addition, some aspects of off-grid provision such as technical specifications and operations and microgrids are considered to be outside of the scope of the Code.

Source: COAG Energy Council, Energy Market Transformation Bulletin No. 05 - Work Program Update, 3 August 2017, p. 1-2; CEC, Attachments B & C to the Application for authorisation made under sections 88(1) of the Competition and Consumer Act 2010, 29 April 2019, see website https://www.accc.gov.au/public-registers/authorisations-and-notifications-registers/authorisations-register/new-energy-tech-consumer-code

E.1.3 Jurisdictional consumer protections for grid-connected customers

A number of jurisdictional consumer protections were considered under priority 2 of the review. This section focuses on access to state-based energy concessions and rebates, and

176 Part 3-2, Australian Consumer Law.

independent dispute resolution. Other jurisdictional protections such as safety, reliability, technical standards and retail price controls are discussed in other appendices of this report.

Vulnerable customers may be eligible for jurisdictional energy-specific concessions or rebates to assist with their energy costs. 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. In addition, 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. In some jurisdictions, concessions and rebates are extended to customers living in embedded networks, or in certain types of embedded networks. This varies in each jurisdiction.

Small customers who are grid-connected can access jurisdictional energy ombudsmen schemes free of charge to resolve disputes and complaints with their retailer and/or distributor, with the retailer or distributor bound by the ombudsman's decision. Registered distributors and authorised retailers are required to be members of jurisdictional energy ombudsman schemes under the NERL.[177]

If energy ombudsman schemes are not extended to consumers being supplied via a third-party SAPS, consumers will still be covered by the ACL and in some cases, depending on the ownership model of the third-party SAPS, may have access to dispute resolution under some form of tenancy agreement. However, any dispute resolution avenues under the ACL or a tenancy agreement may be more difficult or expensive for consumers to access, and may have less experience resolving consumers' energy issues, than jurisdictional energy ombudsmen.

E.1.4 SAPS comparator arrangements

When considering the most appropriate consumer protections for third-party SAPS, the Commission considered the final recommendations for priority 1 of this review and the embedded networks review, as well as existing conditions imposed on licensees or operators of current jurisdictional microgrids — for example the licence conditions imposed on licensees supplying via a SAPS in South Australia.

SAPS Priority 1 review

The Commission recommended in priority 1 of this review that, for DNSP-led SAPS, consumer protections should be equivalent to those under standard supply arrangements. In other words, all of the consumer protections under the NERL, NERR and jurisdictional instruments should apply to customers supplied via DNSP-led SAPS. This was considered appropriate in the context of DNSPs being able to transition customers to off-grid supply without consent, and that the tripartite relationship between retailers, distributors and customers would remain. In addition, a small number of SAPS-specific consultation and information provision requirements were recommended.[178]

177 Section 86 of the NERL.

178 AEMC, *Review of the regulatory frameworks for stand-alone power systems,* Final report, 30 May 2019, p. 84. The Commission plans to commence consultation on the changes to the NERR and NER necessary to implement this recommendation in December 2019.

Embedded networks review

In the final report for *Updating the regulatory frameworks for embedded networks,* the Commission recommended extending almost all of the consumer protections under the NERL and NERR to customers in new embedded networks, with minor amendments required to accommodate the multiple parties and broader relationships present in embedded networks. A few relatively minor obligations were not recommended to be extended to off-market retailers in embedded networks, for example, the requirement to publish price variations in a newspaper.[179]

Current jurisdictional frameworks for third-party SAPS

In South Australia, ESCOSA includes consumer protections in the licence conditions for third-party SAPS providers. For example, the licence conditions for the provider of the South Australian Remote Area Energy Supply scheme, Cowell Electric, include requirements relating to:[180]

- standard contractual terms and conditions
- bill contents
- billing frequency
- meter reading and minimum accuracy standards for meters
- undercharging and overcharging
- tariff variations
- payment and payment methods
- payment difficulties
- instalment plans
- bill reviews
- disconnection and reconnection obligations
- life support.

E.2 Commission's draft position

In developing its draft recommendations, the Commission considered that for third-party SAPS, practical application of the overarching principles and assessment framework will necessarily result in some variations in the suite of consumer protections, and the instruments under which they are applied under each category of third-party SAPS.

The Commission considered that the full suite of consumer protections applicable to grid-connected customers should be extended to large third-party SAPS which can sustain effective competition. For smaller third-party SAPS, which are likely to be vertically integrated, the Commission considered that consumer protections need to be proportionate and reflect the vertically integrated nature of the SAPS. While a set of comprehensive consumer protections would be appropriate, the Commission concluded that there are a

179 AEMC, *Updating the regulatory frameworks for embedded networks*, Final report, 20 June 2019, p. 94.
180 ESCOSA, *Electricity retail, distribution and generation licence Cowell Electric Supply Pty, Ltd,* 26 September 2018.

number of consumer protections in the NECF which are not required. As there would be no retail competition in a vertically integrated third-party SAPS, obligations including those relating to marketing, customer transfers and the relationship between retailers and distributor would be unnecessary. Very small SAPS may require few energy-specific consumer protections.

Noting that some differences in consumer protections between the different categories of third-party SAPS are likely to be appropriate, the Commission was nevertheless careful to avoid creating potential adverse impacts on customers, as well as potential distortionary impacts of forum-shopping, by not extending all of the existing protections to third-party SAPS.

In the draft report, the Commission also noted that a consumer protection framework for third-party SAPS could be implemented through jurisdictional regulation, or a combination of jurisdictional and national frameworks. The Commission proposed that customers supplied via a category 1 SAPS receive the full suite of consumer protections under the NECF and current jurisdictional regulations, through requirements on retailers to be authorised by the AER. For customers supplied via SAPS in categories 2 and 3, consumer protections would be provided through jurisdictional licence or exemption conditions and potentially jurisdictional regulatory instruments. State-based energy concessions and rebates, and energy ombudsman schemes, remain jurisdictional functions, and the Commission considered it was appropriate that these are extended to some of the categories of third-party SAPS.

The Commission's draft position was that energy-specific consumer protections for an IPS procured, owned and maintained by a customer are likely not required. These systems would not involve a sale of energy and so would be outside of the general scope of energy-specific rules. However, it may be reasonable that all energy users have access to energy concessions, rebates and emergency energy assistance, including consumers with their own IPS.

The Commission proposed the following consumer protections for each category of third-party SAPS in the draft report.

Table E.1: Draft report proposed consumer protections for third-party SAPS

CATEGORY	APPLICATION OF CONSUMER PROTECTIONS
Category 1	Retailers will be authorised by the AER, with the full suite of consumer protections under the NECF and any applicable jurisdictional consumer protections. Consumers should be able to access jurisdictional energy ombudsman and concessions, with rebate and emergency payment assistance schemes applying.
Category 2	Consumer protections will be provided through jurisdictional license conditions. Protections the Commission considers should be contained in license conditions include: • minimum contractual terms and conditions

CATEGORY	APPLICATION OF CONSUMER PROTECTIONS
	• rights to access energy services, and obligations to offer supply • informed consent requirements • billing, tariff and payment minimum requirements • disconnection and reconnection obligations • protections for vulnerable customers including payment plans and life support obligations. Customers should have access to jurisdictional energy ombudsman and concession, rebate and emergency payment assistance schemes. SAPS-specific information provision obligations for customers starting to receive supply is likely required.
Category 3	Minimum consumer protections such as billing information, payment minimum requirements and disconnection and reconnection obligations in exemption/license conditions.

Source: AEMC

In addition, in the draft report the Commission noted that in priority 1 of the review, the Commission recommended that providers of third-party SAPS be required to obtain a customer's explicit informed consent in writing prior to transitioning that customer to a third-party SAPS.[181] For a customer to provide their consent they would need to be fully aware of all of the differences between supply via a third-party SAPS and standard supply. It would be the responsibility of the third-party SAPS provider to clearly, fully and adequately disclose all matters relevant to the consent of the customer. The Commission was of the view that it may be helpful for the AER to provide additional information provision guidelines indicating the minimum information that should be provided to customers prior to them transitioning to a third-party SAPS. There may also be SAPS-specific information provision obligations which would be appropriate for customers who are moving into a third-party SAPS.

E.3 Stakeholder submissions

In submissions to the draft report, stakeholders were generally in agreement on the importance of consumer protections for the supply of electricity. The consumer protections suggested for category 1 and category 3 SAPS in the draft report were broadly supported, with most stakeholders providing little comment on the proposed consumer protections for these categories. The two stakeholders which did comment on the proposed consumer protections for category 3, ENA and the AEC, both considered the protections were appropriate.[182]

181 AEMC, *Review of the regulatory arrangements for stand-alone power systems — priority 1* final report, p. 102.

182 Submissions to the draft report: AEC, p. 3; ENA, p. 15.

Stakeholder views on the appropriate consumer protections for category 2 SAPS were mixed, although most agreed that it was important to ensure the application of a comprehensive consumer protection framework for these customers.[183]Stakeholder views on consumer protections for category 2 third-party SAPS are discussed in more detail below.

A number of stakeholders considered consumer protections should be largely consistent across customers, irrespective of the method of supply. In their submission to the draft report, Red Energy/ Lumo considered that the regulatory framework for third-party SAPS should ensure that customers receive the same entitlements and protections, irrespective of the mechanism through which they receive their energy.[184]

The AEC supported consistency in the application of consumer protections between third-party SAPS and embedded network customers, and considered that, at a minimum, protections in respect of billing information, payment options, hardship support and notification of planned outages should apply.[185]

In its submission to the draft report, PIAC recommended the Commission adopt a framework for consumer protections informed by a harm-based approach, where the protection offered to customers is commensurate to the potential harm to the consumer should they lose the energy service. PIAC considers that the risks for consumers supplied via a SAPS are different to those who retain grid-connection, with specific consumer protections required to reflect these difference.[186]

Energy Queensland considered that the short and long-term implications of transitioning to a third-party SAPS need to be understood, with explicit informed consent provisions.[187] Energy Queensland expressed concerns that vertical integration in a third-party SAPS will limit access to retail competition and relevant consumer protections, and considered that the findings in the Embedded networks review final report are relevant for third-party SAPS.[188]

In its submission, Essential Energy requested a more detailed exploration of the consumer protections to apply to each of the third-party SAPS categories, and considered that the process for updating jurisdictional license conditions to keep consistency with the NECF was unclear, as was the process for rectifying performance issues.[189]

AusNet Services considered that irrespective of the size of a microgrid, customers will not have the ability to negotiate fair and reasonable terms with a party capable of withholding supply at the connection point.[190]

183 Submissions to the draft report: Red Energy/ Lumo, p. 1; AEC, p. 2; PIAC, p. 1; ENA, p. 4; EWON, p. 1; Energy Queensland, p. 4.
184 Red Energy/Lumo submission to the draft report. p. 1.
185 AEC, submission to the draft report, p. 2.
186 PIAC, submission to the draft report, pp. 1-4.
187 Energy Queensland, submission to the draft report, p. 1.
188 Energy Queensland, submission to the draft report, pp. 4-5.
189 Essential Energy, submission to the consultation paper, pp. 3, 5.
190 AusNet Services, submission to the draft report, p. 3.

E.3.1 Consumer protections for category 2 third-party SAPS

For category 2 third-party SAPS, stakeholders considered that comprehensive consumer protections were required, with a number of stakeholders detailing consumer protections as an area of concern if frameworks differ between supply models.

Stakeholders recommended consistency between models, either through the application of consumer protections under NECF to all models, or if consumer protections are provided through jurisdictional license conditions, consistent licence conditions where appropriate with NECF.[191] Further details on stakeholder submissions relating to consistency of consumer protections can be found in Chapter 4.

EWON considered that category 2 SAPS operators should be required to obtain a national retail authorisation, so consumer protections can be driven by the needs of consumers, rather than business models of the supplier. EWON expressed concern that the growth in third-party SAPS may be driven by developers, not customer choice, and that tiered consumer protections could lead to unequal consumer outcomes.[192]

EWON proposed two alternative models for the regulation of third-party SAPS, focusing on consumer protections. Under the first model, EWON proposed that all category 2 SAPS operators should be required to obtain a national retailer authorisation, while under the second model, EWON proposed that any category 2 SAPS operators who provide retail services to more than one SAPS with retail customers should be required to obtain a national retailer authorisation.[193]

In its submission to the draft report Energy Queensland requested further information on the consumer protections for category 2 third-party SAPS, the Commission's intent behind jurisdictional regulators determining consumer protections for category 2 and 3 third-party SAPS, and the impact on future customers who may move into a premises supplied by a third-part SAPS.[194]

E.3.2 Stakeholder views on specific consumer protections

A number of stakeholder submissions addressed pricing within third-party SAPS. The AEC considered there would be benefit in developing principles to guide jurisdictional regulation on price setting.[195] Mondo considered that cost structures for category 2 and 3 SAPS will exhibit very different characteristics to large scale power systems and that the third-party SAPS provider should be able to develop pricing and service models that reflect the different underlying costs.[196] The CEC considers that price transparency and price monitoring would be required for retail and connection charges.[197]

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191 Submissions to the draft report, ENA, p. 4; Energy Queensland, p. 5; Ausgrid, p. 4; Essential Energy, p. 2; PIAC, p. 1; Red/Lumo Energy, p. 1.

192 EWON, submission to the draft report, pp. 1-4.

193 EWON, submission to the draft report, pp. 5-8.

194 Energy Queensland, submission to the draft report, p. 4.

195 AEC, submission to the draft report, p. 2.

196 Mondo, submission to the draft report, p. 2.

197 CEC, submission to the draft report, p. 4.

The CEC supported the Commission's recommendation that customers should have access concession, rebate and emergency assistance schemes as well as access to dispute resolution, preferably via jurisdictional energy ombudsman schemes. In addition, CEC considered that its accreditation programs could become part of the jurisdictional licensing requirements.[198]

The AER considered that if a retailer of last resort event occurs in a category 1 SAPS then the RoLR arrangements may need to differ from the existing RoLR arrangements. This is because customers of the SAPS are largely supplied by one or two retailers, and the retailer may find themselves the primary retailer for a SAPS. The AER considered this to be a different business model to normal RoLR situations and could have financial impacts for the RoLR.[199]

PIAC considered that specific consumer protections that should apply to SAPS where the customer is transitioning from grid-connection to a SAPS. The SAPS-specific consumer protections recommended by PIAC are:[200]

- Performance/ reliability of supply guarantees
- Education on the differences of SAPS supply compared to standard grid connection
- Demonstration of the customer's explicit informed consent
- Clear and fair contract terms, with a cooling-off period
- Transition periods with isolation trials so the customer can experience isolated supply
- Detailed product information to allow for straightforward repairs and replacement of parts
- Independent dispute resolution and reporting of disputes to the regulator
- A prudential fund or insurance against failure of the system.

