AEMC

REVIEW

Australian Energy Market Commission

FINAL REPORT

REVIEW OF THE REGULATORY FRAMEWORKS FOR STAND-ALONE POWER SYSTEMS - PRIORITY 1

30 MAY 2019

INQUIRIES

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Reference: EMO0037

CITATION

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

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 the Commission's final recommendations for a regulatory framework to allow stand-alone power systems to be used by distributors in the National Electricity Market (NEM) as an alternative to standard grid supply where it would be economically efficient to do so, while preserving consumer protections comparable to those afforded to customers supplied via the interconnected grid.

3 Stand-alone power systems could potentially be used in a range of situations in the future, but the COAG Energy Council asked us to look at their use by NEM distributors as a first priority for the review. The Commission is continuing to develop its recommendations for regulatory frameworks for the provision of stand-alone power systems by parties other than local distributors. A draft report on this second priority for the review is due to be published by 30 June 2019, with a final report due by 31 October 2019.

Overview

4 The Commission is making a suite of recommendations for changes to energy laws and rules to enable the use of stand-alone power systems by distributors. These reforms will help unlock the benefits of new technologies that are increasingly allowing electricity services to be delivered through alternatives to a traditional grid connection at a lower cost and with improved reliability, and with other benefits such as reduced bushfire risks.

5 To realise these benefits, the recommendations would facilitate the provision of stand-alone systems by distributors to their existing customers, where these offer a lower cost substitute to investing in, and maintaining, traditional network solutions.

6 Customers who receive stand-alone systems will retain all of their existing consumer protections, including access to retail competition and existing reliability and safety standards. As such, customers would not be disadvantaged where a distributor determined that it would be more efficient to supply them on a stand-alone basis. Cost savings arising from the use of lower cost stand-alone systems will flow through to all users of the distribution network, through lower network prices.

Background

7 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, which relate only to single customers.

8 Currently, the national energy laws and rules only apply to the interconnected electricity grid

on the east coast of Australia that underpins 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]

9 Some states with significant numbers of stand-alone power systems have relatively well-developed regulatory frameworks. However, other jurisdictions, notably those without SAPS (or with relatively few SAPS), do not. In such jurisdictions, customers being supplied by stand-alone systems may not be covered by appropriate consumer protections. Jurisdictional regulation is also not well suited to circumstances where NEM registered distribution network service providers (DNSPs) seek to supply their current network customers on a stand-alone basis.

Increasing viability of stand-alone power systems

10 Technological developments, in particular the falling costs of renewable generation and batteries, are making stand-alone power systems an increasingly viable way of supplying power. The economics of SAPS is becoming more favourable, especially for providing electricity services to customers for whom the costs of continuing to provide a grid connection may be high.

11 These developments are prompting DNSPs to consider the case for using SAPS solutions in suitable circumstances, in particular, the use of individual power systems. In trials to date, and currently planned deployments, these systems generally comprise solar photovoltaic panels, lithium-ion batteries, an inverter and backup diesel generator. These trials have suggested that not only are such systems already economic in many locations, but also that customer reliability is significantly improved. Projected continuing falls in battery costs are likely to further improve the economics of such systems.

12 The distribution costs associated with supplying customers across the grid vary significantly, and increase as customer density decreases. As such, the costs of providing a grid-connected service are at their highest in remote areas, at the "fringes" of the grid. As the assets providing service to these areas reach the end of their service lives, DNSPs are assessing the most cost-efficient ways of continuing to provide service to these remote customers.

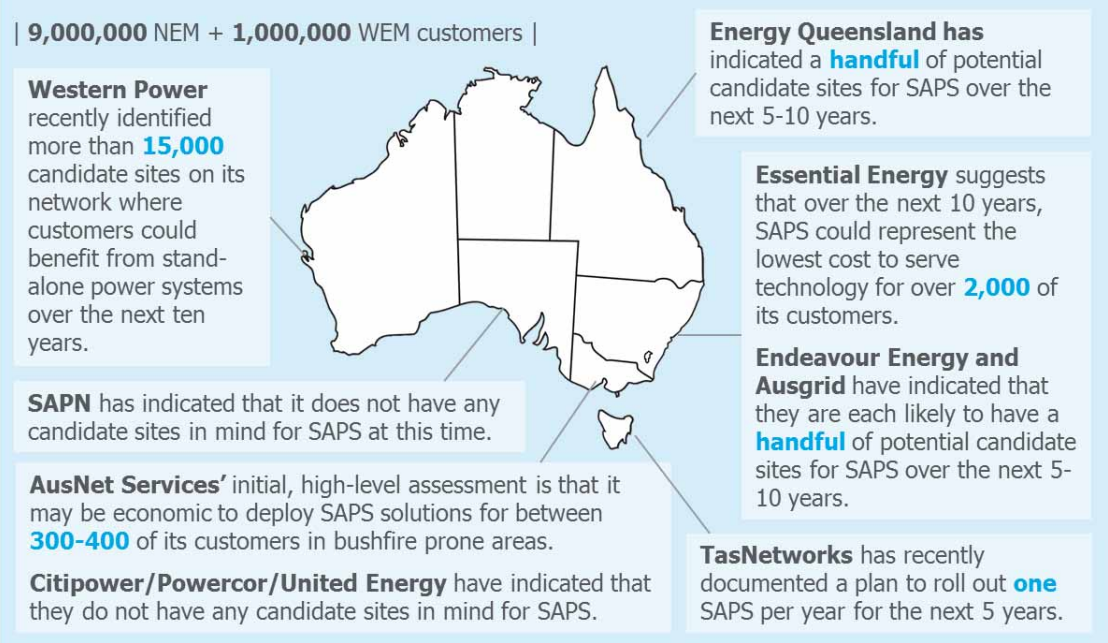
13 In addition to customer density, there are a number of other drivers of high distribution costs, including the need to use more expensive network equipment in order to mitigate risks associated with bushfires in susceptible areas, and costs associated with vegetation management or poor access.

14 As their costs fall, SAPS solutions may increasingly represent a more economic alternative to replacing existing network assets in areas that are costly to serve. To the extent that DNSPs are able to reduce costs, the benefits would flow through, over time, to all of a DNSP's customers. This would occur through a reduction in the overall amount of revenue that would be required by the DNSP, therefore reducing prices for all customers. The customers moving to SAPS supply would also likely experience benefits directly in terms of improved reliability.

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.

15 Information provided to the Commission by DNSPs suggests that the numbers of customers that DNSPs might seek to supply via SAPS solutions might be relatively small in the context of the NEM as a whole, perhaps in the order of a few thousand over the next ten years. Numbers are likely to be higher in Western Australia (which is not part of the NEM), largely due to the higher costs of network supply. This is largely due to conditions there being unsuitable for the use of Single Wire Earth Return lines, which are currently used by many NEM DNSPs in remote areas.

Figure 1: Likely uptake of DNSP SAPS



Source: AEMC

16 Despite their likely relatively small numbers, customers that are candidates for SAPS supply account for a disproportionately high share of DNSPs' costs. Consequently, transitioning these customers to off-grid supply could result in significant cost savings, which would flow to all of a DNSP's customers.

Regulatory barriers to DNSP provision of off-grid supply

17 Given their potential benefits, there is a risk that the current regulatory frameworks, by not adequately supporting the use of stand-alone power systems and the transition of existing grid-connected customers to stand-alone solutions, might be inhibiting the use of the most efficient technological solutions to supply some customers.

18 One form of regulatory barrier arises from the way distribution costs are recovered. Distribution tariffs tend to reflect the average cost of supplying power to all customers in a distributor's service area, which means that tariffs paid by most grid-connected remote customers do not reflect the high costs of supplying those customers.

19 While it allows any cost savings arising from the use of SAPS to benefit all of a DNSP's customers, this "postage stamp" pricing means that individual customers do not have a direct financial incentive to move away from DNSP supply to an alternative off-grid provider, where the cost of off-grid supply would be lower than maintaining a grid connection. Consequently, such customers are likely to retain their DNSP grid connection given its lower price to them, even if an off-grid solution would be lower cost to provide.

20 While it would be economically efficient to incorporate locational signals into cost-reflective tariffs to improve the incentives on customers, the Commission acknowledges that distribution network tariffs are unlikely to include strong locational signals in the foreseeable future. Consequently, to allow for the use of SAPS solutions, where this would reduce total system costs, requires the establishment of arrangements to allow for their provision by DNSPs under current DNSP tariff structures.

21 The provision of distribution services by DNSPs in the NEM is regulated by the National Electricity Law (NEL) and National Electricity Rules (NER). Under the NER, a "distribution service" is defined as a service provided by means of, or in connection with, a distribution system. A "distribution system" is defined as a distribution network, together with the connection assets associated with the distribution network, *which is connected to another transmission or distribution system*.

22 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. To do so, Western Power proposed to amend the definition of distribution service in the NER in order to enable to use of SAPS by DNSPs. However, the proposed changes would have led to inconsistencies between the term "distribution service" in the NER and the term "electricity network service" in the NEL, which may have made the proposed rule invalid. In addition, consumer protection issues arose as noted in the box below. Therefore, the Commission determined not to make the rule change.

BOX 1: CONSUMER PROTECTIONS FOR OFF-GRID CUSTOMERS

The sale and supply of energy to retail customers is regulated by the National Energy Retail Law (NERL) and National Energy Retail Rules (NERR) in all participating NEM jurisdictions, except Victoria. These instruments include key electricity consumer protection measures and contract terms and conditions.

However, in New South Wales, South Australia and Tasmania, the NERL and NERR only apply to customers supplied via the interconnected national electricity system (due to provisions in those jurisdictions' NERL application Acts). This means that any customers in these states supplied off-grid by DNSPs do not benefit from these fundamental consumer protections. The Commission was not able to address this issue through changes to the NER under the Western Power rule change, and this was a key factor in the Commission's decision not to make the rule change.

23 In its final determination for the Western Power rule change, the Commission concluded that broader framework changes, beyond amendments to the NER, would be required to properly implement the reforms required to facilitate DNSP provision of SAPS. Consequently, the Commission recommended that the COAG Energy Council ask it to provide advice on the law and rule changes that would be required.

24 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. The Finkel Review recommended that the COAG Energy Council should direct the AEMC 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, and the ACCC recommended that immediate work should be undertaken to identify and implement changes to the national energy laws and rules to allow DNSPs to develop off-grid supply arrangements where efficient.

25 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.

26 In considering the required changes, the Commission has been mindful that stand-alone systems have the potential to be used by DNSPs in a wide variety of circumstances, ranging from supplying a single bore pump to a microgrid covering a whole town. The arrangements to be put in place will therefore need to be sufficiently flexible to accommodate these different applications.

Approach

27 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.

28 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.

29 The Commission has closely coordinated the review with its further work on embedded networks. The *Updating the regulatory frameworks for embedded networks* review commenced on 30 August 2018, and a final report will shortly be provided to governments containing advice on the detailed amendments to the regulatory framework that are required to implement the recommendations from the Commission's earlier *Review of regulatory arrangements for embedded networks*. The two reviews have considered similar, often linked

policy and legal issues, particularly in relation to consumer protections.

30 The terms of reference required that existing legacy SAPS (individual power systems and microgrids) which have been established and are currently operating under jurisdictional legislative frameworks need not be captured by the new national framework for SAPS.

31 The Commission commenced consultation on the review through the publication of an issues paper on 11 September 2018, with submissions being received from 24 stakeholders in response. A draft report for priority 1 was published on 18 December 2018, with 28 submissions being received.

32 In addition, a large number of bilateral meetings and workshops have been held with other national market bodies, jurisdictional regulators, DNSPs, technology companies, jurisdictional ombudsmen, retailers and consumer groups. Further, Commissioners and Commission staff have participated in three field visits in Western Australia, Queensland and New South Wales to see individual power systems and microgrids, and to speak to customers who are being supplied via those SAPS about their experiences.

33 Views expressed by stakeholders over the course of the review were overwhelmingly positive, with near-universal support for the introduction of regulatory changes to facilitate the use of SAPS by DNSPs where economic and consistent with the maintenance of existing consumer protections. There was also general support for most of the more detailed recommendations made in the draft report. Where there was debate, most notably in the area of the service delivery model (see below), the Commission has taken account of stakeholder comments in developing its final recommendations.

Priority 1 recommendations

34 This report presents the Commission's analysis and final recommendations for priority 1 of the review.

35 In doing so, the Commission has divided the key issues associated with the transition of grid-connected customers to DNSP-led SAPS into five discrete areas, and the report explains the Commission's recommendations in the following five groups:

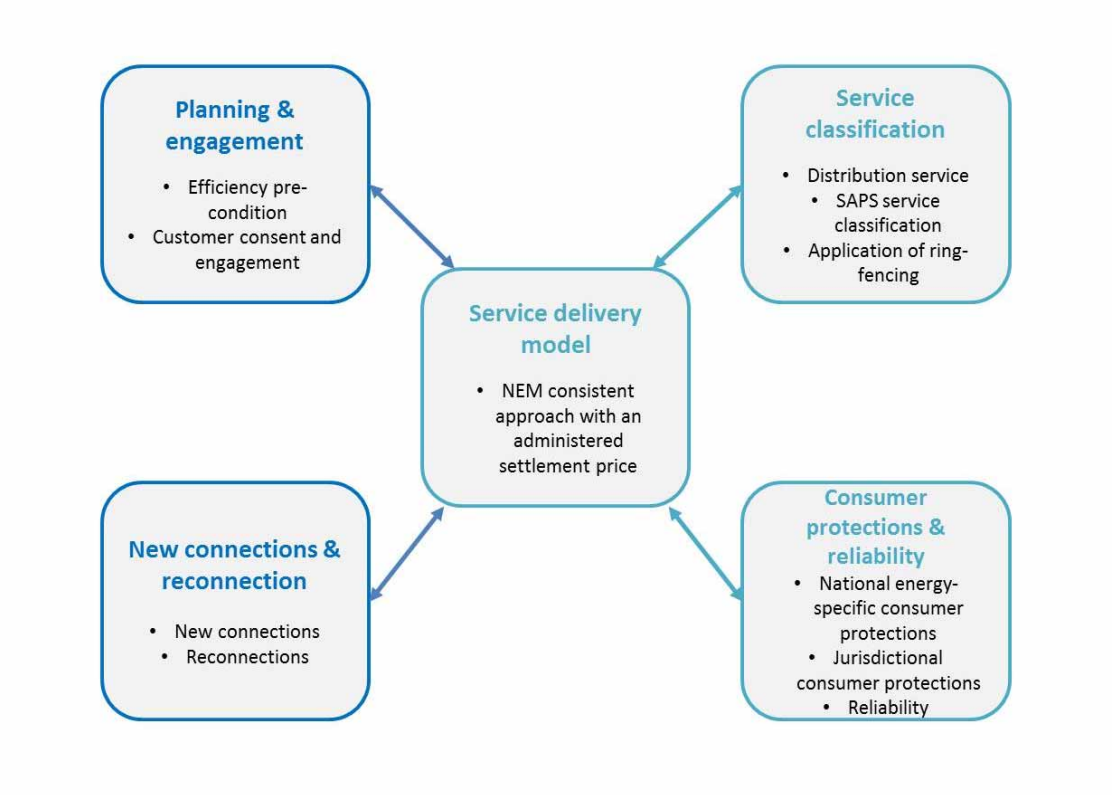
- the network planning and customer engagement arrangements to support the transition of existing DNSP customers to SAPS supply
- rules to govern the extent to which new customers might be provided with a connection by means of a DNSP-led SAPS and to which DNSPs' SAPS customers might be able to revert to supply from the interconnected grid
- the service delivery model, which will sit at the heart of the arrangements for the ongoing provision of SAPS supply and refers to the inter-relationships between the full suite of activities and services involved, including local generation, network services and retailing, as well as supporting services such as metering
- the classification of services for the purposes of network regulation and the ring-fencing of non-competitive activities from competitive markets, which flows from the service delivery model

- the consumer protections provided to customers, which are also, in part, related to the allocation of the retail function.

36 The recommendations together form a consistent and coherent package, the development of which was guided by a number of factors, including:

- the relatively low numbers of customers identified for transition by DNSPs over the next 10 years
- given the significant cost savings that can flow from even a small number of stand-alone systems, a desire to minimise the barriers to the use of these systems
- overwhelming stakeholder sentiment for a clear and simple framework
- an objective of allowing customers who receive stand-alone systems to continue to receive at least the same level of consumer protections, including access to retail competition and existing reliability and safety standards, and
- an objective of achieving, as far as possible, consistency with the current arrangements for customers served by standard grid supply and the new arrangements also being developed by the Commission for customers in embedded networks.

Figure 2: Structure of recommendations



Source: AEMC

Planning and engagement

37 Consistent with the objective of the review, DNSPs should only seek to transition customers to SAPS supply where it would lower total system costs. The Commission has found that the existing distribution network planning and investment framework – which includes the distribution annual planning report (DAPR), demand side engagement obligations and the regulatory investment test for distribution (RIT-D) – is largely appropriate and fit-for-purpose to encourage DNSPs to make efficient planning and investment decisions in respect of stand-alone power systems.

38 To further support DNSPs to achieve efficient planning and investment outcomes in respect of SAPS, the Commission is recommending a small number of changes to the existing network planning arrangements to increase transparency around both the opportunities for, and decisions made in respect of, SAPS:

- The DAPR reporting requirements in the NER should be amended and clarified to include a number of items specific to SAPS. Specifically, DNSPs should be required to report on SAPS opportunities over the forward planning period, SAPS projects committed for implementation over the planning period and SAPS options considered in the past year. Further, DNSPs should be required to report on the total numbers of SAPS implemented, and customer premises transitioned to SAPS, in their areas.
- The RIT-D principles set out in the NER should be changed to make it clear that DNSPs must (rather than may) quantify all classes of market benefits applicable to a credible option, where these may be material or likely to alter the selection of the preferred option. The quantification of market benefits is becoming increasingly important as the characteristics of traditional distribution investments have evolved.

39 The Commission recommends that DNSPs should not be required to obtain explicit consent from customers in order to transition them to off-grid supply. The Commission considers this appropriate in light of its other recommendations that would enable the customers involved to continue to benefit from equivalent price and reliability protections. Obtaining explicit consent from customers would also be logistically challenging and present risks that small number of customers could veto changes that would benefit all consumers.

40 Instead, to recognise the importance of effective and timely engagement between DNSPs and affected parties (including potential SAPS customers and the local community), the Commission recommends the introduction of a new set of SAPS customer engagement obligations. These will require DNSPs to develop a SAPS customer engagement strategy, which must be documented and published on DNSPs' websites. In addition, DNSPs will be required to undertake a formal SAPS consultation process whereby DNSPs must provide formal, public notice to affected parties of their intention to proceed with a SAPS solution.

41 In practice, DNSPs will often need to obtain implicit consent from customers, as individual power systems would generally be located on the customer's property. DNSPs would also need to work closely with customers to understand their load profiles and technical requirements. In return, customers, particularly those in remote areas, would be likely to experience much improved reliability as their supply becomes less vulnerable, for instance to the effects of storms or other interference on long power lines lacking in resilience.

New connections and reconnection

42 As noted earlier, the driver for the provision of SAPS by regulated DNSPs is that current DNSP customers have a financial incentive to maintain their grid connection, even where a stand-alone system would be lower cost. However, new customers without an existing grid connection are generally likely to have appropriate financial incentives to obtain off-grid supply where this would be a lower cost solution than a grid connection as they will be directly exposed to these cost differences.

43 As such, the Commission recommends that new customer connections to new SAPS should be competitively sourced, rather than provided by regulated DNSPs. This means that new customers seeking connection by means of a new SAPS will be unable to access cross- or direct subsidies arising from DNSP supply. Appropriately ring-fenced affiliates of DNSPs would be able to provide new SAPS to new customers at cost-reflective prices.

44 However, the Commission recommends that DNSPs should be allowed to provide an offer to connect to an existing DNSP-led SAPS, where the connection to the DNSP-led SAPS would be more efficient than connecting to the interconnected grid. This would most likely be in the form of connections to microgrids, but could also include connecting to pre-existing DNSP individual power systems, which could be developed into microgrids to supply additional customers.

45 On the basis that equivalent consumer protections, including service quality and reliability standards, that apply for grid-connected customer should apply to DNSP-led SAPS, the Commission considers that off-grid DNSP customers should not have a specific, additional right of reconnection to the interconnected grid. Further, as the Commission recommends that DNSP-led SAPS should be considered to be part of the DNSP's network, then a SAPS customer would by definition still be connected to the DNSP's network.

Service delivery model

46 The SAPS service provided to customers will incorporate a suite of activities and services including local generation, network services and retailing, as well as supporting services such as metering. The Commission has considered how to define and allocate responsibility for these services, and whether this should be different from existing arrangements in the NEM.

47 Having considered a number of options in detail, the Commission has concluded that the delivery of SAPS services to customers would best be supported by the existing wholesale energy market arrangements, including AEMO's settlement system. However, rather than utilising the five-minute wholesale market spot price to settle the delivery of energy to SAPS customers, the Commission recommends that retailers should be charged an administered settlement price for that energy.

48 Such an approach will make it feasible for SAPS retail services to be provided by competing grid retailers, thus allowing SAPS customers to maintain their relationships with existing retailers, and to retain their existing retail offers. This will support the seamless transition of existing grid-connected customers to SAPS and enable SAPS customers to be left no-worse-off in terms of price and other contract conditions, following the transition to SAPS supply. Such equivalent price protections are one reason DNSPs need not be required to seek formal

consent from customers for their transition to SAPS.

49 The use of an administered settlement price rather than the usual NEM spot price will remove retailer risk associated with price volatility in the spot market and therefore also the need for retailers to hedge SAPS customers' load with NEM generators. Further, settling the energy provided by local SASP generators and delivered to SAPS customers using an administered price will remove any incentive for retailers to send SAPS customers wholesale price signals which are not consistent with minimising the cost of SAPS.

Service classification

50 The Commission has considered how the services provided by a DNSP SAPS should be classified under the SAPS supply model, and is recommending amendments to the NEL and NER to enable DNSPs to utilise SAPS to provide distribution services. This will allow DNSPs to fund these services through their regulated revenues in the usual way, which is key to maintaining equivalent network pricing outcomes for customers being transitioned to SAPS supply.

51 In a regulatory sense, a stand-alone power system will comprise two components, each providing a separate service:

- a stand-alone distribution system, which will provide a distribution service, and
- a generating system(s) connected to the stand-alone distribution system, which will provide the generation of electricity and also an input into the distribution service.

52 The generation of electricity would not be a distribution service and so would not be subject to classification by the AER. In addition, the AER's ring-fencing guideline, which seeks to delineate activities in competitive markets from non-contestable services, would prevent DNSPs from providing SAPS generation directly. DNSPs will instead need to procure SAPS generation from a third party, a subsidiary or other affiliate of the DNSP unless granted a waiver by the AER or subject to a deemed exemption.

53 The Commission has concluded that the existing framework for distribution service classification in the NER is broadly appropriate and fit-for-purpose to support the AER in classifying the SAPS distribution service. However, there may be benefit in clarifying in the NER that the appropriate classification of the distribution services provided by means of a SAPS is as a standard control service. This is likely to be particularly beneficial where the assets associated with the stand-alone distribution system are difficult to discern, as might be the case for individual power systems.

Consumer protections and reliability

54 Customers should not be disadvantaged as a result of being transitioned to a DNSP stand-alone power system. As such, the Commission considers that the existing energy-specific consumer protection framework, including national consumer protections in the NECF and jurisdictional consumer protections, be extended to customers transitioned to SAPS supply by distribution businesses.

55 The existing requirement under the NERL for entities selling energy to persons for premises

to be authorised (unless they are exempt) will apply energy-specific consumer protections to SAPS customers. However, in order to give effect to this provision, some jurisdictions will need to amend their NERL application Acts to remove restrictions which would otherwise prevent the consumer protections in the NECF from applying to SAPS customers.

56 The Commission also recommends that the application of existing jurisdictional protections, including safety and technical regulation, as well DNSP land access rights, be extended to distributor-led SAPS supply. To enact this recommendation, jurisdictional governments and jurisdictional regulators will need to review, and where necessary amend, their legislative frameworks to ensure they cover SAPS and, if relevant, customers supplied by SAPS.

57 In addition, SAPS customers should receive reliability protections equivalent to grid-connected customers. On the basis that network reliability standards are a jurisdictional responsibility, the Commission recommends that jurisdictions review legislative instruments for reliability standards and guaranteed service level schemes, and make any changes required to cater for SAPS supply.

Transition to third party SAPS

58 As required by the terms of reference, this report also includes a number of recommended amendments to the national frameworks to enable the transition of existing DNSP customers to SAPS supply provided by parties other than the local distribution business (that is, to a "third-party SAPS").