E.4 Commission's analysis and final position

As the Commission noted in the draft report, although the consumer protections under the ACL provide a base level of consumer protections, electricity is an essential service for which additional consumer protections are generally provided. The Commission has given consideration to the extent to which these additional protections should apply to third-party SAPS customers throughout this review. In addition, the Commission has considered whether there are any differences in the scope of the consumer protections, or the way in which they are provided to customers, under each of the categories under the proposed tiered framework.

Currently, residential customers under a third-party SAPS model of supply will receive protections under the ACL, and protections under any applicable jurisdictional licence conditions or frameworks. In some jurisdictions, customers in a third-party SAPS would not receive the benefits of the energy specific protections contained in the NERL and NERR. Depending on the wording of jurisdictional provisions, they also may not be able to access

198 CEC, submission to the draft report, pp. 1-2.
199 AER, submission to the draft report, p. 3.
200 PIAC, submission to the draft report, pp. 1-4.

state-based concessions and rebates, nor independent dispute resolution via the energy ombudsman schemes.

In developing the consumer protection framework for third-party SAPS, the Commission has focused on consistency of the consumer experience and consistent outcomes. In applying consistent principles between DNSP-led SAPS, embedded networks and standard supply, the Commission has been guided by the overarching principle that energy-specific consumer protections should apply to customers in a proportionate manner where there is a sale of energy. The size and, more importantly, the risks of the SAPS, as well as the customers' control and bargaining power, may impact the level of consumer protections required.

The consistency of consumer experience and consistent outcomes for customers has been a focus of this review, and in the development of the consumer protections framework for third-party SAPS. In developing those consistent outcomes for consumers, the Commission has given consideration to whether it is appropriate to apply all the consumer protections in the NERL and NERR, as well as the jurisdictional consumer protections, to each category of third-party SAPS, or whether consumer protections via jurisdictional license conditions and other jurisdictional instruments are more appropriate.

E.4.1 Category 1

Consistent with the view put forward in the draft report, the Commission recommends that the full suite of consumer protections in the NERL and NERR be extended to customers being supplied electricity via third-party SAPS which have met the coverage test (and are therefore classified as category 1 SAPS). These protections would be applied through the arrangements requiring retailers participating in the SAPS retail market to be authorised by the AER.

The Commission notes the AER's concern that the RoLR arrangements for category 1 third-party SAPS may need to differ from the RoLR for standard grid connection, due to the potential for a small number of retailers to be supplying the entire customer base of a category 1 SAPS. This could potentially cause financial distress to the RoLR if one of those retailers fails and the RoLR finds itself the primary RoLR of the SAPS. That said, at this stage the Commission does not consider that any changes need to be made to the RoLR provisions in the NERL. A retailer would be able to nominate to be a RoLR and may propose the classes or numbers of customers it will accept as its customers if appointed.[201] In making this decision a retailer would be able to undertake its own cost benefit analysis. In addition, the local area retailer will be determined by the jurisdiction after carrying out appropriate checks. If the AER appointed a default RoLR, the AER would need to carry out checks to appoint an appropriate default RoLR this may be the local area retailer.

201 National Energy Retail Law section 124(4).

Implementation

In most jurisdictions, changes to the NERL application Acts as recommended in priority 1 in relation to DNSP SAPS will be required to extend the application of the NERL and NERR to SAPS.[202] Provided the proposed changes to the NEL outlined in Appendix A of this report are made (specifically, adding covered stand-alone networks to the definition of "national electricity system"), no additional changes to the application Acts would be required in respect of category 1 third party SAPS.

In Queensland, changes to the NERL application Act would be required to restrict the application of the NERL and NERR to category 1 microgrids.[203]

E.4.2 Category 2

The Commission considers that category 2 third-party SAPS would be most appropriately regulated by jurisdictions through licensing, both for retail and distribution functions.

As discussed in Chapter 4, it is unlikely that anything other than a very large microgrid would be able to sustain effective competition, as many retailers would not develop specific offers for a third-party SAPS unless there are many thousands of customers. Therefore, a third-party SAPS under category 2 will likely be vertically integrated. As such, some of the consumer protections under the NERL and NERR would not be relevant as there would be no marketing and transfer activities, and no requirement to provide consumer protections around the shared customer and tripartite relationship considerations.

In addition, it is likely that Retailer of Last Resort provisions such as those in the NERL would not be suitable for Category 2 SAPS on the basis that the third-party SAPS provider will likely be a vertically integrated entity. Broader operator of last resort provisions, or protections from operator insolvency, would be more appropriate (operator of last resort provisions are discussed in more detail in Chapter 4).

The Commission recommends that the consumer protections applied to customers of a category 2 SAPS be as robust as those consumer protections provided under the NECF overall. Consumer protections for category 2 SAPS should be comprehensive, tailored to the risk associated with category 2 SAPS, and reflect the likely vertically integrated nature of category 2 SAPS.

NECF consumer protections which would not be required for a category 2 SAPS

There are a number of consumer protections in the NECF which would not be relevant for category 2 SAPS. These include:

- market retail contract terms
- customer transfer obligations
- marketing obligations
- obligations regarding the relationship between retailers and distributors

202 AEMC, *Review of the regulatory frameworks for stand-alone power systems - Priority 1*, Final report, 30 May 2019, section 9.2.1.

203 The NERL and NERR would likely apply to all categories of microgrids under Queensland's current application Act (unless an exemption applies).

- price comparator obligations
- designated retailer obligations
- retailer of last resort obligations
- retailer market performance reports.

Recommended consumer protections for category 2 SAPS

Having reviewed the consumer protections contained in the NERL and the NERR, as well as jurisdictional consumer protections, the consumer protections which the Commission considers should apply to small customers in a category 2 third-party SAPS, under jurisdictional license conditions, relate to:

- customers' rights to access energy services and the third-party SAPS providers' obligations to offer connection and supply
- informed consent requirements to enter into a supply arrangement
- billing requirements including bill contents obligations (the customers should be provided with tariff breakdowns, consumption data, metering identifier, total amount payable, due date and a contact number for billing enquiries and for faults as a minimum)
- payment minimum requirements including minimum time to pay and any payment method consumer protections deemed necessary
- pricing principles or price monitoring requirements to provide protection to customers from monopoly pricing
- payment plans and basic customer hardship obligations which may be tailored to the risk of the third-party SAPS
- undercharging and overcharging provisions
- consumer protections around interruptions to supply including planned interruption notification methods and timeframes
- debt recovery arrangements
- disconnection and reconnection obligations including reminder notices and disconnection warning notices and restrictions on customer de-energisation
- protections for vulnerable customers and obligations relating to life support customers
- internal complaints handling processes and availability of independent dispute resolution where the customer is unable to resolve the complaint with the SAPS provider in the first instance
- entry criteria for entities to be approved to supply energy, and
- reporting and compliance obligations.

Where these consumer protections are extended to large customers in the NERL and NERR, they should be extended to large customers under jurisdictional license conditions.

In addition, the Commission considers that customers should have access to dispute resolution mechanisms, preferably via jurisdictional energy ombudsman schemes. Customers being supplied by third-party SAPS should also have access to jurisdictional concession,

rebate and emergency assistance schemes. This is in line with the Commission's recommendations in the embedded networks review and priority 1 of this review.

ESCOSA has included similar consumer protections in the license conditions for third-party SAPS providers supplying customers under the South Australian Remote Area Energy Supply scheme (see section E.1.4).

Recommended SAPS specific consumer protections

In addition to the consumer protections detailed above, there should be SAPS-specific consumer protections included in license conditions including requirements to provide information to customers who are starting to receive supply from established third-party SAPS. Information on any differences between third-party SAPS supply and standard supply, the arrangements should the third-party SAPS fail, and performance standards should be provided to customers when they commence supply via a third-party SAPS.

In the case of customers transitioning from standard-supply to third-party SAPS the Commission recommended in the priority 1 final report that informed consent of all customers would be required. To provide informed consent customers need to be provided details on the differences between standard supply and SAPS supply (including in relation to retail tariffs and choice of retailer), performance standards that apply to the SAPS, details of the arrangements in case of failure of the SAPS provider, details on the process for and potential costs of reconnecting to the grid, and any other details that may be relevant to the customer's decision to transition to the SAPS.

E.4.3 Category 3

The Commission considers that it would not be appropriate or proportionate to apply the full suite of energy-specific consumer protections to category 3 third-party SAPS. Category 3 SAPS are likely to be very small microgrids connecting a small number of premises, an IPS where there is one party controlling the electricity supply of another party, or microgrids only supplying large customers. Customers supplied via a category 3 SAPS would likely have a higher degree of market power and control over the SAPS requirements than customers supplied by a category 2 SAPS. In addition, these customers are likely to have the choice to buy an IPS outright at a comparable cost, or request a connection from a DNSP if they are not satisfied with the conditions offered by the third-party SAPS provider.

The ACL will provide some aspects of consumer protections for these customers, including provisions on unfair contract terms and consumer guarantees. In addition to the ACL and the New Energy Tech Consumer Code (noting that not all SAPS providers may become signatories to the code), the Commission considers a minimum standard of consumer protections should be provided in jurisdictional registered exemption or license conditions, and that category 3 SAPS must be registered (in a form to be determined by the jurisdiction). These minimum consumer protections should cover issues such as bill content and frequency, contact details for billing enquiries, complaints and faults, payment terms, disconnection and reconnection of supply, supply interruptions and some protections for vulnerable customers.

This will still enable flexibility and choice for many aspects of the SAPS and the relationship between the customer and the third-party SAPS provider.

F RELIABILITY OF SUPPLY

RECOMMENDATION 6: RELIABILITY OF SUPPLY

In developing the recommended reliability framework for third-party SAPS, the Commission has been guided by the overarching principle that reliability of supply should be at an appropriate level valued by the customer, or customers as a whole. The Commission considers that for customers with limited control over the system design, reliability targets should be specified.

The recommended reliability of supply measures for each category of third-party SAPS are:

Category 1

Reliability measures should be the same as those applicable to DNSPs, including jurisdictional reliability standards (SAIDI and SAIFI), GSL schemes and STPIS. Some variations to the STPIS and jurisdictional standards may be required, as feeder categories may require review.

Reliability performance reporting to the jurisdictional regulator on jurisdictional distribution reliability standards and GSL payments, and to the AER on STPIS target performance, should be required, consistently with current requirements for DNSPs.

As category 1 SAPS will be regulated under the national framework, the reliability standard set in the NER would apply for generation.

Category 2

Reliability targets should be included in jurisdictional licence conditions. The calculation of these reliability targets should include supply interruptions caused by both distribution and generation assets.

These reliability targets may not be as prescriptive as SAIDI and SAIFI, and would not be calculated in the same way as for DNSPs. The use of supply interruption Guaranteed Service Level payments is recommended as an incentive for SAPS operators to maintain the required reliability standards.

Reporting on performance against reliability targets and any rectification requirements for poor reliability should also be included in jurisdictional licence conditions.

Category 3

Customers of category 3 SAPS will be able to negotiate reliability with the provider when the contract for supply is being entered into. Consequently, reliability performance for category 3 SAPS would be expected to be addressed in the contract between the SAPS provider and individual customers, not through a jurisdictional target.

F.1 Background

Reliability is a key measure of the electricity supply service received by consumers and, consequently, is a factor specifically considered in the national energy objectives. The nature of shared networks serving multiple customers means that it is usually not possible to offer individual consumers different levels of reliability (other than in respect of any dedicated assets used to connect them to the shared network). Rather, the trade-off that exists between reliability and price has to made by regulators and governments on behalf of consumers as a whole.

A power system is reliable when there is enough generation, demand response and network capacity to supply customers with the energy they demand with a high degree of confidence. In the NEM, there are different reliability frameworks for generators, transmission networks, and distribution networks. However, most of the outages that customers experience are due to issues on the distribution networks.[204] Each state and territory government retains control over how transmission and distribution reliability is regulated, which has resulted in different reliability standards applying in each jurisdiction.[205]

In the context of stand-alone power systems, the reliability of supply of electricity will be determined by the characteristics of each system and its capacity (including network, generation and demand-side assets) to meet demand at any point in time, and the flexibility of the demand. For individual power systems, any outages experienced by the customer will likely primarily relate to issues associated with the generation of electricity or imbalances between demand and generation; for microgrids, outages experienced by customers may be caused by a combination of issues relating to generation and the network, as well as demand/supply imbalances.

In priority 1 of the review, the Commission considered that, irrespective of the source of an interruption to customer supply, the reliability associated with a DNSP-provided SAPS should be regulated and considered as 'distribution reliability' for regulatory purposes. This was on the basis that any interruptions to SAPS customers would be considered to be primarily within the control of the distribution business.[206] In this work on priority 2, the Commission considered whether there is a need for any regulatory standards or protections relating to reliability for each category of third-party SAPS and, if so, how those standards or protections should be specified.

F.1.1 National reliability arrangements

The national nature of the NEM means that the standard and settings used to drive reliability in the wholesale market are determined on a NEM-wide basis. The reliability standard is set in the NER and is periodically reviewed by the Reliability Panel. The reliability standard is an expression of the reliability sought from the electricity market's generation and interconnector

204 The Commission has recently noted that 94.38 per cent of supply interruptions over the period 2008/09 to 2017/18 were caused by outages on the distribution network. See: AEMC, *Enhancement to the reliability and emergency reserve trader*, Rule determination, 2 May 2019, p. 10.

205 COAG, Australian Energy Market Agreement, Annexure 2.

206 AEMC, *Review of the regulatory frameworks for stand-alone power systems — Priority 1*, Final report, 30 May 2019, p. 96.

assets. The current standard requires there to be sufficient generation and transmission interconnector capacity in a region to meet 99.998 per cent of forecast annual demand.[207]

In the NEM, the reliability standard feeds into various wholesale pricing parameters, and is a key input into AEMO's planning and operational decisions.[208] This includes assessing whether the power system meets, and is projected to meet the reliability standard, as well as monitoring demand and generation capacity and intervening where necessary to maintain reliability of supply.

Network reliability is primarily a jurisdictional function. However, the economic regulation of networks is a national function under Chapter 6 of the NER. The AER administers incentive schemes as part of its economic regulation function, and one of the incentive schemes relates to reliability. This is the service target performance incentive scheme (STPIS).[209]

The primary purpose of the STPIS is to encourage distributors to maintain existing levels of reliability and make improvements where customers are willing to pay for that improvement. Under the STPIS, DNSPs receive revenue increments (or decrements) for given levels of performance. The reliability supply parameters measured under the STPIS relate to both the duration and frequency of unplanned outages.[210]

F.1.2 Jurisdictional reliability arrangements for grid-connected customers

Reliability of electricity networks remains primarily a jurisdictional function, with different regulations governing reliability in each jurisdiction for both transmission and distribution networks.

Transmission reliability standards are generally input-based and are specified in terms of redundancy levels (for example, N-1). In some jurisdictions, the standards are explicitly based on economic analysis and set on an ex ante basis, while in Victoria the level of reliability associated with each transmission investment is determined on a case-by-case basis.