59 In relation to the decision-making framework for customer transition to a third party SAPS, the Commission recommends that third party SAPS providers be required to obtain written consent from each prospective SAPS customer, based on a set of explicit consent requirements, before transitioning them to a third party SAPS. The explicit consent requirements should include requirements to disclose 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. The Commission considers that these recommendations will enable energy consumers to select the energy supply option that they consider to be in their long term interest on an informed basis.

60 The transition of grid-customers to third-party SAPS supply may involve the removal or decommissioning of assets previously used to supply these customers from the grid. It may also entail the transfer of other assets from the DNSP to the third-party SAPS provider. To this end, the Commission considers it is appropriate for a third-party SAPS provider to compensate affected DNSPs for costs related to stranded assets as a result of the transition, under AER guidance. In addition, the existing asset disposal methodology should apply to a DNSP's regulated assets that are sold to a third party. The Commission considers that these recommendations will allow the efficient allocation of the costs of transitioning customers to a third party SAPS between DNSP grid customers and transitioned customers.

Implementation

61 In light of the high level of stakeholder support for these reforms and the momentum for

change amongst industry, consumer groups and other stakeholders, the Commission has developed this package of recommendations having regard to the benefits of timely implementation by the COAG Energy Council.

62 Implementation of the recommended framework will require a package of changes to the national energy law and rules, and to jurisdictional legislative instruments. To this end, the Commission has prepared recommended drafting instructions for amendments to the NEL and NERL. 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 relating to DNSP SAPS to take effect through the national energy rules. The COAG Energy Council can submit these to Parliamentary Counsel for consideration.

63 The next stage of work involves the development of detailed revisions to the NER and NERR to apply the final recommendations. Importantly, the regulatory framework for stand-alone power systems will not be implemented until the complete package of national energy law and rule changes have been made.

64 The report sets out two potential approaches to implementation of the complete package of reforms. Firstly, amendments to the national energy laws could be made by the South Australian Parliament and a rule change request could then be submitted to the AEMC (by the COAG Energy Council or any other person) to consult on, draft and make the supporting rules. Alternatively, following endorsement of the recommendations by the COAG Energy Council, the AEMC could commence work to develop detailed advice on the rule changes to implement the recommended framework. The complete package of national energy law and rule changes could then be submitted to Parliamentary Counsel and South Australian Minister (respectively) to be made.

65 Jurisdictional governments and regulators will also need to review and amend relevant jurisdictional legislative instruments to support and ensure consistency with the recommended framework. This report provides guidance to jurisdictions on the key issues they will need to consider in areas such as reliability and safety regulation.

66 The Commission has also given further consideration to the issues associated with jurisdictional participation in the national framework raised in the terms of reference. The Commission recommends that amendments should be made to the national rules uniformly, but that there should be the ability for jurisdictions to then expressly opt into the application of these. That is to say, that once a jurisdiction has made appropriate changes to any relevant jurisdictional instruments (for instance reliability standards and NERL application acts), the opt-in could be triggered (for example, by the making of a regulation) and the national arrangements to support the deployment of SAPS by DNSPs in that jurisdiction would then be enabled.

67 Table 1 below lists the Commission's final recommendations in full and outlines the actions required for their implementation, whether by the COAG Energy Council collectively or by jurisdictions individually.

Final recommendations and implementation plan

Table 1: **Final recommendations and implementation plan**

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
SAPS planning and engagement	Amend and clarify the DAPR reporting requirements in schedule 5.8 of the NER to include a number of items specific to SAPS. These items would include SAPS opportunities over the forward planning period, SAPS projects committed for implementation over the forward planning period and SAPS options considered in the past year. DNSPs will also be required to report on total numbers of SAPS implemented, and numbers of customer premises transitioned to SAPS in their areas.	COAG Energy Council to submit NEL amendments to the South Australian Parliament COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework
	Amend the RIT-D principles in Chapter 5 of the NER to clarify that DNSPs must (rather than may) quantify all classes of market benefits applicable to a credible option, where these may be material or likely to alter the selection of the preferred option.	
	Introduce a new set of SAPS customer engagement obligations in chapter 5 of the NER requiring DNSPs to develop a SAPS customer engagement strategy which must be documented and published on their websites. The new obligations will also require DNSP to undertake a formal consultation process whereby formal, public notice must be provided to affected parties in respect of a DNSP's intention to proceed with a SAPS solution.	
New connections and reconnection	Prohibit DNSPs from fulfilling their connection obligations by providing a connection offer for a new connection to a new SAPS, in Chapter 5A of the NER.	COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework
	DNSPs will be able to fulfil their connection obligations by	

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	providing a connection offer for a new connection to a pre-existing SAPS.	
	To capture matters relevant to the augmentation of DNSP SAPS, DNSPs' connection policies, including capital contribution thresholds, should be extended to apply to SAPS customers in the same way they apply to grid customers.	DNSPs to review and amend relevant connection policies to ensure they are consistent with any changes to national arrangements
	Customers transitioned to a SAPS by a DNSP will have no special right of reconnection to the interconnected grid.	No rule change required
SAPS service delivery model	Implement arrangements which provide for the delivery of the SAPS service to customers using the existing wholesale energy market arrangements, including AEMO's settlement system. Retailers will be charged an administered settlement price (rather than the spot price) for that energy.	COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER and NERR rule changes to apply the recommended framework AEMO to make any required system changes to allow for payment of the administered settlement price, and notification of that price
SAPS service classification	Remove existing barriers in the NEL and NER to enable DNSPs to use SAPS to provide regulated distribution services where it is economically efficient to do so.	COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework AER to review relevant guidelines for consistency
	Amend Chapter 6 of the NER to clarify that the appropriate classification of the distribution service provided by means of a SAPS is as a standard control service.	
Consumer protections	Extend the application of the full suite of energy-specific consumer protections in the NERL and NERR to SAPS customers (in addition to grid customers).	COAG Energy Council to submit NERL amendments to the South Australian Parliament COAG Energy Council to either submit a NERL rule change request to the AEMC or to task the AEMC to develop the

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
		NERL rule changes to apply the recommended framework NSW, QLD and TAS to review and amend their NERL Application Acts to extend their application to SAPS Victoria to review its Retail Code and Distribution Code to ensure they extend consumer protections to SAPS customers
	Extend the application of jurisdictional protections, including safety and technical regulation, as well as DNSP land access rights, to DNSP SAPS and SAPS customers.	Jurisdictions to review and amend relevant jurisdictional legislative instruments to extend their application to SAPS AER to review and where necessary amend STPIS to extend its application to SAPS
	Extend the application of jurisdictional reliability standards, GSL payments and STPIS to DNSP SAPS and SAPS customers. The amendments should aim to treat SAPS consistently with the grid.	
Transition to third-party SAPS	A third party should obtain written consent of each customer, based on a set of explicit consent requirements, before transitioning them to a third party SAPS Explicit 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.	Commission to develop proposed changes to NERL to allow rules to be made regarding consent requirements, in the course of Priority 2 of this review COAG Energy Council to submit NERL amendments to the South Australian Parliament COAG Energy Council to either submit a NERR rule change request to the AEMC or to task the AEMC 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	Commission to develop proposed changes to NEL to allow rules to be made regarding compensation requirements, in the course of Priority 2 of this review COAG Energy Council to either submit a NER rule change

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
		request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework
Jurisdictional opt in	A restriction be placed on DNSP participation in the national arrangements for DNSP SAPS until the relevant jurisdiction has opted in, for example by making a regulation under that jurisdiction's NEL application Act.	COAG Energy Council to submit NEL amendments to the South Australian Parliament Jurisdictions may make a decision to become an adoptive SAPS jurisdiction, for example by making a regulation under their NEL application Act for that purpose

Source: AEMC

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APPENDICES

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1 INTRODUCTION

On 23 August 2018, 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. Stand-alone power systems (SAPS) are electricity supply arrangements that are not physically connected to the national grid.

The terms of reference for this review distinguished between SAPS that are managed by a distribution network service provider (DNSP) and SAPS that are managed by other providers. The key focus of this report is the regulatory arrangements under the national energy laws and rules for SAPS facilitated by DNSPs. While Chapter 8 recommends amendments to the national framework to enable the transition of grid-connected customers to a SAPS facilitated by a party other than a DNSP, the ongoing arrangements for the regulation of non-DNSP SAPS will be covered in a further report.

This report includes the Commission's recommended model of electricity supply in DNSP-led SAPS and the Commission's position on key issues relating to the transition of customers to SAPS supply by DNSPs and the ongoing consumer protections that should apply.

This chapter provides an introduction to the review and provides:

- an overview of stand-alone power systems
- some background to the review of the regulatory framework for stand-alone power systems
- a summary of the terms of reference for the review
- details of related work
- an overview of stakeholder consultation undertaken.

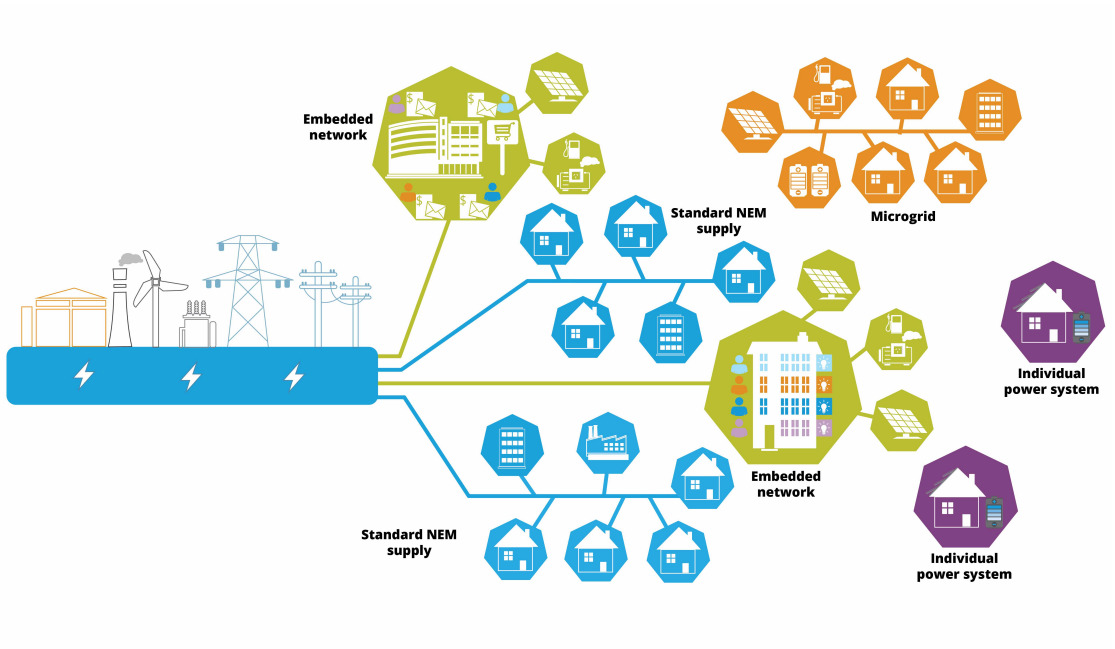
1.1 Overview of stand-alone power systems

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:

- 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
- supply via a microgrid isolated from the interconnected grid, and
- supply via an individual power system (IPS), which only provides electricity to the customer in question.

Figure 1.1: Four models of electricity supply



The 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 (SAPS). 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 (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 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 (they may or may not have generation within the embedded network). The regulatory framework for embedded networks is being considered in a concurrent review by the AEMC.

Box 2 explains key definitions used in this paper.

BOX 2: KEY DEFINITIONS USED IN THIS PAPER

DNSP

A DNSP is the distribution network service provider or the party that is responsible for the electricity distribution system in a particular geographical area. This area has been allocated by the authority responsible for administering the jurisdictional electricity legislation in the relevant participating jurisdiction. Under the current regulatory frameworks for electricity, DNSPs can generally only supply customers via the interconnected grid (standard supply) and are currently unable to supply customers' electricity via a SAPS (unless granted a waiver in accordance with the AER's ring-fencing guideline).

DNSP-led SAPS

A DNSP-led SAPS is a stand-alone power system operated by a DNSP. These types of SAPS were the primary focus for priority 1 of the review, and this report.

Third party-led SAPS

These are SAPS that are managed by a party other than a DNSP. These types of SAPS are being considered under priority 2 of the review. However, national framework requirements to support the transition of customers from standard supply via the interconnected grid to a SAPS that is facilitated by a party other than the local DNSP and regulated under jurisdictional frameworks are considered in Chapter 8 of this report.

Embedded networks

An embedded network is a privately owned, operated or controlled electricity network, often within the bounds of a commercial or residential building complex or other premises, which is connected to the national electricity grid. Embedded networks are interposed between the network of the local network service provider (typically a DNSP) and the customer's installation.

In an embedded network, a party other than a local network service provider owns and operates the private network that customers connect to. The embedded network operator pays the distributor for network services and charges end use customers for network services. In many instances, the embedded network operator or a related party also sells energy to consumers within the embedded network.

Network service provider

A person who engages in the activity of owning, controlling or operating a transmission or distribution system and who is registered by the Australian Energy Market Operator (AEMO) as a network service provider.

Standard supply

Supply from the interconnected grid is the standard supply model for the vast majority of

electricity consumers in national energy market (NEM) jurisdictions. In this model, a combination of large and small generators supply energy which is transported through interconnected transmission and distribution networks to consumers across the eastern seaboard. Competitive wholesale and retail markets allow for competition between providers and consumer choice. Regulated network businesses own and operate the monopoly network infrastructure for transmission and distribution of electricity.

1.1.2 National regulatory arrangements

National energy markets in Australia are governed by a combination of national and jurisdictional legislation and other regulatory frameworks. The Australian Energy Market Agreement (AEMA) is an agreement between the Australian government and the governments of all states and territories[3]which sets out the legislative, institutional and governance frameworks for energy regulation. The AEMA specifies the distribution and retail activities that are to be covered by national regulatory frameworks in NEM jurisdictions,[4] and those that are regulated under state and territory arrangements.

National functions include the economic regulation of distribution networks, arrangements for distribution network expansion and the authorisation of retailers.[5] The regulation of transmission networks and arrangements for the wholesale electricity market are also activities governed by national frameworks in NEM jurisdictions.

In general, national functions for electricity are governed through the National Electricity Law (NEL)[6]and the National Energy Retail Law (NERL),[7] together with the associated regulations, rules, guidelines, procedures, standards and settings.

The NEL establishes, among other things, obligations on network service providers in the NEM. The National Electricity Rules (NER) support the NEL, and govern the operation of the wholesale electricity market, the economic regulation of services provided by monopoly transmission and distribution networks, the way in which AEMO manages power system security, and electricity connections for retail customers.[8]

The NERL regulates the supply and sale of energy to retail customers in the jurisdictions that have adopted it.[9] The National Energy Retail Rules (NERR) support the NERL, and govern the sale and supply of electricity and natural gas to residential and other small customers. They include key electricity consumer protection measures and contract terms and conditions.

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

4 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.

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

6 Schedule to the *National Electricity (South Australia) Act 1996*.

7 Schedule to the *National Energy Retail Law (South Australia) Act 2011*.

8 AEMC website https://www.aemc.gov.au/regulation/energy-rules/national-electricity-rules

9 It should be noted that Victoria has not adopted the NERL, and state-specific retail frameworks continue to apply in that state.

Customer connections, retail competition, energy-specific consumer protections and basic standard and market agreement terms and conditions are included in the rules.[10]

As the NEL and the NER are currently only applicable to interconnected systems, they do not apply to SAPS.[11] However, where a DNSP is nominated in the regulations of the relevant jurisdiction as the operator of a microgrid, certain provisions of the NER may apply to that DNSP.[12]

In respect of the NERL and NERR, these instruments do not currently apply to SAPS established in New South Wales, South Australia or Tasmania. Certain provisions may apply to microgrids in Queensland and the Australian Capital Territory (unless the seller has an exemption).[13] In Victoria, the Energy Retail Code includes provisions which are equivalent to the NERL and NERR and so may also be applicable to SAPS (if the SAPS customers are supplied by a licensed retailer).

1.1.3 Jurisdictional regulatory arrangements

Currently, as SAPS are not (in general) captured under the national regulatory framework, they are subject to jurisdictional frameworks. These jurisdictional frameworks vary in their comprehensiveness, with state and territory regimes differing quite widely. Some states with significant numbers of stand-alone power systems have relatively well-developed regulatory frameworks, but other jurisdictions with no, or relatively few, such systems often do not.

While the Commission is, in this report, recommending changes to the NEL and NER, NERL and NERR and associated regulations to bring DNSP-led SAPS into a national framework, there will remain regulatory functions for which jurisdictions, under the AEMA, have responsibility. These functions will need to be reviewed by jurisdictions to provide a complete framework for consumers under the SAPS model of supply. These 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.

In the course of the review, where the Commission has identified that changes to the jurisdictional functions are required to allow customers transitioned to a SAPS model of supply to receive equivalent protections to that of grid-connected customers, we have highlighted those areas that may require change.

Legacy SAPS which are currently operating under jurisdictional frameworks were not a focus of this review.

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10 AEMC website https://www.aemc.gov.au/regulation/energy-rules/national-energy-retail-rules

11 Key terms that are used throughout the NEL and NER, including "network service provider" in the NEL and "distribution system" in the NER, are defined with reference to interconnected systems.

12 The Queensland Government has nominated Ergon Energy under s. 6A of the NEL such that Chapter 5A of the NER (on electricity connection for retail customers) applies to the SAPS operated by Ergon. The *Electricity - National Scheme (Queensland) Regulation 2014* s. 4 excludes the Mount Isa-Cloncurry network, which is economically regulated by the AER under Chapters 6 and 11 of the NER pursuant to the *Electricity - National Scheme (Queensland) Act 1997* s. 10.

13 The Acts adpoting the NERL in Queensland and the ACT do not limit the appplication of the NERL to the sale of electricity to customers connected to the national electricity system. Therefore in those jurisdictions, suppliers of electricity in a microgrid who are authorised retailers must comply with the NERL.

1.1.4 Development of a framework for stand-alone power systems

SAPS are currently not generally captured under the national regulatory framework and are subject to jurisdictional legislative frameworks that vary in their completeness. Given changing technologies, it is important that changes to the national framework are made to allow the uptake of DNSP-led SAPS, where this is efficient.

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, but 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.
- SAPS may be a more efficient alternative to maintaining a traditional regulated DNSP connection in some areas, but customers will not voluntarily install them in rural locations where non-locational network pricing means the costs faced by the customer would increase.
- Regulatory barriers may inhibit new entrant products and services that have potential to benefit consumers and increase energy productivity.

Amendments to the NEL and NER, and the NERL and NERR, would allow DNSPs to provide off-grid supply via SAPS as a distribution service, with conditions to protect customers and enable (as much as feasible) competition for off-grid supply services.[14]

As discussed in section 1.1.3, under the arrangements underpinning national energy markets, many aspects of regulation, such as safety and network reliability, are governed primarily by jurisdictional frameworks. Consequently, DNSP-led SAPS can only be effectively regulated if there are complementary changes to both the national and jurisdictional regulatory frameworks.

1.2 Background to this review

The need to update the regulatory framework to better facilitate the use of SAPS 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.

1.2.1 Energy Market Transformation Project Team 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.[15] 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

14 AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017, p. iii.

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

develop changes to the national framework to address regulatory gaps for transferring from grid supply to SAPS.[16]

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 to develop a workshop report. The HoustonKemp report, *Decision-making mechanisms for transition to Stand-alone Power Systems,* is Appendix 2 to the terms of reference for this review.

1.2.2 Western Power rule change

In September 2016, Western Power, an electricity distributor in Western Australia, submitted a rule change request to the Commission which sought to remove certain barriers to distributors deploying alternative technologies and methods of providing distribution services, such as transitioning customers to off-grid supply.[17]

In its final determination, the Commission decided not to make a rule. The Commission considered that the rule change request identified a real issue that should be addressed. However, without changes to the NEL, the change to the definition of 'distribution service' in the NER proposed in the rule change request would likely result in inconsistencies between the NEL and the NER, making the proposed rule invalid.[18]

The Commission also noted that there are currently substantial differences between the energy-specific consumer protections available to grid-connected customers and those available to off-grid customers. In several jurisdictions the full suite of protections under the NERL and NERR cease to apply when a customer moves off-grid.[19] Consequently, the Commission recommended that a co-ordinated package of changes to national laws and rules, together with relevant jurisdictional instruments, should be developed and implemented to allow off-grid supply to be used where efficient, while maintaining appropriate protections for consumers. Specifically, the Commission recommended that the COAG Energy Council ask it to provide advice on the law and rule changes that would be required. Further details on the Western Power rule change are provided in section 2.4.

BOX 3: WESTERN POWER STAND-ALONE POWER SYSTEM TRIALS, WA

Western Power's decision to submit a rule change request to the AEMC was made following a successful trial of SAPS in Western Australia. In July 2016 it installed six individual power systems on a number of rural farms in the Ravensthorpe area as part of a 12-month pilot to test the suitability of the technology. In determining the sites to select for the trials, Western Power used the following criteria:

16 COAG Energy Council, *Energy Market Transformation Bulletin Number 5 – Work Program Update*.
17 AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017, p. i.
18 ibid, p. ii.
19 ibid, p. iii.

- SAPS had to be 50 per cent cheaper to install and operate compared with the costs of building or replacing a grid-connection
- the bushfire risk had to be medium to high
- they had to be on short spurs on the same feeder
- the customers had to consume less than 40kWh/day
- there needed to be heightened reliability issues.

The systems installed are independent energy-generating units with solar photovoltaic (PV) panels, lithium batteries, an inverter and backup diesel generator. The units were sized to each customer's needs with a greater capacity than a typical IPS to maintain levels of supply consistent with the grid, allowing for increases in demand. Customers pay the same rates they would have if they were grid-connected.

The results of the trial have been positive, and have led to it being extended. Customers experienced significantly fewer power interruptions than customers on the network in the same area (approximately 5 hours of power outages in a year as compared to 70 on the network), the individual power systems proved robust in extreme weather events, and more than 90 per cent of electricity has been generated from solar PV. In discussions with the Commission, the customers involved reported general satisfaction with the new supply arrangements, in particular the markedly improved reliability.

Source: Western Power, Stand-alone Power System Pilot, One Year On, pp. 2-6; AEMC site visit, 10 October 2018.

1.2.3 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 (6.9) was that:[20]

> 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.

1.2.4 ACCC Retail Electricity Pricing Inquiry

On 11 July 2018, the Australian Competition and Consumer Commission (ACCC) released its final Retail Price Inquiry report *Restoring electricity affordability and Australia's competitive advantage.* The report contained a recommendation (recommendation 23) on SAPS. The recommendation was that the package of law amendments recommended by the AEMC in

20 Commonwealth of Australia, *Independent Review into the Future Security of the National Electricity Market, Blueprint for the Future*, June 2017, p. 154.

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.[21]

The ACCC 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. Further, the ACCC recommended that protections for customers being supplied by a distributor via a SAPS should be equivalent to those of customers connected to the grid, including obligation to supply, reliability and security of supply.[22]

1.3 Terms of reference and scope

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 requested 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 was to focus on the regulation of new SAPS, and to consider the national electricity regulatory framework set out in the NEL and NER, the NERL and NERR, and associated regulations and other subordinate instruments including guidelines issued by AEMO and AER.[23] Legacy SAPS operating under jurisdictional legislation were not a focus of the review.

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

- The focus of priority 1 was on:
  - development of a national framework for customers that move from grid-connected supply to a SAPS facilitated by a DNSP, 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 which will subsequently be regulated under a jurisdictional framework.
- Priority 2 is focusing on the development of additional arrangements within the national framework to support a SAPS model of supply facilitated by a party other than the local DNSP.[24]

For priority 1, the COAG Energy Council required the Commission to identify the key issues, risks and solutions to enable grid-connected customers to transition to a DNSP-led SAPS. The terms of reference set out a comprehensive list of key issues and options that the review should consider. The issues were grouped broadly as follows and included:

- Planning and economic regulation:
  - Decision making mechanism to trigger transition to SAPS, including suitability of the regulatory investment test for distribution (RIT-D), the need for a regulatory approval role and the need for a customer consent process

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

22 ibid.

23 Terms of reference, p. 2.

24 Work is ongoing on priority 2, with a draft report due to be published on 30 June 2019, ahead of a final report on 31 October 2019.