For distribution, each state and territory generally has reliability standards for the average number and duration of unplanned outages that each distribution network should not exceed each year. For each network, these standards are often further split into specific standards for different levels of customer density, geographic areas, or customer types.

The levels of reliability that must be provided by distribution networks are measured by the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI). These measures are averaged across large numbers of customers in a DNSP's distribution network. Some jurisdictions also have a number of other measures to regulate distribution reliability.

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207 NER clause 3.9.3C(a).

208 In accordance with the Reliability Standard Implementation Guidelines See AEMO, Reliability standard implementation guidelines final October 2016, 2016, Sydney, pp. 4-5.

209 NER clause 6.6.2. AER, *Electricity distribution network service providers — Service target performance incentive scheme*, version 2.0 (November 2018). Section 3 sets out the reliability of supply component.

210 The STPIS is applied in the Australian Capital Territory, New South Wales, Queensland, South Australia, Tasmania and Victoria.

Additionally, there are jurisdictional Guaranteed Service Level (GSL) schemes which DNSPs are subject to (by way of local legislation or codes). Under the GSL schemes, there are GSLs relating to both duration and frequency of supply interruptions. 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 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).

F.1.3 SAPS comparator arrangements

When considering the most appropriate reliability measures for third-party SAPS, the Commission considered the final recommendations for priority 1 of this review and the embedded networks review, as well as existing conditions imposed on licensees or operators of current jurisdictional microgrids — for example, the licence conditions imposed on licensees supplying via a SAPS in South Australia.

SAPS priority 1 review

In the final report for priority 1 of this review, the Commission recommended that the current jurisdictional reliability standards be extended to cover DNSP-led SAPS. This included SAIDI and SAIFI, and GSLs for unplanned outages. The Commission recommended that jurisdictional schemes be reviewed and amended (if required) to facilitate the extension of the standards to DNSP-led SAPS. In addition, it was recommended that the STPIS calculations should include DNSP-led SAPS. As such, for DNSP-led SAPS the Commission's recommendation was not to introduce additional reliability standards or targets for individual SAPS. Rather, customers in DSNP-led SAPS should receive protections equivalent to grid-connected customers.[211]

Embedded networks review

In the *Updating the regulatory arrangements for embedded networks* review, the Commission considered that consumers in embedded networks would benefit from some reliability protections. However, the Commission noted that embedded networks generally have a much smaller number of customers connected to their networks than DNSPs.

Consequently, the Commission concluded that applying SAIDI and SAIFI in the same way as for DNSPs would likely not be appropriate. Instead, the Commission suggested that the most reasonable approach to providing reliability protections within embedded networks would be for jurisdictions to develop and apply a type of GSL scheme, with consideration given to the required monitoring and enforcement regime that should apply.[212]

Current jurisdictional frameworks for third-party SAPS

ESCOSA imposes licence conditions on Cowell Electric for the operation of its multiple SAPS in South Australia. Licence conditions for Cowell Electric's SAPS include conditions relating to

211 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 99.
212 AEMC, *Updating the regulatory frameworks for embedded networks,* Final report, 20 June 2019, pp. 306-307.

quality of supply and interruption of supply. There is no specific reliability target set or reporting requirements; instead, the licensee must "use its best endeavours to minimise the frequency and duration of supply interruptions".[213] However, the Commission understands that where networks are supported by the South Australian government under its RAES scheme (which includes those operated by Cowell Electric) specific reliability targets are set and reported on through the contractual arrangements between the government and the service provider.

F.2 Commission's draft position

In developing its draft recommendations, the Commission considered that the standards and measures that might be used to govern the reliability of third-party SAPS may not necessarily need to be exactly the same as those that apply to grid-connected customers. For example, some measures or incentive targets used for grid-connected customers may not be appropriate for third-party SAPS systems.

In addition, the Commission considered that the practical application of the overarching principles and assessment framework would result in some variations in the reliability standards or targets that apply under each category of third-party SAPS. The Commission noted that the applicability of measures and incentives to third-party SAPS should be considered by jurisdictions, as well as the process used to establish and monitor reliability performance targets.

The Commission considered that the reliability standards, measures and targets which would be appropriate for each category of third-party SAPS would be shaped by factors such as the influence the customer has over system design and capacity, and the number of customers the third-party SAPS supplies.

On this basis, it considered the extension of reliability performance measures such as SAIDI, SAIFI, and performance incentive schemes such as STPIS, would be appropriate for large SAPS with many customers. For smaller SAPS, the Commission considered that less prescriptive reliability targets in license conditions may be appropriate. In the case of very small SAPS and IPS, the customer could negotiate reliability targets with the SAPS provider.

The Commission proposed the following reliability measures for each category of third-party SAPS in the draft report.

Table F.1: Draft report proposed reliability measures for third-party SAPS

CATEGORY	APPLICATION OF RELIABILITY MEASURES
Category 1	Same reliability measures as DNSPs, including jurisdictional reliability standards (SAIDI and SAIFI), GSL schemes and STIPS. Some variations to the STPIS incentive scheme and jurisdictional standards may be required as feeder categories may not be appropriate.

213 ESCOSA, *Electricity retail, distribution and generation licence Cowell Electric Supply Pty Ltd,* 26 September 2018, p. 6.

CATEGORY	APPLICATION OF RELIABILITY MEASURES
	Reliability performance reporting to jurisdictional regulator on jurisdictional reliability standards and GSL payments, and to the AER on STPIS target performance.
Category 2	Reliability targets in jurisdictional licence conditions (which may not be as prescriptive as SAIDI and SAIFI). Reporting on performance against reliability targets and any rectification requirements for poor reliability also included in jurisdictional licence conditions.
Category 3	Potential for customers to negotiate reliability targets with third-party SAPS provider, but no regulated reliability obligations.

Source: AEMC

In the draft report, the Commission also noted that in third-party SAPS, it is unlikely there will be a transmission network, and in many third-party SAPS, the generation and distribution services would likely be vertically integrated. Therefore, the reliability of supply of electricity in a third-party SAPS would be determined by the characteristics of the particular system. Outages would relate both to issues associated with the generation of electricity (or imbalances between demand and generation), and network issues in microgrids.

F.3 Stakeholder submissions

Stakeholders who commented on reliability of supply for third-party SAPS were broadly supportive of the proposed reliability framework. However, some stakeholders requested more detailed recommendations be made in the final report, particularly in relation to category 2 SAPS and the more general reliability information provision obligations.

Mondo supported the protection of customer choice, specifically in regard to system capacity and reliability. However, it noted that balancing cost, system capacity and reliability is a complex task and therefore would require the provision of standardised information in relation to capacity and reliability.[214]

In its submission, Energy Queensland suggested that customers should be provided with certainty that basic consumer protections, such as reliability and quality, are adequate.[215] Further, if consumers in category 2 are able to make trade-offs between price and reliability, they must be fully informed of any differences between the third-party SAPS and grid connection.

ENA supported the proposed reliability framework for category 1 and 3 third-party SAPS. However, ENA expressed concern around reliability standards for category 2 customers. ENA

214 Mondo, submission to the draft report, pp. 1-2.

215 Energy Queensland, submission to the draft report, pp. 1, 4.

recommended that jurisdictions should be encouraged to develop reliability standards informed by assessments of the value of reliability of the customers within the SAPS.[216]

Essential Energy considered that further recommendations for the reliability measures for category 2, as well reliability measures for independent generation in category 1, should be provided.[217]

F.4 Commission's analysis and final position

In respect of reliability, the Commission has sought to recommend an approach which enables reliability levels for third-party SAPS to be determined having regard to customer values of reliability, without imposing undue complexity. In the first instance, the Commission developed appropriate definitions and measurements of SAPS reliability for each category of third-party SAPS. Next, the Commission determined an appropriate process to establish and monitor reliability performance targets in each of the categories of third-party SAPS.

In the NEM, customer reliability is impacted by services provided by generators, transmission networks and distribution networks, with most outages that customers experience due to issues on the distribution network. Third-party SAPS are unlikely to include a transmission network and in many, the generation and distribution services will be vertically integrated. Therefore, the reliability of supply of electricity in a third-party SAPS will likely be determined by the characteristics of the particular system and the capacity (including network, generation and demand-side assets) to meet demand at any point in time. Outages experienced by SAPS customers will therefore relate both to issues associated with the generation of electricity (or imbalances between demand and generation) and network issues in microgrids.

In category 1 SAPS, the reliability of SAPS generation will need to be treated separately to the reliability of the SAPS distribution network on the basis that different entities will be responsible for the provision of the generation and distribution services. In category 2 and 3 third-party SAPS, the reliability of the SAPS as a whole should be included in one reliability measure on the basis that distribution and generation will be the responsibility of one entity.

Distribution reliability performance measures such as SAIDI, SAIFI, and performance incentive schemes such as STPIS, are well-established and uniformly applied and managed by jurisdictional regulators and the AER for DNSPs. While these measures should be extended to category 1 SAPS, the applicability of these measures and incentives to category 2 third-party SAPS should be considered by jurisdictions. To the extent that SAIDI and SAIFI are used in third-party SAPS, a number of parameters may need to differ. One area which may need to differ is the outages excluded from SAIDI and SAIFI calculations, as in a category 2 SAPS generation would be under the control of the SAPS provider.

In addition to reliability standards and targets, under jurisdictional GSL schemes, DNSP customers may be entitled to claim financial compensation where the DNSP has exceeded the interruption duration threshold and/or the interruption frequency threshold under the

216 ENA, submission to the draft report, p. 15.

217 Essential Energy, submission to the draft report, p. 6.

conditions of each jurisdiction's scheme.[218] A similar scheme may be appropriate for category 1 and category 2 SAPS.

The appropriate reliability measures for each category of third-party SAPS, along with the form of monitoring required, and any avenues customers may have to address poor reliability, are discussed further below.

F.4.1 Category 1

The efficacy of distribution reliability performance measures such as SAIDI and SAIFI and incentive schemes such as STPIS relies on data averaged over a large population of customers. The Commission considers that the same measures should be applied to category 1 SAPS on the basis that a sufficiently large customer base is present, so reliability performance can be averaged across the customer population in a way that recognises the difference in reliability expected and experienced by urban, suburban and rural electricity customers who may be supplied from a Category 1 SAPS.

Distribution reliability performance averaged across a significant customer population does not accurately capture individuals or small groups of customers whose reliability performance may be a statistical outlier. As a result, reliability performance measures for DNSPs in many jurisdictions may also include thresholds for interruption duration and frequency measures for individuals and/or sub-groups of customers, with reporting and further analysis undertaken when the thresholds are exceeded, or alternatively, reporting required on the worst performing sub-groups of customers. In addition, jurisdictional GSL schemes provide payments to customers where service levels have been breached. A similar approach to the regulation of distribution reliability would be appropriate for category 1 third-party SAPS.

As category 1 SAPS distribution networks will be economically regulated by the AER, the STPIS would be applied to category 1 third-party SAPS.

Therefore, the Commission recommends that distribution reliability for category 1 SAPS is regulated by both the AER and jurisdictions, in line with current arrangements for DNSPs — that is, with STPIS, jurisdictional reliability standards and GSLs applying. The Commission recommends that jurisdictions give consideration to whether any changes would be required to reliability targets for each group of customers (that is, urban, suburban, rural) that may be supplied from a category 1 SAPS, as well as to the exclusions from reliability calculations. Similarly, when the rules are being drafted in the next stage of the development of the regulatory frameworks for third-party SAPS, the parameters for STPIS for category 1 SAPS will require consideration.

Reliability of generation also required consideration for category 1 SAPS, as different entities will be providing generation and distribution.

As discussed in section G.4.1, an independent system operator (ISO) will be required for a category 1 SAPS. The ISO (whether AEMO or another party) will need to be subject to various obligations and requirements in respect of maintaining the SAPS in a security and

218 For example, in NSW see Schedule 5 of IPART's NSW Electricity Networks Licence Conditions and Regulatory Instruments.

reliable operating state. In respect of reliability in the NEM,[219] the power system is assessed to be in a reliable operating state when:[220]

- AEMO has not disconnected, and does not expect to disconnect, any points of load connection
- no load shedding is occurring or expected to occur anywhere on the power system, and
- in AEMO's reasonable opinion, the power system meets, and is projected to meet, the reliability standard

Consistent with the approach in the NEM, the Commission considers that the application of a reliability standard within a category 1 SAPS will be a necessary reference point for ensuring the maintenance of a reliable off-grid system through the use of various planning and operational tools (including intervention mechanisms) available to the ISO. A key question is therefore whether the NEM reliability standard would be the appropriate standard to apply in a category 1 SAPS. An overview of the NEM's Reliability Standard is provided in Box 11.

BOX 11: **THE NEM RELIABILITY STANDARD**

The reliability standard is an expression of the reliability sought from the NEM's generation and interconnection assets, which form the basis of the wholesale supply of electricity. It is used to indicate to the market the required level of supply to meet demand in a given financial year in a region.

When setting the level of the reliability standard, the Reliability Panel makes a trade-off, on behalf of consumers, between two sets of costs:

- the cost of additional generation and interconnection capacity to meet consumer demand for electricity, and
- the costs associated with not having energy when it is needed.

The trade-off is expressed as the proportion of expected energy demand that is at risk of not being supplied to consumers - termed "unserved energy" - in a region in a given financial year. The standard is currently set at 0.002 per cent USE.

Having regard to Box 11, whether it is appropriate to apply the NEM's Reliability Standard to category 1 third-party SAPS depends to some degree on whether the trade-off between the costs of achieving higher levels of reliability is the same in a category 1 SAPS as it is (or been determined to be) in the NEM. However, in considering this issue, consideration must also be given to the materiality of any benefits in establishing SAPS specific Reliability Standards, given the likely administrative costs associated with the standard setting process, and the regulatory uncertainty that could arise. These questions will be considered further in the next stage of this review.

219 Matters relevant to the maintenance of a SAPS in a secure operating state are discussed further in appendix G.

220 NER clause 4.2.7.

F.4.2 Category 2

The Commission considers that reliability targets will be required for category 2 third-party SAPS. When considering the reliability measures which should apply to category 2 SAPS, the reliability of the system as a whole is relevant. As the operator of the SAPS will liklely be vertically integrated, reliability measures should take account of the reliability of both distribution and generation.

The application of current jurisdictional reliability measures could be used as a starting point for the development of category 2 SAPS reliability targets. However, SAIDI and SAIFI may be subject to statistical distortion when applied to smaller customer populations. Conversely, accurate measurement of reliability performance for individuals and small groups of customers becomes more practical when applied to smaller customer populations such as those in a category 2 SAPS. One approach would be for targets or standards to be specified using SAIDI and SAIFI, which would take into consideration the value of customer reliability for the customer group. SAIDI and SAIFI calculations (or similar) would need to include supply interruptions caused by both distribution and generation assets in the SAPS. Interruptions that are caused by or within customer installations as well as major event days should be excluded from SAIDI, SAIFI or any similar calculations.