  - Treatment of SAPS assets, including requirements for DNSPs to test for competitive provision of SAPS
  - Arrangements for generation within the SAPS framework (new and existing)
- Consumer protections:
  - Costs and benefits of retaining/providing access to retail competition and alternative ways of protecting customers from monopoly pricing
  - Merits or otherwise of retaining a separate retailer function
  - Options for simulating competitive market outcomes (including in relation to the wholesale market exchange)
- Reliability, security and service quality:
  - Which regulatory framework should apply
- Other matters:
  - Possible changes to the network connections framework and market registration and participation requirements.[25]

Consumer protection issues once customers have transitioned to a SAPS were also required to be considered, and advice (including on regulatory changes) provided on:[26]

- which elements of the NERL/NERR consumer protections framework should apply or be adapted to SAPS customers
- which elements of the NEL/NER should apply or be adapted to ensure SAPS customers continue to receive a reliable, secure and efficient electricity service, and
- any need for, and issues with, inclusion of a "return to grid" process for SAPS customers where they wish to reconnect to the grid (including consideration of the connection process and capital contribution arrangements).

In carrying out the review, the Commission was asked to give consideration to the risks and benefits of regulating SAPS under a jurisdictional versus national framework, and the risks and benefits associated with different SAPS in the same jurisdiction being subject to different regulatory arrangements (i.e. jurisdictional or national frameworks).[27]

1.4 Related work

The Commission closely coordinated and considered linked policy and legal issues between the SAPS and the Embedded networks workstreams. The COAG Energy Council recommended the two workstreams were coordinated to ensure strategic overview, efficiency and consistency, as the regulatory issues covered were similar.[28]

Additionally, the Western Australian Government has commenced a Parliamentary Inquiry into Microgrids and Associated Technologies in WA. The Commission followed the progress of this inquiry over the course of the SAPS review.

25 ibid, pp.10-13.
26 ibid, p. 6.
27 ibid, p. 7.
28 ibid.

1.4.1 Embedded networks implementation workstream

Embedded networks rule change 2015

On 17 December 2015, the Commission made a final rule to reduce the barriers to embedded network customers accessing retail market offers.[29] The rule commenced on 1 December 2017, and established an accredited provider role in the NER — the embedded network manager — to be responsible for performing market interface services for embedded network customers.[30] This enables embedded network customers to access retail market offers.

In the final determination, the Commission also recommended separate but supporting changes to state and territory legislation, the AER's network exemption guideline and a review of the NERR for embedded network customers.[31]

Embedded networks review 2017

On 28 November 2017, the Commission completed its *Review of regulatory arrangements for embedded networks* (embedded networks review). The review found that embedded network customers receive a lesser level of consumer protections and faced significant practical barriers to accessing retail market competition, and that the current regulatory framework for embedded networks was no longer fit for purpose.[32]

The Commission recommended changes to the regulatory framework and a new regulatory approach to elevate embedded networks into the national framework, improve access to competition, and better regulate new and legacy embedded networks. A recommendation was also made for state and territory governments to improve access to ombudsman schemes and concessions, information provided to customers at the time of purchase or lease of a property and that jurisdictional safety and reliability regimes be reviewed.[33]

Embedded networks review 2018

The Commission self-initiated the *Updating the regulatory frameworks for embedded networks* review on 30 August 2018, to advise on the detailed amendments to the regulatory framework that are required to implement the recommendations from the embedded networks review (2017). Through the 2018 review, the Commission has been developing a package of changes to the NEL and NER, NERL and NERR and any other relevant regulatory instruments to implement the new regulatory approach for embedded networks previously recommended by the Commission.

The key deliverables align with those for the SAPS review and included a draft report published on 31 January 2019 ahead of a final report to be published in June 2019.

29 AEMC, *Embedded Networks*, rule determination, 17 December 2015.
30 ibid, p. ii.
31 ibid, p. v.
32 AEMC, *Review of regulatory arrangements for embedded networks*, final report, 28 November 2017.
33 ibid, p. ii; pp. 49-50.

1.4.2 Parliamentary Inquiry into Microgrids and Associated Technologies in WA

In Western Australia, a Parliamentary Inquiry into microgrids and associated technologies commenced on 21 February 2018. Under the terms of reference for the inquiry, the Economics and Industry Standing Committee will investigate and report on the emergence and impact of electricity microgrids and associated technologies in Western Australia. The report will consider the potential for microgrids and associated technologies to contribute to the provision of affordable, secure, reliable and sustainable energy supply, in both metropolitan and regional WA.[34]

The inquiry will also look at:

- economic and employment opportunities which could be supported by the development of microgrids and associated technologies
- enablers, barriers and other factors affecting microgrid development and electricity network operations, and
- initiatives in other jurisdictions relating to microgrids and associated technologies.[35]

The Commission made a submission to the inquiry highlighting the common issues with this review on 31 October 2018, 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.

1.5 Stakeholder consultation

Under this review, the COAG Energy Council requested the Commission consult with the EMTPT, the AER, the Economic Regulation Authority of Western Australia and AEMO, as well as undertaking public consultation.

The key deliverables and timeframes for the consultation process are detailed below.

Table 1.1: Key deliverables and timeframes

REPORT	DATE
For Priority 1	
Issues paper	11 September 2018
Draft report	18 December 2018
Final report	30 May 2019
For Priority 2	
Issues paper	1 March 2019
Draft report	30 June 2019
Final report	31 October 2019

34 Terms of reference, *Inquiry into Microgrids and Associated Technologies in WA*, Economics and Industry Standing Committee, accessed on 24 August 2018 at http://www.parliament.wa.gov.au/parliament/commit.nsf/($all)/8C9FB0B8AA10E88D4825823B0019BAA3?opendocument

35 ibid.

The Commission received 24 submissions to the issues paper published on 11 September 2018, and 28 submissions to the Priority 1 draft report published on 18 December 2018. In the course of the review, the Commission also carried out bilateral meetings with a large number of national regulators, jurisdictional regulators, DNSPs, technology companies, jurisdictional ombudsmen, retailers and consumer groups.

In addition, Commissioners and Commission staff participated in three field visits in Western Australia, Queensland and New South Wales to see IPSs and microgrids, and to speak to customers who are being supplied via those SAPS about their experiences. The Commission thanks Western Power, Energy Queensland and Essential Energy for their assistance in facilitating these visits.

The draft report for priority 2 of the review, focusing on the regulatory framework for customers supplied by a stand-alone power system facilitated by parties other than DNSPs, is due to be published by 30 June 2019. This follows the priority 2 consultation paper that was published on 1 March 2019.

The following chapter provides more context for the review and explains the Commission's approach to priority 1 of the review, before setting out the contents of the remaining chapters in this report.

2 CONTEXT AND APPROACH

This chapter discusses the drivers for the review and sets out the Commission's approach to undertaking it. In particular, it provides an overview of the Commission's findings in the Western Power rule change, and updates and expands some of the analysis undertaken by the Commission at that time. The chapter covers:

- the increasing viability of stand-alone power systems
- cost and reliability outcomes in areas of low customer density
- the potential for SAPS deployment in remote areas, and other factors that might drive uptake
- further detail on the Commission's findings in the Western Power rule change
- the Commission's assessment framework for this review, and
- the Commission's approach to this review, including the structure of the remainder of the report.

2.1 Increasing viability of stand-alone power systems

Technological developments, in particular the falling costs of renewable generation and batteries, are making stand-alone power systems an increasingly viable way of supplying power. The economics of SAPS is becoming move favourable, especially for providing electricity services to customers for whom the costs of providing grid-connected electricity services may be high. There may also be additional benefits, such as improved reliability for remote customers and reduced bushfire risks.

These developments have prompted distributors to consider the case for using SAPS solutions in suitable circumstances, in particular, the use of Individual Power Systems (IPSs). In trials to date, and currently planned deployments, these systems generally comprise solar photovoltaic (PV) panels, lithium-ion batteries, an inverter and a backup diesel generator.

Due to the limited experience to date — and the significant number of variables involved, including the size of the system, solar resource availability, accessibility of the location and level or variability of energy demand — it is difficult to estimate the costs of using IPS generally. In particular, the desired level of reliability can have a significant impact on costs. Horizon Power suggested in its submission to the issues paper that it had found creating a "utility-grade SAPS solution to be far more complex than simply purchasing and deploying individual retail SAPS units".[36]

Western Power has reported that the individual power systems procured in 2016 for its Ravensthorpe trial cost in the order of the $150,000 - $200,000 per unit.[37] The Commission understands that the cost of the batteries accounted for a substantial proportion of the overall cost, and that falling battery costs in the time since these units were procured would already have had a material effect on the cost of a comparable system today.

36 Horizon Power, submission to the issues paper, p. 2.

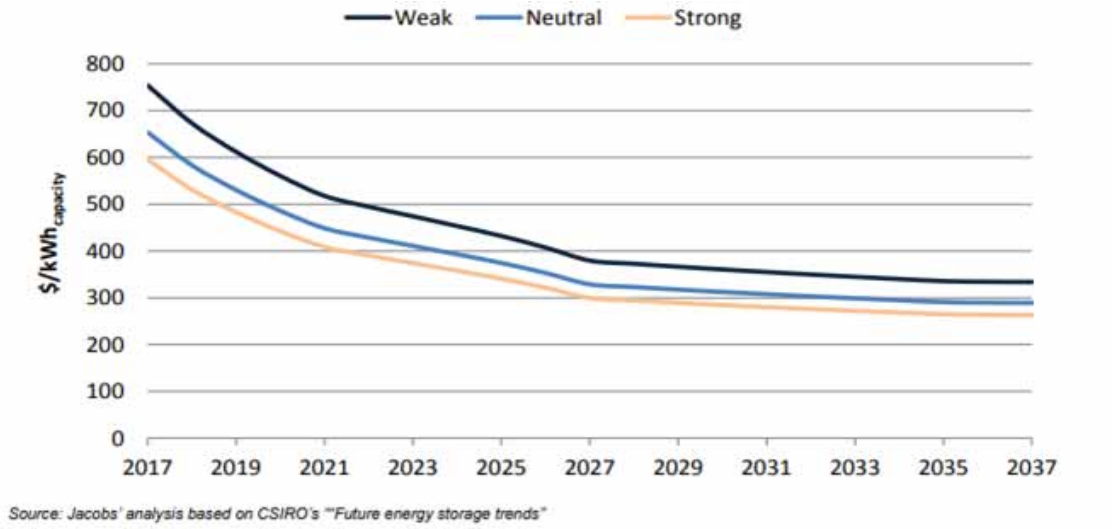
37 Western Power, submission to the consultation paper for the *Alternatives to grid-supplied network services* rule change, p. 2.

2.1.1 Falling battery costs and likely uptake

The increasing viability of stand-alone power systems, particularly individual systems, is, in large part, being driven by reducing battery costs. Between 2010 and 2017, battery costs fell globally by 40 per cent.[38] Over the same period in Australia, the price of lithium ion battery batteries fell 73 per cent.[39] Capital costs for a fully installed residential storage system are expected to fall by 58 per cent by 2030.[40]

Figure 2.1 illustrates the expected trend in the capital cost of lithium ion batteries over the next twenty years.

Figure 2.1: Capital cost of lithium ion batteries



Source: Jacobs' analysis based on CSIRO's "Future energy storage trends"

As can be seen, further steep falls in battery costs are forecast over the next ten years, with a slower rate of decrease after that.

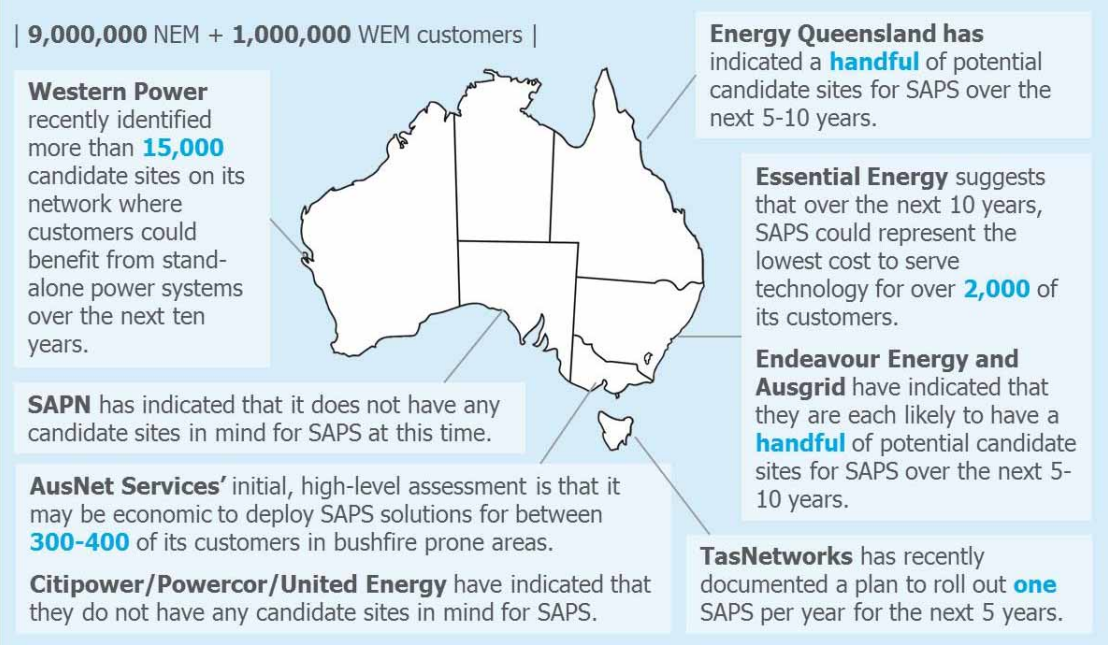
These falling capital costs, combined with efficiencies gained from learning and economies of scale, will drive deployment, to the extent that the regulatory frameworks allow. Western Power recently identified more than 15,000 candidate sites on its network where customers could benefit from stand-alone power systems over the next ten years.[41] Similarly, Essential Energy's initial internal modelling suggests that over the next ten years, SAPS could represent the lowest cost to serve technology for over 2,000 of its customers.[42]

However, it should be noted that these numbers are relatively modest in the context of ten million grid connected customers (approximately nine million in the NEM and one million in the Western Australian Wholesale Energy Market). Additionally, most other DNSPs have

38 International Energy Agency, *World Energy Outlook 2017* - Executive Summary.
39 Bloomberg New Energy Finance, *Australia behind-the-meter PV and storage forecast*, 22 February 2017.
40 Bloomberg New Energy Finance, *2018 Long-term Energy Storage Outlook*.
41 See: https://westernpower.com.au/energy-solutions/projects-and-trials/stand-alone-power-systems-stage-1/.
42 Issues paper submission: Essential Energy, p. 2.

indicated in informal discussions that the roll out of DNSP-led SAPS to their customers in the next five to ten years would likely only number single or double digits.

Figure 2.2: Likely uptake of DNSP SAPS



Source: AEMC

2.2 Cost and reliability outcomes in low-density areas

The falling cost of SAPS may drive their adoption in areas of low customer density, which exhibit higher than average costs to serve and lower than average service reliability.

DNSPs report data on their costs and operations to the AER in regulatory information notices, including information on the costs to supply electricity through the grid and on the reliability of the supply. The Commission presented a number of charts derived from this data in the final determination for the *Alternatives to grid-supplied network services* rule change using data for the period 2011-15,[43] and has now updated these using data up to 2017.

2.2.1 Grid supply to low-density areas can be more costly than for higher-density areas

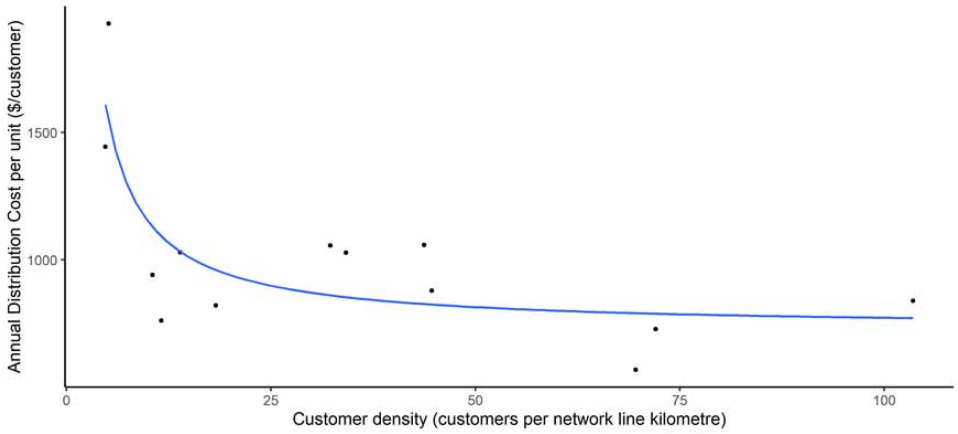
The data shows that, across the 13 distribution businesses in the NEM, as customer density (measured as the number of customers per kilometre of line) falls, annual costs per customer connection increase. Distributors with a lower average number of customers per kilometre of network exhibit a higher average annual cost per connection.

Figure 2.3 highlights that the highest cost distributor has an average annual service cost of approaching $2,000 per customer and has a customer density of below ten customers per

43 AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017, pp. 15-18.

network line kilometre. This is in contrast to the lowest average cost distributor which exhibits an average service cost of around $500 per customer and has a customer density of around 70 customers per network line per customer.

Figure 2.3: Annual distribution costs and customer density (2011-2017)



Source: DNSP data reported in AER regulatory information notices (2011-2017)

There can also be significant differences within distributors' networks. In south-western Western Australia, over fifty per cent of Western Power's high voltage overhead distribution network services around three per cent of its customers.[44]

2.2.2 Low-density areas may receive less reliable grid supply than high-density areas

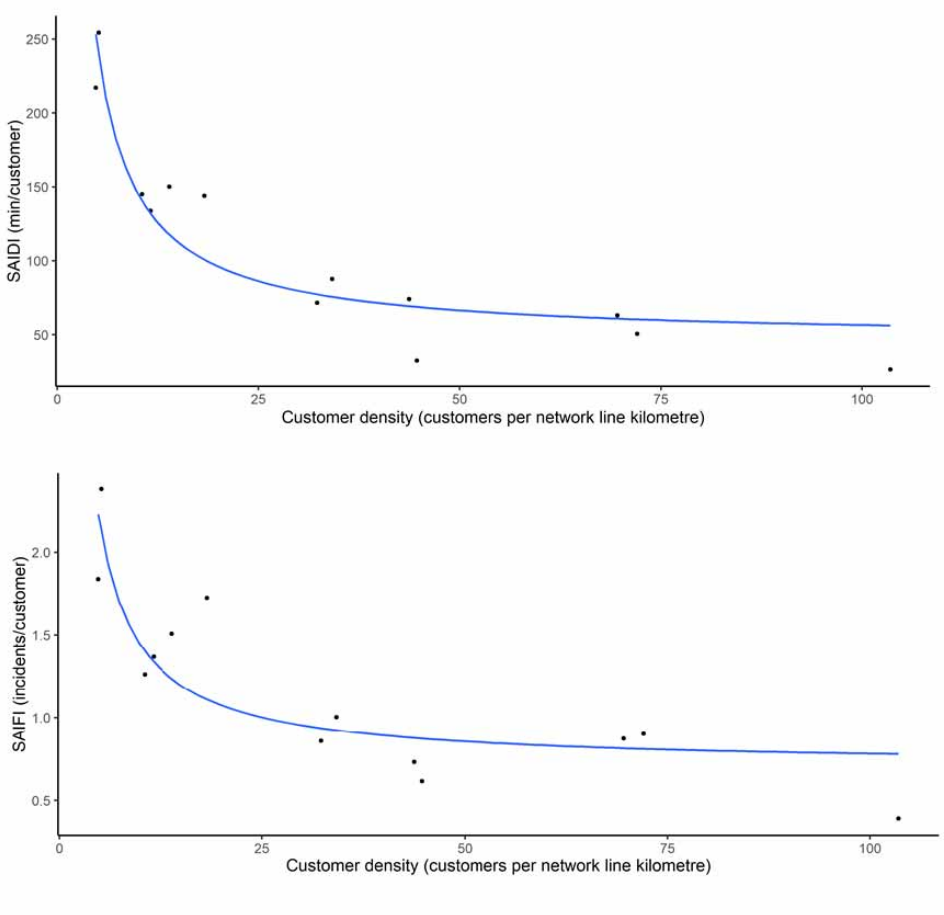
For grid-connected customers, there is also a clear relationship between customer density and reliability of electricity supply. Distribution businesses with a lower average number of customers per kilometre of network tend to exhibit lower performance on standard measures of reliability (as well as higher average costs).

The standard measures of service quality or reliability are the system average interruption duration index (SAIDI) measured in average minutes of service interruption, and system average interruption frequency index (SAIFI) measured as the average number of interruptions experienced by customers per annum. High SAIFI and SAIDI results mean there are more frequent and longer interruptions, and thus lower service quality (or reliability).

Figure 2.4 plots both the System Average Interruption Duration Index and the System Average Interruption Frequency Index against customer density for each of the 13 distributors in the NEM between 2011 and 2017.

44 Western Power, *Creating the rural network of the future*, Stand-alone Power Systems Demonstration Project.

Figure 2.4: SAIDI, SAIFI and customer density (2011-2017)



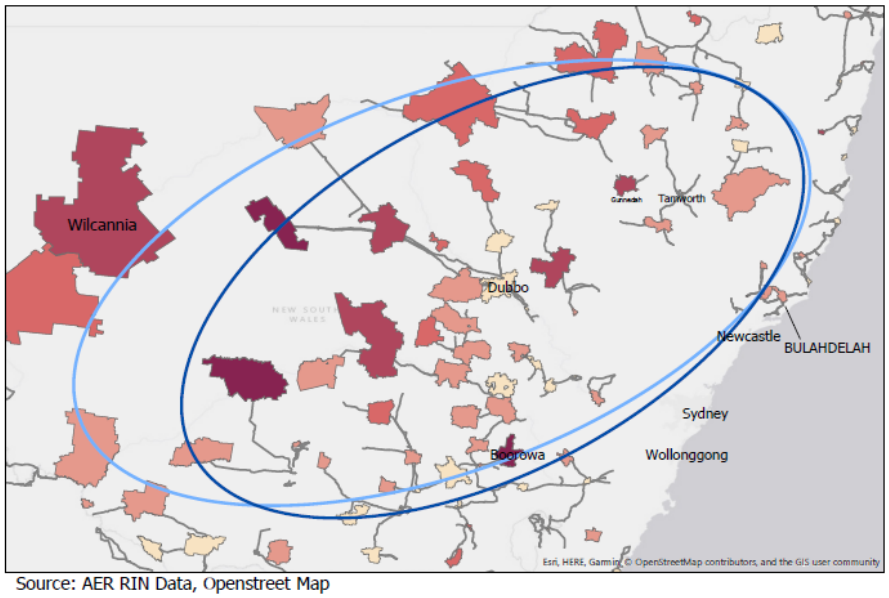
Source: DNSP data reported in AER regulatory information notices (2011-2017)

The first chart shows that lower customer density tends to be associated with longer average system interruptions. Specifically, the lower customer density distributors have a SAIDI over five times higher than the highest density distributors.

Similarly, lower customer density also tends to be associated with more frequent service interruptions. The second chart shows that the lower customer density distributors also have a SAIFI four to five times higher than the highest density distributors.

As with cost to serve, Figure 2.4 does not indicate the variations in reliability that may occur within DNSPs' service areas. Figure 2.5 below takes 2017 data for reliability by feeder on Essential Energy's network, and divides this by an approximation of the number of customers on each feeder. The resulting MWh lost per customer is multiplied by a value of customer reliability to provide estimates of cost impacts on customers of reliability outcomes.

Figure 2.5: Locational variations in cost impacts on customers of reliability outcomes



Source: AER RIN Data, Openstreet Map

2017 - 1 Standard Deviation
2013 - 1 Standard Deviation
Distribution Lines

Total Mwh Lost per Customer (planned and unplanned)	Total Value of Customer Reliability per Customer ($/Mwh)
<= 0.012025	$316
<= 0.021996	$578
<= 0.036731	$966
<= 0.078826	$2,073
<= 0.125662	$3,305

Source: Essential Energy

Note: Value of lost electricity is based on a Value of Customer Reliability of $26,300/MWh, and represents maintenance and reliability costs as it covers planned and unplanned interruptions.

Having regard to Figures 2.3 and 2.4, the map in Figure 2.5 shows that there are (as would be expected) locational variations in reliability outcomes within distributors' areas. It also highlights the direct relationship between the economic costs associated with reliability outcomes and, importantly, customer density.

It follows that, although remote areas are likely to be associated with lower reliability performance and high costs to serve, it may be that more densely populated areas (with better, but still below average, reliability and lower costs to serve) have a higher total economic cost associated with poor reliability outcomes in these locations. In this context, the economic case for SAPS may not necessarily be limited to more remote areas.