The Commission considers that a GSL scheme providing payments to customers within the SAPS if specified reliability thresholds are contravened (as recommended in the embedded networks review) would be appropriate. The application of a GSL scheme could be either alongside SAIDI and SAIFI type measures in larger category 2 SAPS, or as a complete alternative to SAIDI and SAIFI type measures. Jurisdictions could choose to adapt their current GSL schemes for category 2 third-party SAPS for this purpose.

Regardless of the reliability targets which are determined for category 2 third-party SAPS, a monitoring and compliance regime is required. The SAPS operator would need to keep auditable records on supply interruptions and report its performance against any reliability measures. If a GSL scheme is implemented the operator will also be required to report on the number of GSLs it has paid to customers under each of the GSL categories.

The monitoring and compliance regime should include a requirement for the provider to develop and implement an improvement plan where reliability standards are contravened. Some form of financial sanction if rectification of the poor reliability does not occur in a reasonable timeframe could be applied (this could be instead of, or in addition to, a GSL scheme). Although a category 2 SAPS will be vertically integrated with separate reliability measures for distribution or generation not required, for reporting purposes it may be useful for measures relating to the reliability of individual generators, as well as subsets of the distribution network, to be determined. This will allow for performance improvement plans to be developed to address any underperforming assets.

The Commission recommends that each jurisdiction develop consistent definitions and monitoring and reporting requirements for category 2 SAPS.

Jurisdictions will be best placed to determine the final reliability measures and monitoring and compliance regimes for category 2 SAPS.

F.4.3 Category 3

The Commission considers that customers of a category 3 SAPS will be able to negotiate reliability with the relevant provider when the contract for supply is being entered into. Consequently, the Commission recommends that reliability performance for category 3 SAPS is addressed in the contract between the SAPS provider and individual customers, not through a jurisdictional target.

The development of standard metrics for supply interruption duration and frequency may be a useful benchmark for customers being supplied via a category 3 SAPS. Benchmarks could assist customers to develop their reliability expectations against price models offered by the SAPS provider, and could act as a starting point for negotiations. The Commission recommends that jurisdictions work together in developing benchmarks, which could potentially be leveraged from the standards developed for category 2 SAPS.

Although the Commission has not recommended specific reliability measures for category 3 SAPS, the Commission notes that the ACL would apply. The ACL's consumer guarantees are likely be relevant in cases of very poor reliability or where reliability is not consistent with claims made by the SAPS service provider at the time of sale of the SAPS equipment.

G NETWORK OPERATIONS AND SYSTEM SECURITY

RECOMMENDATION 7: NETWORK OPERATIONS AND SYSTEM SECURITY

In developing the network operations and system security framework for third-party SAPS, the Commission has been guided by the assessment framework and the overarching principle that technical standards (for example, service installation rules and the wiring rules) should apply to all SAPS, in proportion to the risks and size of the system. There should also be metering standards to provide accurate metering. The Commission's recommendations assist in providing clarity of information for customers, and consistent consumer protections.

The recommended consumer protections relating to network operations and system security for each category of third-party SAPS are as follows:

Category 1

The designation of an independent system operator would be required in a category 1 SAPS. The ISO will be responsible for operating the system, including maintaining system security and reliability.

For category 1 SAPS, system security requirements, which may be a simplified version of the NER requirements, will be needed.

Jurisdictional and NER technical standards that apply to DNSPs are recommended for category 1 SAPS, including the creation of service and installation rules for the SAPS, adoption of Australian standards covering quality of supply, and the development of an asset management plan by the SAPS distributor.

For metering and settlement, existing NEM arrangements would apply, including AEMO settlement and metrology procedures and NEM compliant metering. In addition, retailers would be responsible for arranging metering services for small customers.

Category 2

The system operator would be the SAPS provider. The SAPS provider would be responsible for system operator functions and maintaining system security and reliability.

Jurisdictional system security and technical standards should include:

- adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits
- development of standard, nationally consistent service and installation rules, and
- a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans.

For metering and settlement, jurisdictional licence conditions should require SAPS operators to use pattern approved meters and develop a metering plan for approval by the jurisdictional regulator.

Category 3

The system operator would be the SAPS provider. Security and reliability of the system would be the responsibility of the SAPS provider.

Jurisdictional system security and technical standards for microgrids should include:

- adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits
- development of standard, nationally consistent service and installation rules, and
- a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans.

For IPS, jurisdictions should require compliance with relevant Australian Standards, in particular the AS/NZS 4509 series, where this is not already the case.

For metering and settlement, jurisdictional licence conditions should require SAPS operators to use pattern approved meters.

G.1 Background

This appendix sets out the Commission's analysis and final recommendations in relation to the network operation of a third-party stand-alone power system, including matters such as system security, technical standards and metering and settlement.

Technical standards and the management of system security are key in keeping a power system operating within technical limits, such as those relating to voltage and frequency, and providing it with the ability to withstand faults. To maintain frequency, the power system has to instantaneously balance supply against demand. Although a major operational task in the NEM, much of the day-to-day operation of some stand-alone systems may be able to be automated. Nevertheless, such operational functions are vital to ensuring that customers receive a satisfactory and secure supply of electricity.

In the NEM, in addition to its role as system operator, AEMO assumes responsibility for market operation which includes activities associated with settlement of the market. To do so, AEMO draws on metering data from electricity generation and consumption within the power system in order to allocate payments to and from the appropriate parties. The accuracy and timeliness of these financial flows are crucial to support the ongoing operation of the market.

G.1.1 System security and technical standards

System security

In the NEM, a secure power system — that is, a power system that is operating in a secure state — is one that is able to operate within defined technical limits (for example, frequency

and voltage limits) even in the instance there is an incident on the system such as the loss of a major transmission line or a large generator (termed a "credible contingency event").[221] Events which result in the power system operating outside of defined technical limits are called "security events" and, in most cases, are caused by sudden equipment failure (often associated with extreme weather or bushfires).

Technical limits include allowed frequency and voltage limits and equipment current and fault ratings.[222]

The system security requirements in the NER apply to the national grid. It is likely that appropriate security settings for microgrids could be quite different to those developed for the national grid, and would vary depending on the size of the system. For individual power systems, the concept of system security appears to be less relevant.

Technical standards

The NEM technical standards define the level of performance required of the equipment that makes up, and is connected to, the NEM power system. The overall power system is operated to these standards and this allows the power system operator, AEMO, to effectively manage power system security. They are also important tools for managing reliability and safety obligations. The reliability and safety aspects are discussed separately in appendices F and H respectively.

Registered generators in the NEM must meet a range of technical performance standards (or generator access standards), in accordance with limits specified in schedule 5.1 of the NER. Generator technical performance standards are negotiated by the generator with the network it is connecting to, with AEMO providing advice on some matters.

Other aspects of the NER technical standards specify the quality of the electricity services that the network and those connected to the network can expect (the "system standards" specified in NER schedule 5.1a). This allows parties to invest in and operate equipment with a reasonable assurance of the quality and expected performance of other parties connected to the network.

Technical standards also assist in managing localised power quality problems, generally in a small part of the power system. Network power quality obligations are imposed on DNSPs through jurisdictional instruments and network businesses are responsible for managing power quality including voltage, harmonics and flicker within allowed technical limits.

In order to manage a customer's impact on network power quality, as well as reliability and safety, a DNSP can impose conditions on entities and individuals connecting to its network

221 NER clauses 4.2.2 and 4.2.4.

222 Clause 4.2.2 of the NER.

through connection agreements. DNSPs also rely to a significant extent on Service and Installation Rules (or similar) established in and by each jurisdiction.[223]

Service and Installation Rules are primarily designed to define and co-ordinate the relationship between a licensed distributor and its grid-connected customers, including the respective parties' obligations in maintaining power quality. These rules provide reasonable technical requirements that allow the customer's installation to work safely and in harmony with the DNSP networks, as well as helping to define the limits of the service that the DNSP is providing to the customer.[224]

DNSPs can also draw from a number of technical design and performance standards set out in or imposed under various jurisdictional instruments when supplying grid-connected customers and designing their networks. For example, there are standards, codes and guidelines covering overhead line clearances and designs, underground cable installations, substation electrical and civil aspects, fire segregation and customer installations. In addition, there are quality of supply standards relating to voltage range, frequency, and disturbances.[225] For stand-alone power systems, there is an Australian Standard (AS 4509) which sets out safety and installation requirements for SAPS supplying a single load, single residence or building or a group of residences or buildings.[226]

While a broad suite of Australian Standards are currently in place,[227] Standards Australia has identified a need for further work in the areas of microgrids, distributed energy coordination and electrical system operations.[228] In particular, Standards Australia identified a need for further engagement with and contribution to the International Electrotechnical Commission (IEC) on non conventional distribution networks and microgrids.[229] Australia is now a participating member of the IEC subcommittee responsible for developing standards covering technical requirements for microgrids.[230]

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223 State of New South Wales through Division of Energy, Water and Portfolio Strategy, NSW Department of Planning & Environment, *Service and Installation Rules of New South Wales - The electricity industry standard of best practice for customer connection services and installations*, November 2018; Citipower, Jemena, Powercor, Ausnet, United Energy, *Victorian Electricity Distributors Service & Installation Rules 2014;* Energex and Ergon Energy, *Queensland Electricity Connection Manual - Service and Installation Rules,* effective from 24 August 2018; SA Power Networks, *Service and Installation Rules - Manual No. 32,* August 2017; TasNetworks *Service and Installation Rules*, September 2018; Government of Western Australia, Department of Commerce, Energy Safety, *WA Electrical Requirements,* January 2014; NT Power and Water Corporation, *Network Policy NP 003 Installation Rules,* 20 July 2009*;* and in the ACT, Evoenergy, *Service and Installation Rules,* November 2018.

224 For example, the Victorian Service and Installation Rules cover topics 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.

225 In NSW these are called up in the *Electricity Supply Act 1995 (NSW)*, the *Electricity Supply (Safety and Network Management) Regulation 2014 (NSW)* and in addition, licence conditions provide technical regulations and design and performance standards.

226 AS/NZS 4509.1.209(R2017); AS/NZS 4059.2:2010 (R2017).

227 Standards Australia, GB 3000-2017, Quick reference guide - wiring rules 2007 and electrical safety standards, provides a more comprehensive list of safety related standards. Other standards, such as some of those in the IEC and AS/NZS 61000 series are also relevant.

228 Standards Australia, Roadmap for standards and the future of distributed electricity, Final Report, May 2017, p. 12.

229 Standards Australia, Roadmap for standards and the future of distributed electricity, Final Report, May 2017, p. 14.

230 IEC subcommittee 8B. Microgrid technical requirements are set out in the IEC Technical Standard 62898, which is broken up into a series of parts. Two parts, "Guidelines for microgrid projects planning and specification" and "Guidelines for operations" have been published to date. Part 3 "Technical requirements" is currently under development. www.iec.ch, accessed 1 October 2019.

Energy Networks Australia has also published a number of network asset management and design guidelines on its website,[231] as well as grid connection guidelines covering the installation of distributed energy resources.[232]

G.1.2 System operator

A system operator is responsible for dispatching controlled generation and maintaining the network in a safe and stable operating state. In the NEM, AEMO, as the system operator, is responsible for (among other things) maintaining the power system in a secure operating state so that a major operating incident - such as a black system event - does not occur.[233] As noted, this explicit requirement may be less relevant in a microgrid, especially for smaller microgrids. The impact of a system collapse resulting from a generator failure or other supply constraint is much more limited in a microgrid than in the NEM. Additionally, restoration times following a system collapse are far lower, potentially less than or commensurate with restoration times following faults on a network element. In these circumstances, system security may be considered more generally with reliability.

G.1.3 Metering and settlement

AEMO is responsible for settling wholesale electricity sales and purchases in the NEM. Accurate data is important in settling the NEM, and in billing and paying NEM participants and retail customers.

Settlement is based on data from meters. Under the NER, NEM retailers are responsible for arranging metering services for small customers. Retailers must appoint a metering coordinator for each of their small customers' connection points and obtain a NMI for each meter. In general, the retailer provides instructions to the metering coordinator for any metering work needed by the customer.

NEM participants are required to adhere to metering procedures, guidelines and processes prescribed by AEMO,[234] and meters themselves must comply with technical requirements set out in metrology procedures, including obligations to comply with the *National Measurement Act* 1960 (Cth) and a number of Australian metering standards.[235] Metrology procedures also deal with reading, validation, estimation and substitution of metering data.[236]

Chapter 7 of the NER sets out arrangements for metering matters including provisions on:

- installation, accuracy and maintenance of a metering installation
- collection and provision of metering data
- minimum requirements for new meters
- security of and rights of access to metering data.

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231 www.energynetworks.com.au/industry-guidelines, accessed 1 October 2019.

232 https://www.energynetworks.com.au/national-grid-connection-guidelines, accessed 24 May 2019.

233 NEL, section 49(1)(e).

234 https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes, accessed 24 May 2019.

235 AEMO, *Metrology procedure: Part A, National electricity market*, Version 6.04, 1 December 2017.

236 *Metrology procedure: Part B, Metering data validation, substitution and estimation*, Version 6.0, 1 December 2017.

In addition, the National Measurement Institute administers laws that cover, amongst other things, approval and use of measuring instruments for trade. All meters used for buying or selling goods or service by measurement must use the design approved by the National Measurement Institute. This is the pattern approval process. Utility meters must be pattern approved and verified.[237]

For SAPS, some form of metering and settlement will be important wherever there is a sale of energy (in the narrow sense), irrespective of system size. Full NEM metering requirements may not be appropriate for all SAPS.[238]

G.1.4 SAPS comparator arrangements

When considering the most appropriate network operating obligations for third-party SAPS, the Commission had regard to the final recommendations for priority 1 of this review and the embedded networks review, as well as existing conditions imposed on licensees or operators of current jurisdictional microgrids — for example the licence conditions imposed on licensees supplying via a SAPS in South Australia.

SAPS priority 1 review

System security

During the priority 1 review, the Commission considered that responsibility for system security might depend on the size of the generating units operating within a DNSP-led microgrid. The Commission's initial view was that if the generating units were of sufficient size to be registered in the NEM (if they were connected to the national grid), there may be a role for AEMO in managing system security; otherwise it is likely that this role would fall to the DNSP. System security obligations and requirements in the context of DNSP-led SAPS are being considered in detail as part of the Commission's current work to update the regulatory frameworks to implement the final recommendations for priority 1.

Technical standards

The Commission recommended that the same technical standards that apply to a DNSP's grid-connected network should apply to a DNSP-led SAPS.[239] The Commission considered that technical regulations and design and performance standards that DNSPs must adhere to, as well as quality of supply obligations, should extend to DNSP-led SAPS, and that this may occur automatically if SAPS are considered to be part of the distribution system under jurisdictional definitions.