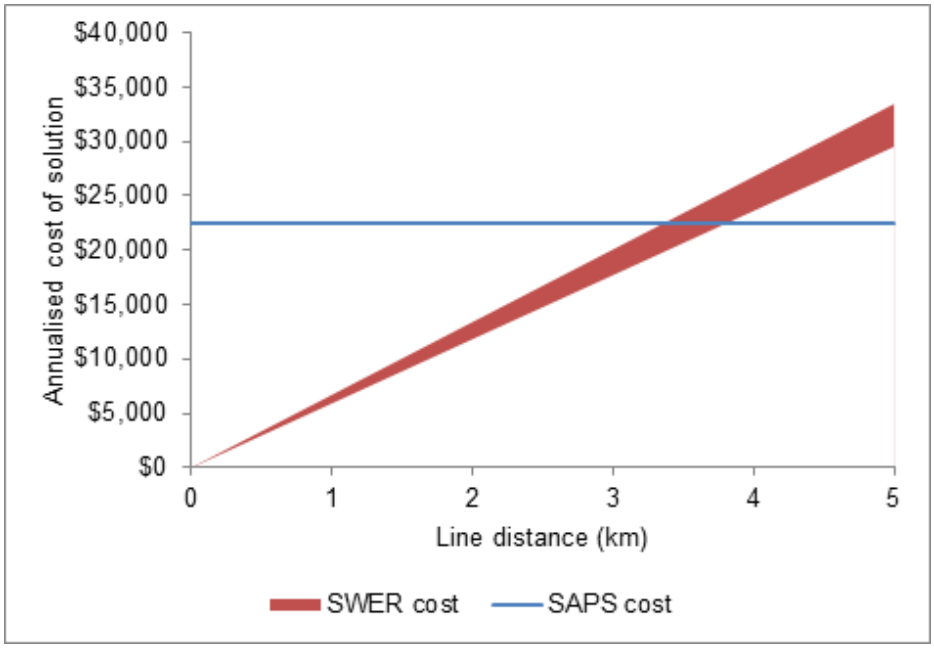
2.3 Potential for SAPS deployment in remote areas

The previous section demonstrated that there are significant variations in costs to serve and reliability outcomes based on customer density. As such, very remote areas are likely to be

particularly suitable for the use of SAPS solutions by distribution businesses. For example, in New South Wales, Essential Energy's longest power line is 1,905km, serving just 335 customers.[45]

Figure 2.6 below illustrates the efficiency case for grid line replacement with SAPS in a remote area. Based on the data analysis in the figure, SAPS is more efficient than a connection to the interconnected grid for grid connections longer than 4km/customer (the large number of assumptions involved, and the sensitivity of the analysis to these assumptions, should be noted).

Figure 2.6: Estimated costs of SWER and SAPS solution in remote Queensland



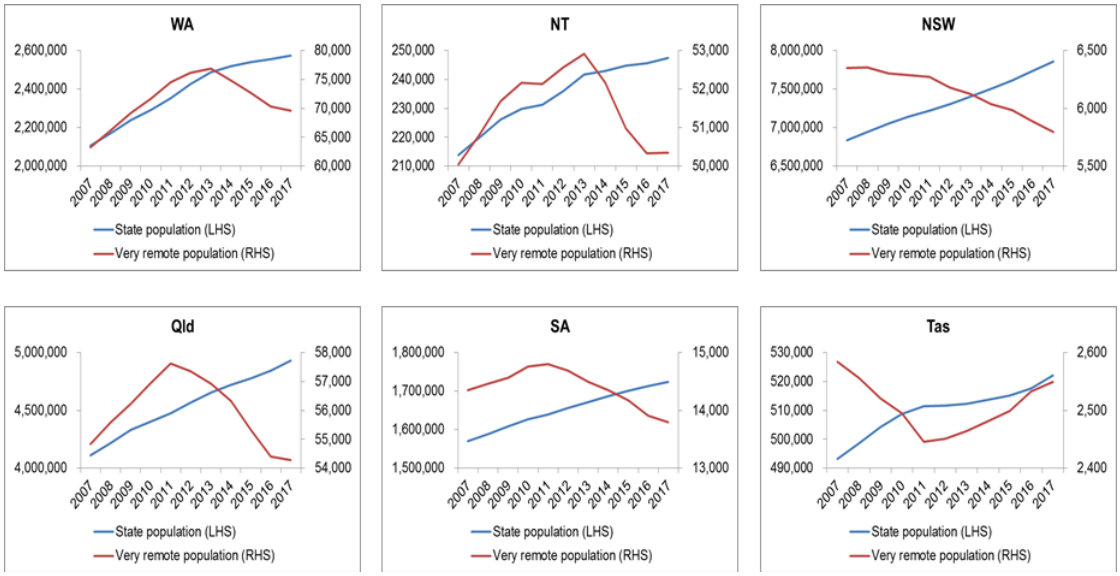
Source: Rawlinsons Construction Cost Guide 2018 and Parsons Brinckerhoff, Indicative costs for replacing SWER lines. SAPS cost sourced from Western Power, using lowest value from the range $150,000-$200,000 to reflect declining battery costs.
Note: Cost of SWER (wooden poles) $29,892/km in Victoria (2009), Unit costs (1.5-1.7x Brisbane), State costs Qld = 1.32x Vic, CPI 2009-17 = 1.19

In addition to grid connections being less dense, and therefore more expensive on a per unit basis, the population in many remote areas is decreasing and, as such, long term network investments may not be cost-efficient.

Figure 2.7 illustrates trends in remote population growth. It is important to note that some short term movements may be linked to changes in employment in the mining sector.

45 Essential Energy, issues paper submission, p. 1.

Figure 2.7: Remote population trends in Australia (2007-2017)



Source: 3218.0, Regional population growth - ABS

2.3.1 Other drivers for SAPS deployment

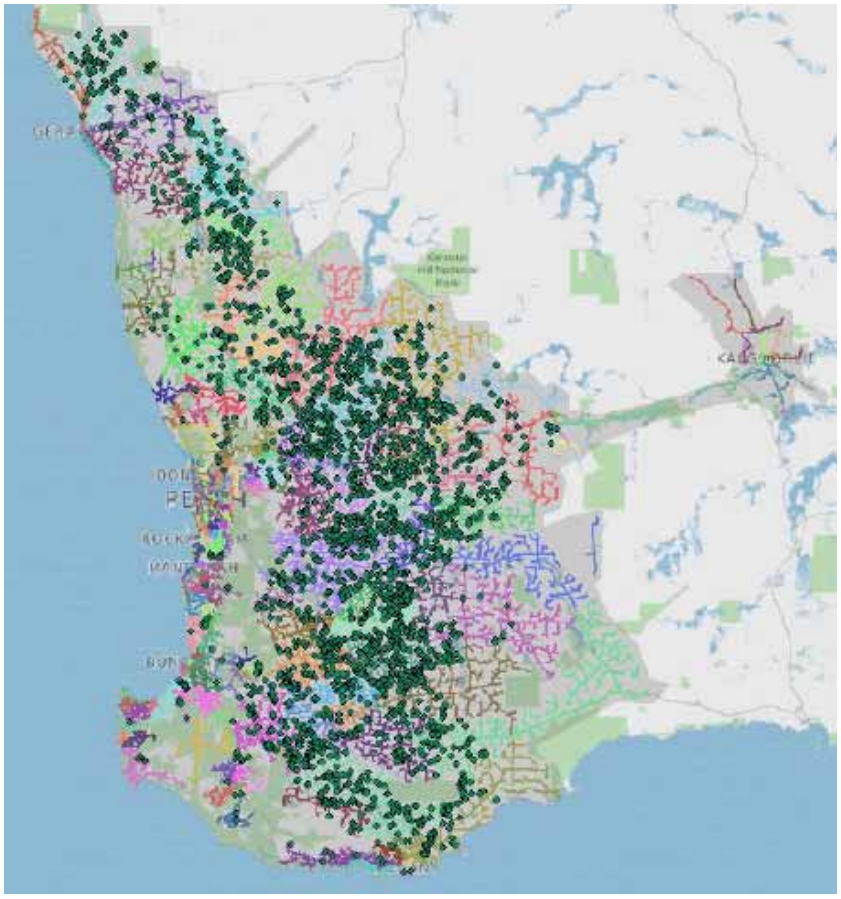
While, for the reasons given above, it appears likely that SAPS solutions would be most heavily used in remote areas, there are a significant number of factors that could potentially drive SAPS deployment, including asset age and other cost pressures, such as vegetation management and those associated with mitigating bushfire risks.

At the time of making its rule change request, Western Power undertook modelling to identify candidate SAPS customers — those where the cost of providing SAPS would be lower than renewing the existing network. Western Power then filtered these results to show those meeting two criteria of a SAPS cost of less than 80 per cent of the network rebuild cost and an average conductor age of 40+ years to identify 2,702 candidate meter points.[46]

Figure 2.8 shows the location of the identified candidate sites as green dots. As can be seen, the sites are not on the most remote fringes of Western Power's network, but rather are in the middle of the network, closer to the Perth metro area. The Commission understands that this is primarily due to the network assets in those areas being older than those on the fringe of the grid.

46 Western Power, *Removing barriers to efficient network investment*, rule change proposal, 8 September 2016, p. 1. Note that Western Power has recently revised this estimate up to more than 15,000 sites in its network where customers could benefit from stand-alone power systems over the next decade.

Figure 2.8: Candidate SAPS sites identified by Western Power



Source: Western Power, Rule change proposal - Removing barriers to efficient network investment, 8 September 2016, p. 37.

Box 4 illustrates the efficiency case for stand-alone power systems in areas with high bushfire risks or heavy vegetation.

BOX 4: BUSHFIRE RISKS AND VEGETATION COSTS

In areas prone to bushfire risk, DNSPs can face high costs if required to mitigate this risk. Such areas may form a significant portion of a DNSP's network — for example, eighty per cent of AusNet Services' network is located in areas with high bushfire risk.

Under the Victorian Powerline Bushfire Safety Program, AusNet and other Victorian DNSPs are replacing Single Wire Earth Return (SWER) powerlines and 22kV powerlines with insulated or covered conductors and underground cabling. AusNet has noted that the average cost to build replacement powerlines under this program to date has been $400,000/km — or approaching ten times the cost of a SWER line. Clearly, this would dramatically affect the

economics of using SAPS over powerline renewal, and AusNet has suggested to the Commission that its initial, high-level assessment is that it may be economic to deploy SAPS solutions for between 300 and 400 of its customers in bushfire prone areas.

Vegetation management is a significant cost for DNSPs and this can be exacerbated in rural areas. The average clearing cost for light bush in Victoria was estimated at $8,000/km in 2009.

In its submission to the issues paper, Essential Energy gave the example of a feeder in a national park costing over $25,000 per customer annually in vegetation management. Depending on the size of the customers, it is possible that the vegetation management costs alone would exceed the annualised cost of SAPS provision.

Source: AusNet Services, submission to the consultation paper for the Alternatives to grid-supplied network services rule change, pp. 3-4; Essential Energy, submission to the issues paper, p. 16; Parsons Brinckerhoff, *Indicative costs for replacing SWER lines*, 2009.

2.4 Overview of the Commission's finding in the Western Power rule change

2.4.1 The use of stand-alone power systems could enhance efficiency

As noted, the analysis in the preceding sections updates and expands analysis previously undertaken by the Commission. This suggests that, by not adequately supporting the use of stand-alone power systems and the transition of grid connected customers to such systems, current regulatory frameworks may be inhibiting the use of the most efficient solutions to supply electricity to some customers.

The *Alternatives to grid-supplied network services* rule change request (Western Power rule change) was submitted by Western Power to the Commission in September 2016, with the principal objective of facilitating the use of SAPS solutions by DNSPs.[47]

In the final determination for the rule change, the Commission presented an earlier version of the analysis contained in the preceding sections of this chapter, and concluded that making a rule to allow the use of SAPS solutions by DNSPs could have positive effects on the efficient provision of electricity services:[48]

> A rule could enable the more efficient provision of electricity services, reducing overall network costs. Currently distributors are not able to make optimum choices between grid and off-grid supply, and a rule would help to address this issue. This would result in lower prices for consumers in the long term.