The AEMC's final report included a recommendation that jurisdictions review their legislative frameworks to ensure that consumer protections relating to (among other things) DNSP

237 National Measurement Institute, *NMI M 6-1 - Electricity Meters* and *NITP 14 - National Instrument Test Procedures for Utility Meters*.

238 For third-party IPS (and potentially small microgrids) some other arrangements could be used that do not constitute a sale of energy, for instance supplying non-metered electricity bundled with other services. An example for microgrids is that in some remote "company towns" electricity may be supplied with housing, and paid for as a component of rent. These arrangements would still constitute a sale of energy in the broader sense outlined in chapter 3; see also proposed drafting instructions in Appendix A for new provision 7B in the NERL, addressing the broader sense of "sale of energy".

239 AEMC, *Review of the regulatory frameworks for stand-alone power systems-priority 1,* final report, 30 May 2019, p. 94.

technical regulations, design and performance standards and quality of supply obligations, would extend to DNSP-led SAPS. The report also recommended that jurisdictions make any necessary amendments where any of the protections were found to not apply in the context of DNSP-led SAPS in their current form.[240]

Metering and settlement

Metering and settlement requirements would mirror the arrangements in the NEM under the recommendations in the final report. AEMO would be able to use existing market settlement systems, but these may require minor changes. Metering services would continue to be provided by a metering coordinator appointed by the customer's retailer.[241]

Embedded networks review

System security

System security was addressed in relation to the connection of load to the embedded network. In the final report, it was noted that ENSPs would be required to inform DNSPs of any generation or load being connected under a negotiated contract to the embedded network. This would assist DNSPs in managing any network security issues that may arise as the result of small scale generation and larger load connecting to the embedded network.[242]

In addition, where registered participants are connected to an embedded network, the Commission recommended AEMO be given sufficient oversight and control powers to operate the power system securely and reliably. These recommendations included requirements on ENSPs to operate their networks in accordance with instructions given by AEMO and to provide AEMO (and any other relevant network service provider) with all relevant information, including (but not restricted to) information about protection and control systems of the connected equipment, where required.[243]

Technical standards

If and when implemented, the recommendations in the final report will see new embedded networks elevated into the national regulatory framework. The Commission recommended that jurisdictional technical obligations (such as those relating to equipment and performance standards) should be analysed by each jurisdiction to determine if it would be appropriate to extend these in part or in full to embedded networks. Enforceable technical standards will be of particular importance if registered participants are connected to the embedded network.[244]

Metering and settlement

In the embedded networks review final report, the Commission recommended that the metering framework in Chapter 7 of the NER be extended to embedded networks. Retailers

240 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1,* final report, 30 May 2019, p. 94.
241 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1,* final report, 30 May 2019, p. 64.
242 AEMC, *Updating the regulatory frameworks for embedded networks*, final report, 20 June 2019, p. 174.
243 AEMC, *Updating the regulatory frameworks for embedded networks,* final report, 20 June 2019, pp. 200-201.
244 AEMC, *Updating the regulatory frameworks for embedded networks,* final report, 20 June 2019, pp. 178, 299.

would be responsible for the appointment of a metering coordinator. The requirement that installation and maintenance of metering installations are only carried out by metering providers was not proposed to apply to connection points within embedded networks where the retail customer is buying from an exempt seller.[245]

The report also included a recommendation that ENSPs implement network billing and settlement in line with a procedure to be made by AEMO to promote consistency with the billing practices of DNSPs, and thereby promote greater retail competition in embedded networks.[246]

Current jurisdictional frameworks for third-party SAPS

In South Australia, ESCOSA imposes licence conditions relating to metering, system security and technical standards on the operators of SAPS. Conditions include:[247]

- quality of supply specifications for voltage, voltage fluctuations and harmonic voltage distortions
- a requirement to have a safety, reliability, maintenance and technical plan covering areas such as:
  - monitoring compliance with imposed safety and technical requirements
  - monitoring electricity infrastructure to identify any safety risk or risk of failing or malfunctioning
  - information about the facilities that customers must provide for connection to the network and procedures that customers must follow in order to prevent damage to or interference with the network
- if the licensee or its contractor undertakes metering, the development of a metering plan in respect of installation and ownership of meters, minimum accuracy standards, collection of metering data, maintenance and testing of meters.

G.2 Commission's draft position

In the draft report, the Commission considered that for third-party SAPS, practical application of the overarching principles and assessment framework would result in some variations in system security, technical standards, system operation and metering and settlement arrangements that apply under each category of third-party SAPS.

The Commission considered that there may be differences in the obligations relating to system security, technical standards, system operation and metering and settlement, depending on the size of the third-party SAPS.

245 AEMC, *Updating the regulatory frameworks for embedded networks,* final report, 20 June 2019, p. 130.
246 AEMC, *Updating the regulatory frameworks for embedded networks,* final report, 20 June 2019, p. 148.
247 ESCOSA, Cowell Electric Supply Pty Ltd Electricity Retail, Distribution and Generation Licence, 26 September 2018, pp. 6-8.

G.2.1 System security and technical standards

System security

In the draft report, the Commission noted that system security was likely to be less of an issue for microgrids than in the NEM. The Commission considered that it may not be necessary to maintain all SAPS in a secure operating state, given that the impact of any system shut down would be contained within the SAPS. For IPS, the Commission considered that system security is unlikely to be relevant.[248]

Technical standards

The Commission noted that technical standards would be needed to inform the third-party SAPS operator in delivering appropriate operational outcomes and also assist the third-party SAPS operator in managing its general network obligations and potential liabilities. Design and operating standards that are unrelated to the service being delivered to SAPS customers would not be relevant.

The Commission recommended an approach similar to ESCOSA's approach in order to provide confidence in the capabilities of third-party microgrids. Among other things, ESCOSA's license conditions requires a SAPS operator to develop an asset management plan.[249] The Commission considered that having the microgrid provider produce an asset management plan would allow the plan, potentially developed against a set of specified criteria, to be proportionate to the size and complexity of the third-party SAPS.

The Commission noted in the draft report that for some SAPS, it may be necessary to constrain the performance of certain types of customer-installed equipment and also, in some cases, how it is operated. In addition, a number of other matters, such as settings for fuses and circuit breakers, would also need to be co-ordinated between the customer and the microgrid operator. The Commission considered that the obligations of both parties would need to be clearly defined, irrespective of the size and complexity of any third-party SAPS and the size and complexity of the customer installation.

G.2.2 System operator

In the draft report, the Commission considered that while many of the system operator functions would likely be automated or carried out remotely, each SAPS would require the identification of a person or entity upon which the responsibility for system operation would fall, including any automated system.

248 System security obligations would be analogous to the NER definition of *satisfactory operating state.* NER cl 4.2.2.

249 Strictly, a Safety, Reliability, Maintenance and Technical Management Plan, South Australian *Electricity (General) Regulations 2012,* Part 10, division 5. Essential Services Commission of South Australia, *Off-Grid Regulatory Performance Report*, 2017-18, p. 1.

G.2.3 Metering and settlement

Metering

The Commission recommended that electricity be metered in all circumstances where SAPS supply involves a sale of electricity. The Commission considered that third-party SAPS operators and consumers need to be confident that meters will be:

- accurate over their measurement range under all climate and environmental conditions
- physically robust
- secure from tampering
- immune to interference and disturbances; and
- easily read.

On the basis that these matters are dealt with in the pattern approval and verification processes, the Commission recommended that pattern approval and verification would be a minimum requirement for SAPS electricity meters.[250]

Further, the Commission considered that the type of meter that is appropriate for a SAPS customer/generator will depend on the circumstances. For example, a meter with communications might be of little advantage where the operator is on site, whereas communications might be a significant advantage where the operator is remote.

Settlement process

The Commission noted in the draft report that NEM settlement procedures are only relevant in a multi-partite arrangement, where it is necessary to settle the wholesale market so that retailers can be billed, and generators and networks can be paid. The Commission noted that NEM settlement procedures may be relevant in category 1 third-party SAPS, but are unlikely to be necessary for smaller vertically integrated SAPS where simpler settlement and billing procedures can be adopted.

The Commission considered that detailed metrology procedures would not be required to be mandated for category 2 and 3 SAPS where there are only two parties involved in settlement. Instead, the Commission considered there should be minimum settlement requirements.

G.2.4 Summary of draft recommendations

The Commission's draft proposals in respect of system security, technical standards, system operation and metering and settlement obligations, applicable to SAPS in each of the three categories, are set out below.

250 National Measurement Institute, *NMI M 6-1 - Electricity Meters* and *NITP 14 - National Instrument Test Procedures for Utility Meters*.

Table G.1: **Draft report proposed network operation and system security requirements**

CATEGORY	SYSTEM SECURITY, TECHNICAL STANDARDS, SYSTEM OPERATION AND METERING AND SETTLEMENT
Category 1	The same jurisdictional system security and technical standards that apply to DNSPs were recommended for category 1 SAPS. There is the ability for AEMO to become the independent system operator. For metering and settlement, existing NEM arrangements would apply, including AEMO settlement and metrology procedures and NEM compliant metering.
Category 2	Jurisdictional system security and technical standards should include: • adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits • development of standard, nationally consistent service and installation rules, and • a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans. For metering and settlement, jurisdictional licence conditions should require SAPS operators to use pattern approved meters and develop a metering plan for approval by the jurisdictional regulator.
Category 3	Jurisdictional system security and technical standards for microgrids should include: • adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits • development of standard, nationally consistent service and installation rules, and • a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans. For IPS, jurisdictions should require compliance with relevant Australian Standards, in particular the AS/NZS 4509 series, where this is not already the case. For metering and settlement, jurisdictional licence conditions should require SAPS operators to use pattern approved meters.

Source: AEMC

G.3 Stakeholder submissions

There were minimal comments from stakeholder on the system security, technical standards, system operator and metering and settlement frameworks proposed in the draft report. ENA was the only stakeholder that directly addressed these areas.

ENA generally supported the network operations and system security standards in the draft report, while emphasising that safety must not be sacrificed under any circumstances. However, ENA considered that the proposed metering arrangements for third-party SAPS and those recommended for embedded networks was inconsistent.

Further, ENA considered that where there is a sale of energy, customers should have similar metering arrangements, regardless of the size of the SAPS. In ENA's view, this would remove the risk that the SAPS provider would need to retrofit meters should the SAPS grow in size.[251]

Technical standards were raised in relation to an OoLR event by ENA and Energy Queensland. ENA considered that minimum technical standards would reduce the costs of upgrades and ensure the safety of all customers and network operators in the event of an OoLR event. Energy Queensland raised concerns of regulatory risk if a third-party SAPS does not meet the DNSP's technical standards and an OoLR event occurs, if the DNSP is the OoLR for that SAPS.[252]

G.4 Commission's analysis and final position

As noted in the draft report, practical application of the overarching principles and assessment framework will result in some variations in system security, technical standards, system operation and metering and settlement arrangements, applicable under each category of third-party SAPS. The Commission has considered how each of these functions will apply in each category for third-party SAPS.

System security

While matters relevant to system security will need to be addressed to some degree for all third-party SAPS, the extent to which a comprehensive set of system security obligations and responsibilities are needed in national and/or jurisdictional instruments depends on the specific characteristics of the system, including the size, number of participants operating within it and numbers of customers being served.

It is the Commission's view that a comprehensive system security framework is unlikely to be necessary in the context of smaller SAPS — specifically, those expected to fall within category 3 (and possibly also some SAPS within category 2). This is because the risk of a disturbance on these systems resulting in a cascading failure that impacts significant numbers of participants and customers is greatly reduced by virtue of their size. In addition, system restart services in category 2 and category 3 SAPS could be quite rapid (depending on the size and complexity of an individual SAPS), further minimising the impact of any disturbance.

In addition, in the case of some small microgrids, it may not be necessary for the system operator to actively manage the system in order for it to remain in a secure operating state (that is, within the bounds of a set of tightly defined technical limits). Given that only one generator (or a handful of generators) will be operating to the strict technical standards

251 ENA, submission to the draft report, pp. 5-6, 15.

252 Submissions to the draft report: ENA, p. 14; Energy Queensland, p, 6.

imposed on them, the need for a separate party to maintain system security is greatly reduced.

In the context of IPS, the Commission considers that system security is unlikely to be relevant. Customer outcomes can instead be defined in terms of the reliability and quality of supply outputs, inclusive of system security obligations.[253]

Technical standards

The technical standards applicable to SAPS generation and network owners, as well as connection to the distribution network, may vary for each category of SAPS.

Depending on the size of the SAPS (and whether it falls within category 1 or 2), a modified version of the technical performance standards (including system standards and access standards) set out in Schedule 5 of the NER may be appropriate.

In all cases, technical standards set out in jurisdictional regulatory instruments should be reviewed and extended to parties operating within a third-party SAPS, where appropriate. At a minimum, some design and operating standards relating to customer connections within with the third-party SAPS' distribution network will be required for all third-party SAPS.

Third-party SAPS quality of supply limits should be clearly set out and, if possible, nationally consistent. Given the availability of relevant Australian and international standards,[254] national consistency should not be difficult to achieve.

The Commission considers that the design and operating standards that will be of interest to microgrid supplied consumers would relate to their interface (or connection) with the third-party SAPS. In addition, interface co-ordination issues would directly impact the design of the customer's installation, and potentially constrain the activities that the SAPS customer could undertake.

Jurisdictionally determined service and installation rules

In the Commission's view, there would be significant efficiency benefits in jurisdictions developing and publishing a nationally consistent standard set of service and installation rules for third-party SAPS. These rules would set out the obligations of the parties, and in particular the customer's obligations, at the interface between the DNSP network and the customer's installation.[255]

The development of a nationally consistent approach to service and installation rules would remove the need for each third-party SAPS proponent to develop its own document, and would provide a consistent and fair basis for microgrid connections. Third-party SAPS proponents could, if desired, be allowed to propose variations. However, on the basis that any variations would be to a standard document, associated changes to cost and risk allocation would need to be transparent. The Commission considers service and installation rules would most relevant for microgrids.

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253 System security obligations would be analogous to the NER definition of *satisfactory operating state*. NER cl 4.2.2.

254 AS 60038, AS/NZS 61000.3.100-2011, AS 6100.3.3:2012.

255 Jurisdictions have previously collaborated in the development of nationally consistent electrical requirements. A number of recent projects are cited on the Electrical Regulatory Authorities Council website — see erac.gov.au, accessed 9 October 2019.

In order to provide confidence in the capabilities of third-party microgrids, the Commission supports ESCOSA's approach which, among other things, requires a SAPS operator to develop an asset management plan.[256] Having the microgrid provider produce an asset management plan would allow the plan, potentially developed against a set of specified criteria, to be proportionate to the size and complexity of the third-party SAPS.

Other standards

Finally, while decisions in respect of the technologies adopted to establish and operate a microgrid are best made by a third-party SAPS operator, decisions in respect of the technologies used by customers within a microgrid are best made by those customers. Third-party SAPS providers should be prevented from requiring SAPS customers to use particular proprietary technologies. On this basis, it may be appropriate to establish interoperability standards which ensure that third-party SAPS facilitate, rather than constrain, innovation and competition between devices and suppliers. The Commission considers it important that proprietary interfaces are not locked in.

System operator

The Commission recommends that all third-party SAPS have a person or entity that is responsible for system operation — that is, dispatching controlled generation and maintaining the system in a safe and secure operating state (that is, within defined technical limits). A system operator will be required, regardless of whether many of the system operator functions are able to be automated or carried out remotely.

In addition, the Commission considers that any arrangement where the system operator reaches through the meter to control the customer's appliance usage should be explicitly agreed to by the customer, as a variation to standard supply arrangements.

Metering

The Commission notes that metering of electricity will be necessary in all circumstances where there is a sale of electricity in a third-party SAPS.

Third-party SAPS operators and consumers need to be confident that meters will be:

- accurate over their measurement range under all climate and environmental conditions
- physically robust
- secure from tampering
- immune to interference and disturbances; and
- easily read.

Specific metering requirements for each category of third-party SAPS are discussed in the sections below.

Settlement process

256 Strictly, a Safety, Reliability, Maintenance and Technical Management Plan, South Australian *Electricity (General) Regulations 2012,* Part 10, division 5. Essential Services Commission of South Australia, *Off-Grid Regulatory Performance Report*, 2017-18, p. 1.

The NEM settlement procedures are only relevant in a multipartite arrangement, where it is necessary to settle the wholesale market so that retailers can be billed and generators and networks can be paid. The Commission notes that NEM settlement procedures will be relevant in category 1 microgrids, but that simpler billing and settlement procedures are likely to be appropriate for smaller SAPS. Jurisdictional licence conditions would be required to cover matters relevant to settlement and billing for category 2 and 3 SAPS.

G.4.1 Category 1

System security

Owners of category 1 SAPS will be required to provide market generators with access to SAPS infrastructure, allowing competition benefits to flow through to consumers. The Commission considers that system security requirements, which may be a simplified version of the NER requirements, will be needed. The Commission recommends that these system security requirements be made explicit and published in order to provide transparency, so that market generators can determine what services will be called for, and to enable the market operator to dispatch generation and ancillary services that it requires in accordance with system security needs.

Technical standards

Technical performance standards, similar to those for generators in the NEM, will be required. As in the NEM, the Commission considers that generator technical performance standards can be negotiated by the generator with the network it is connecting to, with AEMO, or the independent operator, providing advice on some matters.

The Commission recommends that network power quality obligations are imposed on the SAPS distributor through jurisdictional instruments. The SAPS distributor should be responsible for managing power quality including voltage, harmonics and flicker within allowed technical limits.

Maintenance of quality of supply, that is maintenance of voltage within an allowed range and waveform of an appropriate quality, is important as consumer equipment is designed to operate within a particular voltage range. Quality of supply can be affected by other customer loads which can impose voltage fluctuations or harmonics on the network. The Commission considers that this could mean that the performance of certain customer-installed equipment may require constraints in some SAPS.

It may also be necessary for the SAPS operator to coordinate other matters such as the amount of capacity available to the customer, the settings for fuses and circuit breakers and the point at which the third-party SAPS provider's assets end and the customer's assets start.

To maintain quality of supply, the Commission recommends that service and installation rules are mandated to set out the obligations of the parties, and in particular the customer's obligations, at the interface between the SAPS provider's network and the customer's installation. Further, the Commission considers that it may be appropriate to require a fully

certified asset management framework in compliance with the Australian asset management standards, for category 1 SAPS. This is currently required for some DNSPs.[257]

System operator

A system operator is responsible for dispatching controlled generation and maintaining the network in a safe and stable operating state, within allowed limits. While the network owner might have the technical capability to undertake this activity, for category 1 third-party SAPS – where access will have been granted to competing generators – the Commission recommends an independent system operator is appointed. The system operator role is performed in the NEM by AEMO, but the very different nature of SAPS means that AEMO might not necessarily be the most appropriate party to take on system operation for category 1 SAPS systems. The process by which an appropriate party might be identified and appointed will be considered further in the rule drafting stage of the review.

Metering

The Commission recommends that NEM compliant, communications enabled smart meters are a requirement in category 1 SAPS. Category 1 SAPS will be regulated under the national framework, with separation of retail, distribution and generation functions. Retailers with a national retail authorisation will be able to supply customers in a category 1 SAPS and generators, distributors and retailers will be required to register with AEMO. As the category 1 SAPS will be regulated under the national framework, the Commission considers that the metering obligations in the NER should apply. This is consistent with the Commission's recommendations for embedded networks.

As in the NEM, retailers would be responsible for arranging metering services for small customers. Retailers must appoint a metering coordinator for each of their small customers' connection points and obtain a NMI for each meter (resulting in these customers being visible in MSATS). In general, the retailer would be responsible for providing instructions to the metering coordinator for any metering work needed by the customer.

Settlement

Consistent with elevation into the NEL framework, the Commission recommends that NEM settlement procedures should be applied to category 1 third-party SAPS. In order for category 1 SAPS retailers to be billed for the energy they purchase, and for the category 1 SAPS generators and networks to be paid for the energy that they generate and transport (respectively), the Commission recommends broad application of the NEM settlement procedures to category 1 SAPS.

However, a number of changes may be required to AEMO's settlement procedures in order to be able facilitated settlement of category 1 SAPS. Settlement must be restricted to electricity generated and consumed within the SAPS so as not to cause distortions in the NEM wholesale market.

257 AS ISO 55000 series.

The specific changes required to the NEM settlement arrangements to accommodate category 1 SAPS will be considered further in the rule drafting stage of this review.

G.4.2 Category 2

System security

For the reasons outlined above, the need for explicit system security obligations and requirements to be established within national and/or jurisdictional instruments is unlikely to be as relevant for category 2 SAPS as it is for the interconnected grid, or for category 1 SAPS. Consequently, the Commission does not recommend separate system security obligations be established for vertically integrated third-party SAPS. Rather, system security obligations should be dealt with through overarching reliability obligations.

Third-party SAPS owners/operators would have a suite of options available to manage the system and deliver the required levels of reliability. These include installing centralised generation or generation that is distributed throughout a microgrid. In addition, SAPS operators could utilise alternative paths for switching around network faults, a mix of automatic and manual fault isolation or high speed battery or load response.

The Commission does not consider it is necessary or appropriate to prescribe the method for delivering reliability and quality of supply outcomes, particularly for a vertically integrated microgrid, on the basis that this may restrict the ability to adopt the most cost effective solutions.

Technical standards

For category 2 SAPS, the Commission recommends that jurisdictional technical standards should include:

- adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits
- development of standard, nationally consistent service and installation rules, and
- a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans.

For category 2 SAPS, there would be significant efficiency benefits in jurisdictions developing and publishing a nationally consistent standard set of service and installation rules for third-party SAPS. The service and installation rules would set out the obligations of the parties, and in particular the customer's obligations, at the interface between the SAPS operator's network and the customer's installation.

In addition to service and installation rules, the Commission recommends that the microgrid provider produce an asset management plan. The plan, potentially developed against a set of specified criteria, can be tailored to be proportionate to the size and complexity of the third-party SAPS. In the case of very simple SAPS, the asset management plan may be provided by the installer and may largely involve adopting original equipment manufacturer maintenance manuals and an assurance from the supplier that the equipment complies with relevant standards. For larger microgrids recognised standards could be called up as appropriate, and

the expected performance of the SAPS given its design and maintenance regime could be described.

System operator

The Commission recommends that the SAPS provider perform the system operator functions in category 2 SAPS. While some of the system operator functions may be able to be automated or carried out remotely, the Commission considers that the SAPS provider should be explicitly designated as responsible for dispatching generation and maintaining the system in a safe and stable operating state (noting that the SAPS provider may choose to appoint a contractor to perform some or all of these functions).

Metering

The SAPS provider would be responsible for arranging metering services for all customers in a category 2 SAPS.

The Commission recommends that category 2 SAPS providers are required to provide meters which are pattern approved and verified. This will provide confidence to the provider and consumers that the meters will be:

- accurate over their measurement range under all climate and environmental conditions
- physically robust
- secure from tampering
- immune to interference and disturbances; and
- easily read.

Pattern approved meters are commonly available from a number of manufacturers in a variety of styles.

The Commission notes ENA's recommendation that customers should have similar metering arrangements regardless of the size of the SAPS. In the Commission's view, requiring NEM compliant meters with communications capabilities may, in general, be overly onerous for category 2 third-party SAPS.

The Commission considers that the appropriate type of meter will depend on the circumstances. For example, a meter with communications might be of little advantage where the operator is on site, whereas communications might be a significant advantage where the operator is remote. In addition, in geographically remote locations, communications functions may not have adequate signal to provide data to the SAPS provider.

Jurisdictions could determine if communications meters were required in any category 2 SAPS. Further, SAPS providers could install communications enabled, patten approved meters, should they wish to do so, even if this is not mandated.

Settlement

The Commission considers that simpler settlement and billing procedures than the NEM procedures would be appropriate for category 2 SAPS. The Commission recommends an

approach similar to the one taken in South Australia, where the provider is obliged to develop a metering plan that is approved by the regulator.[258] Category 2 SAPS providers should be free to adopt simpler procedures provided they address the following minimum requirements and provide clarity about:

- the entities responsible for meter maintenance, billing and the billing process
- where there is an obligation to connect, meter installation timeframes
- estimation procedures where meter data is unavailable
- reconciliation between energy produced, energy consumed and losses
- transparency and auditability of the billing process.
- procedures relating to confidentiality and privacy of individual customer data
- security and storage of data
- audit procedures.

G.4.3 Category 3

System security

The Commission considers that system security is unlikely to be relevant for an IPS. AS noted in the context of category 2 SAPS, customer outcomes can instead be defined in terms of the reliability and quality of supply outputs, inclusive of system security obligations.

Technical standards

The Commission recommends that Category 3 microgrid technical standards should include:

- adoption of the relevant Australian Standards covering quality of supply including voltage, harmonic and flicker limits
- development of standard, nationally consistent service and installation rules, and
- a requirement for SAPS operators to prepare and submit for approval asset management (technical and maintenance) plans.

For category 3 microgrids, the asset management plan may be provided by the installer and may largely involve adopting original equipment manufacturer's maintenance manuals and an assurance from the supplier that the equipment complies with relevant standards.

For IPS, the customer's experience will be determined by the characteristics of the IPS installation itself. Therefore, appropriate technical specifications covering the design and installation of the third-party SAPS should be required.[259] For example, the IPS should not be capable of imposing unacceptable voltages or waveforms on the customer's installation, even where it is purchased and owned by the customer.

258 Essential Services Commission of South Australia, *Off-Grid Regulatory Performance Report*, 2017-18, p. 1.

259 In particular, the AS/NZS 4509 series.

System operator

In many cases, system operation in a category 3 SAPS may be able to be carried out automatically. Regardless of whether system operation can be carried out automatically, the Commission recommends that the SAPS provider is responsible for system operation.

Metering

The Commission considers that pattern approved meters should be required in a category 3 SAPS. Pattern approved meters are commonly available from a number of manufacturers in a variety of styles. Meters would not be required to be NEM compliant or to have communication capabilities.

Settlement

In category 3 SAPS, the Commission recommends simple metering and settlement procedures, with the following required to be determined at a minimum:

- the entities responsible for metering, including meter testing, maintenance, inspection and audit
- the entities responsible for billing and the billing process
- estimation procedures where meter data is unavailable
- transparency and auditability of the billing process
- procedures relating to confidentiality and privacy of individual customer data
- security and storage of data
- audit procedures.

H SAFETY

RECOMMENDATION 8: SAFETY

The Commission has been guided by the assessment framework and the overarching principle that safety standards should apply to all SAPS, in proportion to the risk to customers, operators, employees and the general public that the SAPS poses, in developing the safety framework for third-party SAPS. The Commission has focused on equivalency of the consumer experience and consistent outcomes between third-party SAPS, DNSP-led SAPS, embedded networks and standard supply.

The extent of the safety risk posed by a particular SAPS depends on the presence of potentially hazardous infrastructure in uncontrolled public space and the consequent public risk exposure. This suggests that the safety framework applicable to third-party microgrids is unlikely to be appropriate for third-party IPS (where electricity is not transported across property boundaries).

In addition, given that the size and complexity of a SAPS will influence the extent to which customers, workers and the public are exposed to safety risks posed by a SAPS, the Commission recommends that jurisdictions undertake a risk-based assessment to determine the specific safety requirements applicable for each category of SAPS, and for each specific SAPS.

In general, the Commission recommends that jurisdictions consider applying the following safety obligations for each category of third-party SAPS:

Category 1

The Commission recommends the same jurisdictional safety arrangements applied to DNSPs connected to the interconnected grid also be applied to category 1 SAPS distributors.

Mandatory jurisdictional reporting schemes for safety incident reporting should also be extended to category 1 SAPS.

Category 2

The Commission recommends that operators of category 2 SAPS be required to develop and maintain a Safety Management System (SMS) under AS 5577. Jurisdictions should consider developing a national model regulatory framework for the SMS requirement, for incorporation in jurisdictional statutes.

The Commission also recommends that jurisdictional regulators consider whether there are particular jurisdictional circumstances that justify making certain jurisdictional safety standards and codes mandatory for category 2 third-party SAPS. However, mandatory jurisdictional reporting schemes for safety incident reporting should apply.

Category 3

The Commission recommends that the safety obligations imposed on category 2 SAPS also be applied to category 3 microgrids, albeit rationalised to the extent necessary to account for the degree of safety risks associated with the system.

For IPS, the Commission recommends that AS 3000 and AS 4509, as well as any other standards the jurisdictions consider appropriate, should be enforced.

H.1 Background

A framework for safety of electricity is of critical importance to help prevent death and injury to members of the public and people working with electricity, and to protect property and the environment from being damaged or destroyed by electricity.

Under the AEMA, distributor safety and technical authorisations, including licensing and authorisation schemes that require demonstration of technical capability, are jurisdictional functions.[260]

Safety obligations are generally placed on DNSPs via jurisdictional safety Acts, Regulations, guidelines and licence conditions. In most jurisdictions, DNSPs and other operators of large electricity networks, such as railways, have more onerous safety obligations than other entities or individuals interacting with electricity. This is due in part to the greater public safety risks of electricity networks where members of the public are interacting with or in close physical proximity to the electricity networks on a continuous basis.

Many of the jurisdictions have different obligations either within the same regulatory instruments, or in separate regulatory instruments, for 'electrical installations'. Electrical installations are private electrical facilities which can be either domestic or commercial, and are often connected directly to a DNSP's network. Safety frameworks for electrical installations tend to focus on the safe design and installation of electrical facilities by licensed electricians, including testing that must be carried out prior to energisation of the installation. The ongoing management of the safety of the electrical installation does not appear to be the primary focus in many jurisdictions.

In addition to energy-specific safety obligations, businesses have some product safety obligations imposed under the ACL. These are discussed further below.

H.1.1 Safety arrangements under the ACL

Under the ACL, consumer products must be safe and meet consumer guarantees before they can be sold. In addition, some products must also meet product specific mandatory standards. If products are found to be unsafe, consumers have a right to a refund, and products may be banned and/or recalled if they could cause injury. Customers can claim for loss or damage, including economic loss, caused by goods with a safety defect.

260 Australian Energy Market Agreement, Annexure 2.

Mandatory reporting of accidents in particular situations is also required under the ACL.

For products that require particular safety or information features, mandatory standards may be developed and imposed. Products with mandatory standards include aquatic toys, bicycles and cots. There are no current mandatory standards for SAPS.

H.1.2 Jurisdictional electricity safety arrangements

The safety of electricity networks and electrical installations is governed by jurisdictional instruments. Some jurisdictions have different safety legislation for DNSPs than for other parties working on electrical infrastructure or 'electrical installations', while other jurisdictions have one set of legislative instruments applying to electricity safety in general.

DNSPs, when designing their grid connected networks, are generally required to comply with a range of detailed safety obligations, taking all reasonable steps to make the network safe. Safety obligations vary between jurisdictions. 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. The box below gives the example of the electrical safety regime in Queensland.

BOX 12: ELECTRICAL SAFETY FRAMEWORKS IN QUEENSLAND

The legislative framework for electrical safety in Queensland is provided by the *Electrical Safety Act* 2002 (Qld), and the Electrical Safety Regulation 2013 (Qld). There are different obligations under the framework depending on whether the person is an electrical entity (such as a DNSP or railway operator) or whether the work is being carried out on an electrical installation.

Amongst other things, the Electrical Safety Act establishes standards for industry and the public to abide by, imposes obligations on individuals who may affect the electrical safety of others, establishes safety management systems for DNSPs, provides licensing and penalty systems and consumer protections against improperly performed or completed electrical work.

The Electrical Safety Regulation complements the Act by imposing further obligations in relation to areas such as:

- electrical work
- licensing
- works of an electrical entity (such as a DNSP)
- safety management systems
- working near overhead and underground electric lines
- electricity supply

- electrical installations
- incident notification and reporting.

Source: *Electrical Safety Act* 2001 (Qld); Electrical Safety Regulation 2013 (Qld).

H.1.3 SAPS comparator arrangements

When considering the most appropriate safety standards for third-party SAPS, it is useful to review the final recommendations for priority 1 of this review and the embedded networks review, as well as the existing safety obligations currently imposed under jurisdictional frameworks on licensees or operators of existing microgrids. For example, the licence conditions imposed on licensees supplying electricity via a SAPS in South Australia, and the obligations imposed on the operator of the Bass Strait Islands power system in Tasmania may be useful comparisons.

SAPS priority 1 review

In the final report, the Commission recommended that, on the basis that DNSPs-led SAPS would be considered to be a distribution system (or similar, under jurisdictional definitions), the DNSP's safety obligations should extend to DNSP-led SAPS. If they are not automatically extended to DNSP-led SAPS, the Commission recommended that jurisdictions amend the relevant instruments to extend DNSPs' safety obligations to cover DNSP-led SAPS as well as the interconnected grid.[261]

Embedded networks review

Under the current arrangements for embedded networks, the AER's Network Exemption Guideline contains a condition that 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.[262]

In the embedded networks final report, the Commission found that extending the jurisdictional safety Acts, Regulations, guidelines and licence conditions to all new embedded networks in their entirety may not be proportionate, and could place onerous obligations on smaller embedded networks.[263] The Commission considered that analysis of the safety obligations in each jurisdiction, and the appropriateness of applying them to embedded networks, would be required to determine if current obligations should be extended either in full or with amendment, or whether alternative safety obligations may be more appropriate.

261 AEMC, *Review of the regulatory frameworks-priority 1,* final report, 30 May 2019, p. 94.
262 AER, *Electricity Network Service Provider - Registration Exemption Guideline,* version 6, March 2018, p. 36.
263 AEMC, *Updating the regulatory frameworks for embedded networks,* draft report, 20 June 2019, p. 298.

Current jurisdictional frameworks for third-party SAPS

In South Australia, ESCOSA imposes licence conditions relating to safety on the operators of SAPS. A typical condition placed on SAPS licensees is that the licensee must prepare a safety, reliability, maintenance and technical plan. This plan covers the safe design, installation, commissioning, operation, maintenance and decommissioning of electricity infrastructure owned or operated by the licensee. The plan is required to cover:[264]

- maintaining supply quality
- safety measures and training programs to reduce the risk of death or injury, or damage to property
- competence and proper training of employees performing work in respect of the electricity infrastructure
- provision of a safe system of work for employees and contractors
- confirming that contractors performing work have processes and procedures to ensure the people carrying out the work are competent and properly trained
- a process for dealing with, reporting and investigating accidents and unsafe situations
- monitoring compliance with imposed safety and technical requirements
- monitoring electricity infrastructure to identify any safety risk or risk of failing or malfunctioning
- monitoring compliance with requirements for vegetation clearance
- communication of information to the public for the purpose of reducing the risk of death or injury, or damage to property
- information about the facilities that customers must provide for connection to the network and procedures that customers must follow in order to prevent damage to or interference with the network.

In Tasmania, the Bass Strait Island power system and other microgrids are subject to provisions in the *Electricity Industry Safety and Administration Act* 1997 (Tas), covering the inspection, safety and rectification of electrical infrastructure. If safety issues are identified after an inspection, the entity may be directed to rectify the issue or discontinue operation.[265] The Tasmanian Electricity Code additionally requires the Bass Strait Islands power system operator to ensure that the power system operates safely, and imposes specific rules regarding system operations and controls.[266]

H.1.4 Detailed safety considerations

Safety can be considered in three dimensions, each of which is discussed further below:

- Customer installation safety
- Public safety

264 ESCOSA, Cowell Electric Supply Pty Ltd Electricity Retail, Distribution and Generation Licence, 26 September 2018, section 23; Electricity (General) Regulations 2012 (SA).

265 *Electricity Industry Safety and Administration Act* 1997 (Tas), Part 5.

266 Chapter 4A, Tasmanian Electricity Code.

- Worker safety.

Customer installation safety

The safety aspects of design and construction of customer installations within SAPS are relatively well-covered by jurisdictional licensing regimes which call up Australian Standard 3000 Wiring Rules (AS 3000). This regime focuses on the initial design and construction aspects of an installation immediately prior to the network connection process and contains little detail about how the installation is to be maintained in a safe condition over its operating life. Electricians are subject to jurisdictional licensing and audits, which depending on jurisdiction, may be carried out by the Electrical Safety Regulator or under powers delegated to a DNSP.

Subsequent work within an installation is required to be carried out in accordance with Australian Standard 4836:2011 Safe working on or near low-voltage electrical installations and equipment, which generally requires apparatus to be de-energised during work processes (see also further information below regarding worker safety). No monitoring regime generally exists to confirm that these processes are being followed, although accident investigation processes exist in all jurisdictions.

A SAPS — particularly an IPS — may also contain generation and energy storage facilities located within a customer's premises. To date, it appears that these have usually been covered under an installer's licensing regime administered by the Clean Energy Council using Australian Standard 4509:2009 Stand-alone Power Systems (AS 4509), in addition to AS 3000. To be eligible for a certificate under the Small-scale Renewable Energy Scheme (SRES), an agent must use a licensed installer. Agents and installers work with customers to ensure their system is installed correctly.[267] Again, this regime focuses on initial design and construction with no maintenance requirement. It should be noted that this licensing regime is voluntary and may fall away once the obligations of the agent (generally a retailer) under the SRES cease.

Public safety

Public safety risks arise from numerous sources, including public accessibility, inadvertent contact with live electrical conductors leading to electric shock, fire and explosion, vehicle collisions, etc. These risks must be managed at each stage of the electricity infrastructure asset management life cycle: planning, design, construction, commissioning, operation, maintenance and de-commissioning.

For example, overhead electrical lines operated by a DNSP are designed and maintained to deliver a minimum distance between ground level and conductors under a range of foreseeable operating conditions over the entire life of the overhead line. This is intended to manage a number of risks, including the risk of inadvertent contact by the public, which has the potential to seriously injure or kill a person. Many of these distances are prescribed in Australian\New Zealand Standard 7000:2016 Overhead Line Design (AS 7000).[268]

267 For further information, see: http://cleanenergyregulator.gov.au/RET/Scheme-participants-and-industry/Agents-and-installers.

268 Australian Standard 7000:2016 Overhead Line Design S3.10

Australian Standards do not have legal force unless they are called up by a law or regulation. In this case, AS 7000 can be awarded legal status by direct requirement in a jurisdictional regulation or through a requirement for a safety scheme which in turn calls up AS 7000. Alternatively, a jurisdictional regulator may specify in a license that a DNSP must have a Safety Management System compliant with AS 5577:2013 Electricity Network Safety Management Systems (AS5577 — see box below). AS 5577 in turn requires that a Network Operator "shall identify the published national or international technical standards used by it in… the design and construction of… network assets" or "document… the reason for the non-use of or non-compliance with the standard".[269]

In this way, the minimum distance between an electrical overhead line and ground becomes a legal requirement for the network operator, and these distances apply throughout the network. In order to determine whether these distances have been maintained, regular inspections are usually carried out, which leads to rectification work if the distance limit has been breached. These inspections form part of a maintenance plan for overhead lines in a network as required by AS 5577.[270]

BOX 13: AS 5577-2013 ELECTRICITY NETWORK SAFETY MANAGEMENT SYSTEMS

The objective of AS 5577 is to provide nationally consistent requirements for a network operator's network safety management system.

In January 2012, Commonwealth, State and Territory first ministers signed the Intergovernmental Agreement (IGA) on energy supply industry safety to progress the national harmonisation of energy technical and safety regulation across Australia. This IGA endorsed the development of an Australian Standard for Electricity Network Safety Management Systems for electricity transmission and distribution networks to be prescribed in jurisdictional legislation, leading to the development of AS 5577.

AS 5577 requires network operators to conduct formal safety assessments and to develop a network safety management system in order to manage risks to a level that is as low as reasonably practicable. The safety management system covers the management of assets from conception to disposal, including design, inspection and maintenance regimes, and provides a formal basis for network operators to adopt relevant technical standards and industry codes.

Source: AS 5577

Continuing with the example of a "simple" overhead line, numerous other safety issues must be considered. These include the safe positioning of line supports (poles), prevention of public climbing access, structural integrity of line components including poles, crossarms and fastenings, correct sizing and type of conductors, vegetation management to manage fire risk

269 AS 5577:2013 Electricity Network Safety Management Systems S4.3.4 Standards and Codes.

270 AS 5577:2013 Electricity Network Safety Management Systems S 4.4 Implementation.

and inadvertent contact, addition of new services, presence of other infrastructure (e.g. public lighting, telecommunications cables), the impact of maintenance activities, etc.

In the case of an electrical safety incident, a court, coroner or safety regulator will often identify and refer to applicable existing standards as part of a process to identify whether safety precautions met a test of defensibility.[271] This means that a SAPS operator, in terms of managing its business risk exposure, needs to be familiar with these standards and how they are applied to manage safety risk.

Worker Safety

Further to the above, a network operator is subject to Work Health and Safety (WHS) legislation. The Commonwealth, states and territories are responsible for implementing, regulating and enforcing WHS laws in their jurisdictions.

Safe Work Australia is the national policy body responsible for the development and evaluation of the model WHS laws, which comprise the model WHS Act, the model WHS Regulations and the model Codes of Practice.

The model WHS laws have been developed for implementation by all jurisdictions (that is, the Commonwealth, states and territories). However, the model WHS laws do not apply in a jurisdiction unless the jurisdiction has separately taken action to implement the model WHS laws as its own WHS laws.

The model WHS laws have been implemented in all jurisdictions except Victoria and Western Australia; Western Australia is currently consulting on options to implement elements of the model WHS laws.

In the jurisdictions where the model WHS laws have been implemented, each state and territory is expected to make variations to ensure the laws operate effectively in their jurisdictions. In some instances, states and territories have also made more substantial variations.[272]

WHS legislation does not discriminate between small and large undertakings nor whether that undertaking is incorporated unless regulations specifically exclude them from the definition. The responsibilities of an employer apply regardless of whether a worker is working within a customer installation or in that part of an electricity network that exists in public space.

H.2 Commission's draft position

In the draft report, the Commission recommended that jurisdictional regulators should review frameworks for registration, licensing and safety performance monitoring of SAPS, including enforcement mechanisms, to confirm the comprehensiveness, appropriateness and proportionality of coverage for third-party SAPS. The safety framework for third-party SAPS recommended in the draft report was reflective of the differing safety risks they present.

271 For example, Coroners Court NSW, Inquest into the death of AC, 4-5 August 2015, S23.

272 Further information is available at: https://www.safeworkaustralia.gov.au/law-and-regulation

The Commission considered that microgrids will be present in public space and the safety interactions with workers and the public are similar to any DNSP network. For example, the public safety risk posed by an individual overhead line in a public road is similar regardless of whether it is operated by a DNSP or a third-party SAPS provider, and regardless of scale. The safety of the line is determined by its design and construction standards, and how it is maintained and operated over its life.

Whether the third-party SAPS is a microgrid or an IPS was considered to be a key factor in determining the safety obligations which should be imposed on a third-party SAPS. The Commission recommended that the risks to the public and workers operating the SAPS, as well as safety aspects of the customers' installations connecting to the third-party SAPS, be considered when determining the appropriate safety framework for third-party SAPS. Further, the Commission recommended that all microgrid operators undertake a structured risk assessment and develop and maintain a safety management system to address identified risks. Once risks are identified, SAPS operators should draw on appropriate national, jurisdictional and industry standards and guidelines in order to address those risks.

The Commission's draft recommendations on the general approach to safety regulation for each category of third-party SAPS are detailed in the table below.

Table H.1: Proposed safety arrangements for third-party SAPS

CATEGORY	SAFETY
Category 1	The same jurisdictional safety arrangements as for DNSPs.
Category 2	Operators of microgrids should be required to develop and maintain a Safety Management System under AS 5577. Consideration should be given to the development of a national model regulatory framework for the SMS requirement, for incorporation in jurisdictional statutes. Jurisdictional regulators should consider whether there are particular jurisdictional circumstances that justify making certain standards and codes mandatory for third-party SAPS. Mandatory jurisdictional reporting schemes for safety incident reporting should apply.
Category 3	For microgrids, jurisdictional requirements based on category 2, rationalised to account for system risk. For IPS, AS 3000 and AS 4509, as well as any other standards the jurisdictions consider appropriate, should be enforced.

Source: AEMC

H.3 Stakeholder submissions

A number of stakeholders commented on the safety requirements for third-party SAPS, recognising safety as a key risk of these systems.[273]

AusNet Services and ENA were concerned about hazards if third-party SAPS are not visible to the local DNSP, or assets registered via "Dial-before-you-dig" or similar services. Both AusNet and ENA considered that third-party SAPS operators should be required to report on, and provide updated asset information to regulators. ENA and AusNet Services also considered that third-party SAPS distribution assets and their locations should be reported to the local DNSP.[274]

In its submission, AusNet Services considered safety to be the most important aspect of power system and electricity distribution regulation. In addition to requirements to provide updated assets information for all third-party SAPS to the regulator and DNSP as noted above, AusNet Services considered it important from a safety perspective that category 3 third-party SAPS be required to be registered. [275]

Mondo considered that consumers would generally not be able to effectively evaluate the safety of a SAPS system themselves. Consequently, strong consumer protections around safety would be required. Further, Mondo considered that hazards could be created for electricians and tradespeople if a high level of safety is not enforced, especially if the specifics of a particular SAPS may not be known to them.[276]

Echoing the ENA and AusNet Services concerns, Mondo recommended a mandatory registration and licensing regime for installers and operators be established to record basic system information. This would include related electricity distribution assets and underground cables, and contact details for the parties responsible for the installation.[277]

The CEC welcomed the Commission's observation that jurisdictions may wish to consider ways to continue the CEC accreditation scheme, potentially through licensing. The CEC considered that regulatory reform is required, particularly to cover the ongoing operation of SAPS. The CEC considered safety and maintenance obligations for third-party SAPS under jurisdictional licensing would be appropriate.[278]

Finally, ENA recommended that category 2 and 3 operators provide customers with mandatory safety education on the safety features and functions of the SAPS.[279]

273 Submissions to the draft report: Mondo, p. 2; AusNet Services, pp. 1-2; ENA, p. 14.
274 Submission to the draft report: AusNetServices, p. 2; ENA, p. 14.
275 AusNet Services, submission to the draft report, p. 1.
276 Mondo, submission to the draft report, p. 2.
277 Mondo, submission to the draft report, p. 2.
278 CEC, submission to the draft report, p. 4.
279 ENA, submission to the draft report, p. 14.

H.4 Commission's analysis and final position

Given the complexity of a SAPS and its relationship with consumers of electrical energy, the Commission considers that the ACL may not be the best or only vehicle for the development of instruments that provide an assurance of safety.

Consistent with the Commission's recommendations in the draft report, a risk based approach to safety is recommended for third-party SAPS. The Commission considers that the regulatory frameworks which exists for the safe operation of DNSP networks are an appropriate starting point for consideration of the safety performance of SAPS.

The Commission has considered customer installation safety, public safety and worker safety when determining its recommendations for the safety frameworks for third-party SAPS. The Commission notes that, with the exception of IPS, SAPS are present in public space and the safety interactions with workers and the public are similar to any DNSP network.[280]

To ensure that all the safety risks arising from the operation of SAPS infrastructure in a public space are considered and controlled to at least a minimum standard, the Commission considers a structured process must be used to identify and assess risk. Due to the complexity of SAPS systems, the potential level of safety risk, and the degree of interaction with the public and workers, a systematic approach would enable SAPS operators to fully demonstrate duty of care resulting in a level of safety equivalent to that of a DNSP.

Further, in the Commission's view, the trigger for a consideration of safety risks and controls is not the scale or complexity of a SAPS — rather, it is the presence of potentially hazardous infrastructure in uncontrolled public space and the consequent public risk exposure. This suggests that the framework to identify, assess and control safety risks associated with microgrids is unlikely to be suitable for individual power systems.[281]

Consequently, the Commission has provided further recommendations for the safety frameworks which should apply broadly to mircogrids, and those which should apply to IPS. Recommendations on how these recommendations would generally apply under each category of third-party SAPS are also provided.

H.4.1 Safety requirements for microgrids

Safety requirement for microgrids should, in the Commission's view, be modelled on the safety requirements for DNSPs, scaled appropriately based on a risk assessment. The Commission considers that the part of a microgrid that is constructed and operated in public space poses the same physical public safety risks as an electricity distribution network operating under a jurisdictional licensing and authorisation scheme, although at a smaller scale.

280 As noted above, the public safety risk posed by an individual overhead line in a public road is similar regardless of whether it is operated by a DNSP or a third-party SAPS provider, and regardless of scale. The safety of the line is determined by its design and construction standards, and how it is maintained and operated over its life.

281 In other words, on the basis that electricity will not be transmitted across property borders, the extent of safety risk associated with IPS is likely to be less extreme than for microgrids.

For example, as noted in the draft report, overhead electrical lines operated by a DNSP are designed and maintained to deliver a minimum distance between ground level and conductors under a range of foreseeable operating conditions over the entire life of the overhead line. This is intended to manage a number of risks, including the risk of inadvertent contact by the public, which has the potential to seriously injure or kill a person. Clearly, to achieve a similar safety outcome for an overhead line that is part of a SAPS, a similar distance should be specified.

SAPS may contain various other components and sub-systems that exist in public space. These include underground cables, telecommunications facilities, earthing systems, protection and control systems, and (depending on scale) substations and centralised generators. A township-sized SAPS, for example, may include a high-voltage reticulation system. The risks associated with each of these components must be identified, assessed and controlled.

In some jurisdictions, to manage safety risks, the jurisdictional regulator specifies in licenses that a DNSP must have a Safety Management System compliant with AS 5577:2013 Electricity Network Safety Management Systems. This specification is likely appropriate for third-party microgrids.

Consequently, the Commission recommends that to achieve a similar safety outcome, these risks should be identified, assessed and controlled with the same rigour as network infrastructure operated by a DNSP. Therefore, the Commission recommends that all microgrid operators are required to undertake a structured risk assessment and develop and maintain a safety management system to address identified risks.

Once risks are identified, SAPS operators will be able to draw on appropriate national, jurisdictional and industry standards and guidelines in order to address those risks. Jurisdictional electrical safety regulators should review these SMS to ensure that an appropriate risk assessment has been carried out, and risks are addressed adequately.

The features of such an approach would include:

- Information generated should be stored in a retrievable form.
- Incident reporting should be carried out in a fashion which enables any rectification activities to be carried out effectively.
- Designs should be verified, workers should be appropriately trained and equipped, maintenance activities should be carried out and recorded, asset locations should be recorded, and the public should be made aware of hazards.

Such requirements are no more onerous than those imposed on the operator of any other industrial facility, except that a portion of SAPS infrastructure exists in uncontrolled public space, which greatly increases its exposure.

The Commission recommends that incidents within customer installations and on the SAPS distribution networks (and within generators) must be reported to the relevant safety regulator. In some cases, depending on scale, complexity and risk, the Commission considers it may be appropriate to implement an active regulatory surveillance scheme to assess the ongoing compliance of a SAPS with appropriate safety requirements.

As noted in the draft report, the Commission has considered a number of potential alternatives to establishing safety management systems. The Commission remains of the view that these would be likely to have significant drawbacks. Two alternatives are discussed in the box below.

BOX 14: POTENTIAL ALTERNATIVES TO SAFETY MANAGEMENT SYSTEMS

One alternative would be to develop mandatory SAPS standards to ensure a minimum level of safety. However, given the complexity of electricity infrastructure (whether DNSP-led or third party SAPS) and its interaction with the public, these mandatory standards could also be highly onerous in terms of their development and ongoing management, as well as their implementation by SAPS operators. Ultimately, it is highly likely that mandatory standards would resemble an "applicable subset" of the safety requirements that apply to electricity distribution networks. Also, given that SAPS are themselves not identical and risk is subject to a variety of locational factors, mandatory standards would still need to be applied in a way that embraces risk analysis and management, to cater for the particular risks and circumstances of the SAPS network.

Another alternative could be for jurisdictional regulators to make certain established standards and codes mandatory for each category of SAPS pending agreement on a classification model. However, available standards and codes are not necessarily comprehensive or fully applicable in all circumstances, and so would need to be applied in a way that considers risks and allows decisions to be made where the mandatory standard is either not applicable, silent or absent. For example, while there are several design standards that can be beneficially applied to SAPS, there are relatively few documents that provide guidance in terms of maintenance practices for an integrated system consisting of inter-dependent electrical components forming a SAPS or network on any scale.

Source: AEMC

It could be argued that the development and maintenance of an SMS or scheme such as those implemented by DNSPs would be a daunting prospect for the owner and operator of a SAPS,however, public safety cannot be compromised. The documentation required by an SMS is in large part already required under general safety legislation, and an SMS usefully provides a set of processes to keep information current and in an implementable form.

The model used by ESCOSA in South Australia which imposes license conditions on SAPS is instructive. The coverage of those licence conditions closely resembles the content and intent of an SMS based on AS 5577.

Where not already in place, the Commission recommends that jurisdictions:

- introduce a regulatory framework where the operator of a microgrid is required to develop and maintain a SAPS SMS similar to AS 5577, in a similar manner to the ESCOSA licence conditions arrangements

- implement an SMS monitoring regime[282]
- provide for the jurisdictional regulator to take appropriate enforcement action where necessary.[283]

The Commission considers that such an approach would have several benefits:

1. An SMS is scalable around the size and complexity of a SAPS and the operator needs to identify and control only the risks that arise from its SAPS.
2. The operator is compelled to deeply understand and consider the safety risks arising from its particular SAPS in terms of public safety worker safety, the protection of property and SAPS assets, and safety aspects arising from the protection of the environment or from the loss of electricity supply.
3. The SMS becomes a structured framework which addresses all phases of asset management, allowing for easier maintenance, auditing, and improvement of safety knowledge.
4. The SMS can be used to establish traceability to a very large library of existing applicable standards and codes of practice.
5. There is a considerable amount of knowledge already present in the public domain which would assist a SAPS operator to develop an SMS, including public reports by DNSPs.
6. An SMS embraces the need for a maintenance plan which points towards ongoing monitoring of an asset and its safety performance.
7. Should the regulatory framework include a requirement for independent audits, SMS structured in a relatively uniform way greatly assist an auditor to check whether safety is being managed effectively.
8. A well-managed SMS provides a sound platform for legal defence in the case of liability claims arising from safety incidents.
9. It is relatively practicable to develop guidance information in the form of manuals or codes to assist SAPS operators to prepare an SMS.

The SMS should cover all elements of the relevant SAPS, including those that exist within a customer's premises and in public space.

The Commission considers that the safety aspects of design and construction of customer installations within SAPS are relatively well-covered by jurisdictional licensing regimes which call up Australian Standard 3000 Wiring Rules (AS 3000). Jurisdictional regulators should review their licensing regime to determine if there are any existing or emerging gaps. Jurisdictions may also wish to consider supplementing their existing regimes with additional requirements for maintenance and inspection to provide for the safety of installations over their operating lives.

In addition to electrical safety regulations, a SAPS operator would also be subject to Work Health and Safety legislation. The Commonwealth, states and territories are responsible for

282 For example, section 11 of the Electricity Supply (Safety and Network Management Plan) Regulation 2014 (NSW) requires DNSPs to have their safety management system audited by a nominated auditor.

283 For example, section 13 of the Electricity Supply (Safety and Network Management Plan) Regulation 2014 (NSW) provides for IPART to take action to enforce or modify an SMS.

implementing, regulating and enforcing WHS laws in their jurisdictions. WHS legislation does not discriminate between small and large undertakings nor whether that undertaking is incorporated unless regulations specifically exclude them from the definition. The responsibilities of an employer apply regardless of whether a worker is working within a customer installation or in that part of a SAPS that exists in public space. The Commission understands that these laws would apply to third-party SAPS automatically.

H.4.2 Individual power systems

The Commission recommends that individual power systems should be treated as customer installations for the purpose of AS 3000, and that AS 3000 should therefore continue to be enforced. Subsequent work within an installation is required to be carried out in accordance with Australian Standard 4836:2011 Safe working on or near low-voltage electrical installations and equipment, which generally requires apparatus to be de-energised during work processes.

As noted above, an IPS may contain generation and energy storage facilities located within a customer's premises. To date, it appears that these have usually been covered under an installer's licensing regime administered by the Clean Energy Council using Australian Standard 4509:2009 Stand-alone Power Systems (AS 4509), in addition to AS 3000. To be eligible for a certificate under the Small-scale Renewable Energy Scheme (SRES), an agent must use a licensed installer. Agents and installers work with customers to ensure their system is installed correctly. The Commission notes that the existing installers' licensing regime administered by the Clean Energy Council that provides for AS 4509 to apply may fall away with the end of the SRES. The Commission recommends that jurisdictions consider whether the application of AS 4509 should be included as a license or exemption condition for IPS.

Similarly, jurisdictions may also wish to consider supplementing their existing regimes with additional requirements for maintenance and inspection to provide for the safety of installations over their operating lives.

H.4.3 Application of arrangements for safety to each category of SAPS

Although the Commission considers that a risk-based assessment should be carried out to determine the appropriate safety obligations for each third-party SAPS, the Commission generally recommends the following safety arrangements for each category of third-party SAPS. Jurisdictions would be best placed to determine the specific safety requirements applicable for each category of SAPS, and for each specific SAPS.

Category 1

The Commission recommends that the same safety framework that applies to DNSPs should be applied to the distributor in a category 1 SAPS. Further, jurisdictions should review their safety requirements for customer installations to ensure that they are fit for purpose for customer installations connecting to a third-party SAPS. As recommended in appendix G, distributors in a category 1 SAPS should have service and installation rules, which will assist with the safe connection of customer installations to a third-party SAPS.

Category 2

For category 2 SAPS, the Commission's recommended approach for microgrids above should apply. That is, operators should be required to undertake a structured risk assessment and develop and maintain a Safety Management System under AS 5577. The SMS should cover all elements of the SAPS, including those that exist within a customer's premises and in public space. The Commission recommends that jurisdictions consider developing a national model regulatory framework for the SMS requirement, for incorporation in jurisdictional statutes. All jurisdictions should have an SMS monitoring and reporting regime.

In addition, the Commission recommends that jurisdictional safety regulators should consider whether there are particular circumstances that justify making certain standards and codes mandatory for third-party SAPS.

Category 3

For category 3 SAPS microgrids, the jurisdictional requirements based on category 2 are recommended. The SMS should be rationalised to account for system risk. For IPS, the Commission recommends the SAPS should be treated as a customer installation, with AS 3000 enforced. Jurisdictions should consider the safety obligations which should be imposed in relation to the generation and energy storage facilities of the IPS.

For all microgrids, mandatory jurisdictional reporting schemes for safety incident reporting should apply.