2.4.2 Financial incentives provide a barrier to off-grid supply

The Commission further found that high-cost grid connected customers have no incentive to move to off-grid supply, although they are free to do so. Despite the high costs of serving

47 AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017.
48 ibid, p. 12.

remote grid-connected customers, and the recent declines in the costs of off-grid systems, the costs of off-grid supply are likely to be higher than the costs remote customers are paying for supply via the grid.

Electricity tariffs for customers in remote areas 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.

Even in jurisdictions without explicit subsidies or postage-stamp pricing requirements, for historical and other reasons, distributors do not tend to have granular location-specific pricing for standard distribution services; instead, all customers of the same type (e.g. residential) in a distributor's area are charged the same price for these services. Therefore, prices charged to customers in high-supply-cost areas (e.g. remote areas) are often considerably lower than the cost of supplying those customers, and vice versa for customers in areas where the cost to supply is low.

Where a grid connected customer would have to pay more for off-grid supply than the subsidised amount they pay for grid supply, the customer has no financial incentive to go off-grid.

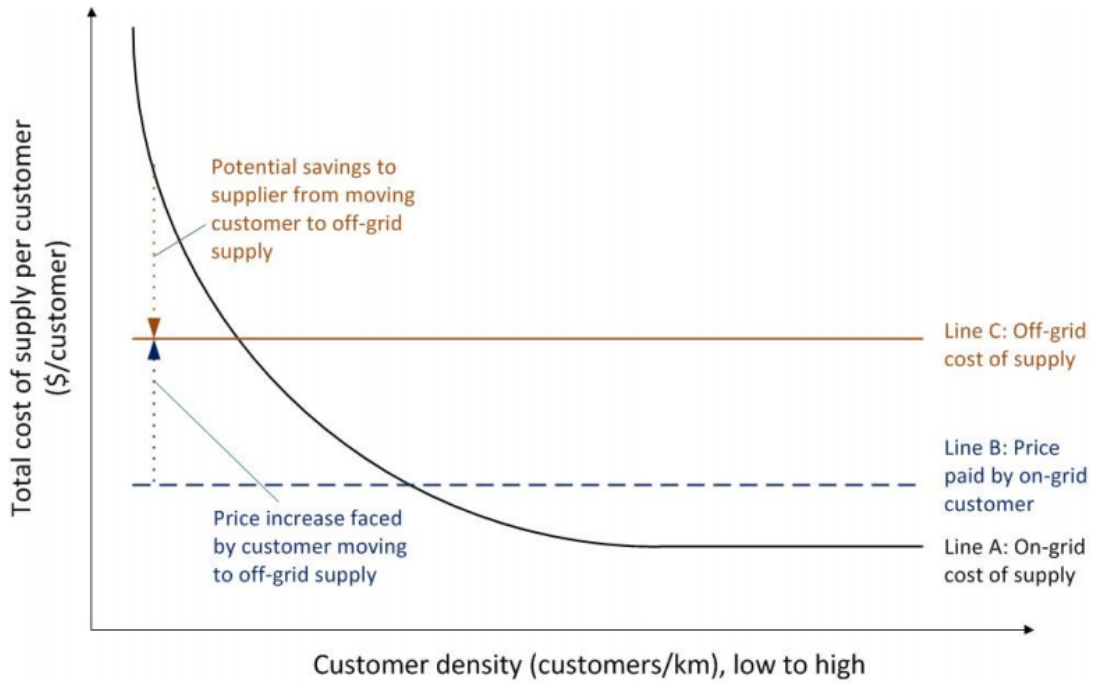
This incentive issue is illustrated in Figure 2.9 below.[49] Line A indicates the per-customer cost to provide electricity via the national grid; it varies with customer density. The dashed line, Line B, indicates the prices paid by grid-connected customers, on the basis that electricity costs are averaged across all customers in the distributor's area and location-specific cost differences are not passed through. Line C indicates the per-customer cost to provide electricity via off-grid supply; for this illustration we assume this does not change with customer density (unlike grid supply costs).

In the low customer density area on the left of the graph, the gap between Line A and Line C indicates the potential savings from moving these high-cost customers from grid supply to off-grid supply (and, if these savings were achieved, Line B — prices paid by all customers — may decrease marginally). However, Line C is higher than Line B, so these customers would pay more if they chose to move from grid supply to off-grid supply, and would have no incentive to do so if they were paying for an off-grid system themselves.

Over time, Line C is expected to fall (as off-grid supply components continue to get cheaper) so the potential savings from moving high-cost customers to off-grid supply will increase. However, as long as Line C remains higher than Line B, customers have no financial incentive to move off-grid.

49 Note that this graph is for illustrative purposes only and is not based on actual data.

Figure 2.9: Illustration of incentive issue



Source: AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017, p. 27.

In the final determination, the Commission noted that, in light of the pricing and incentive issues currently restricting the use of off-grid supply, it would be economically efficient to incorporate locational signals into cost-reflective tariffs so that customers have improved incentives to choose off-grid supply if it is cheaper than grid supply. However, the Commission acknowledged that jurisdictional policies and consumer preferences mean it is unlikely that network tariffs will include strong locational signals in the foreseeable future.[50]

In the absence of improved incentives, the Commission concluded that changes to the regulatory framework were warranted to facilitate to allow distributors to provide off-grid supply where this was the most efficient outcome. However, the Commission also concluded that it was unable to address the regulatory barriers present solely through a proposed change to the NER, and therefore determined not to make rule at that time.

2.4.3 Regulatory barriers to DNSP provision of off-grid supply

The provision of distribution services by DNSPs in the NEM is regulated by the NEL and NER. A 'distribution service' is defined as a service provided by means of, or in connection with a distribution system. A 'distribution system' is defined as a distribution network, together with

50 AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017, p. iii.

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

As discussed in more detail in section 4.1.3 of this report, Western Power proposed in the rule change request to amend the definition of distribution service in the NER by expanding the definition to capture non-network options that replace or substitute for part of a distribution system in order to enable the use of SAPS by DNSPs. However, the proposed changes would lead to inconsistencies between the NER and the NEL, between the term 'distribution service' in the NER and the term 'electricity network service' in the NEL. This would have made the proposed rule invalid.

In making its determination, the Commission was also influenced by the fact that, in several jurisdictions, the full suite of consumer protections provided under the NERL and NERR apply only to customers supplied by the interconnected national electricity system. The Commission was not able to address these issues through changes to the NER under the rule change request.

As such, despite its finding that the use of SAPS solutions by DNSPs could have positive effects on the efficient provision of electricity services, the change to the NER proposed by Western Power would not, on its own, contribute to the achievement of the national electricity objective.

2.4.4 Commission's recommendations regarding DNSP-led off-grid supply

In the final determination, the Commission considered how off-grid supply could be provided efficiently to selected edge-of-grid customers, in a way which avoided unnecessary network expenditure while protecting the long-term interests of electricity customers. It concluded that a broader package of framework changes would be required to properly implement the required reforms, and recommended the following:

- that the NERL, NERR and relevant jurisdictional instruments should be amended to implement an appropriate regime of energy-specific consumer protections for off-grid customers, including reliability standards and, if necessary, price controls
- that the NEL and NER should be amended to allow DNSPs to provide off-grid supply as a distribution service that is subject to economic regulation by the AER, including incentives for efficiency
- that the national frameworks should include a number of conditions to protect customers and avoid distorting the evolution of competition for off-grid supply services.

The Commission recommended to the COAG Energy Council that it ask the Commission to further develop the package of law and rule changes that would be required to implement this recommended approach. It was this recommendation that, in part, led to this review.

2.5 Assessment framework

The objective for the review was to develop a package of law and rule changes to allow distribution businesses to transition customers to SAPS supply where it is economically efficient to do so, while maintaining appropriate consumer protections and service standards.

This section sets out the framework the Commission has used to guide it in developing and assessing the changes to achieve this outcome.

2.5.1 National energy objectives

The review involved considering potential changes under the NEL and NER for electricity and the NERL and the NERR for energy retail. As such, two of the national energy objectives - the national energy retail objective (NERO) and the national electricity objective (NEO) — were relevant to this review.

The NERO is:[51]

> 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:[52]

> 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:[53]

> 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 energy/electricity services for the long term interests of consumers of energy/electricity with respect to price, quality, safety and reliability.

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

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.

51 NERL, s. 13.
52 NERL, s. 236(2)(b).
53 NEL, s. 7.

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.[54]

2.5.2 Assessment criteria

Consistent with these objectives, the Commission identified the following more detailed criteria to assess potential regulatory arrangements for stand-alone power systems, incorporating principles of good market design and best practice regulation:

- Do the regulatory arrangements facilitate competition and consumer choice in energy services and products?
- 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, consistent and transparent?
- Are the regulatory arrangements proportional to the risks they seek to mitigate?

Each criterion is discussed further below.

Do the regulatory arrangements facilitate competition and consumer choice in energy services and products

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. The terms of reference recognised the relevance of competitive service delivery as a means of driving better price and service outcomes for consumers.[55] As such, regulatory arrangements should facilitate competition and choice, with readily available clear, timely and accurate market information, that current and potential market participants have access to.

Do the regulatory arrangements promote efficient investment and allocation of risks and costs?

The key driver for the review is to develop regulatory arrangements to allow DNSPs to use new solutions to supply energy to consumers in a more economically efficient way. The regulatory framework for stand-alone power systems should encourage innovation and promote efficient investment in network infrastructure and the supply of energy services, as well as being robust and resilient if the take-up of DNSP-led SAPS increases exponentially. Efficient outcomes are most likely to arise where risks and costs are appropriately allocated to the parties best placed to manage them, and transaction costs are minimised.

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

55 Terms of Reference, p. 8.

Do appropriate consumer protections and compliance mechanisms apply within stand-alone power systems?

In the final determination for the Western Power rule change, the Commission set out its view that customers who move to off-grid supply to reduce distribution costs (thereby benefiting all electricity customers by reducing overall costs) should continue to receive appropriate energy-specific consumer protections aligned with those of standard supply customers. The Commission considers that, where off-grid supply is provided as a regulated DNSP-led service at the same price as paid by grid-connected customers, protections should be no less stringent than the relevant customers currently receive for their existing grid connection.[56]

Are the regulatory arrangements clear, consistent and transparent?

The regulatory framework for stand-alone power systems 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 market. Consumers and businesses need to understand what their protections and obligations are, and what others' obligations are, with respect to the transactions they undertake.

To the extent they are required to make them, consumers should have access to sufficient information to make informed and efficient decisions, especially as a decision to accept a stand-alone power system solution is likely to have long-term implications. As such, clear information around the consumer protections which apply when being supplied by a SAPS would assist consumers in making decisions about transitioning from a standard grid connection to a SAPS model of supply.[57]

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

Are the regulatory arrangements proportional to the risks they seek to mitigate?

Competition and market signals often help protect and provide the best outcome for consumers. However, regulation may be necessary in the case of market failure or to safeguard safe, secure and reliable supply of energy to consumers. 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.

2.6 Approach to the review

2.6.1 Structure of the review

The terms of reference required the Commission to structure the review by considering two priority areas:

56 AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017, p. 36.

57 The terms of reference notes as an objective that SAPS customers should only be provided with a lower standard of service if they have expressly accepted it. Terms of Reference, p. 8.

- The Commission's work under priority 1, that has led to this final report, focused on the development of a national framework for customers that move from grid-connected supply to stand-alone systems provided by DNSPs.
- The ongoing work under priority 2 focuses on the development of a national framework that jurisdictions could opt into to support the supply of electricity from stand-alone power systems by parties other than DNSPs.

Additionally, under priority 1 and as requested by the terms of reference, the Commission has developed a mechanism that will form part of the national regulatory arrangements to facilitate the transition of customers that are supplied by a DNSP to a stand-alone power system that is provided by a third party that is not the DNSP.

This report sets out the Commission's final recommendations to support the development of a national framework aimed at facilitating the provision of stand-alone power systems specifically by distribution businesses, in line with priority 1. The Commission's positions on the SAPS model of supply, the decision framework for transitioning customers to a DNSP-led SAPS and any constraints on the provision of DNSP-led SAPS, as well as the consumer protection framework are presented. The Commission's recommendations to facilitate the transition of currently connected customers to a SAPS provided by a third-party are also detailed.

The Commission is closely coordinating the review with its concurrent review on *Updating the regulatory frameworks for embedded networks* that will be finalised in June 2019. Both reviews considered similar and interlinked policy and legal issues. The COAG Energy Council may subsequently choose to progress recommended national law change descriptions and draft rules as a single legislative package.

2.6.2 Structure of the report

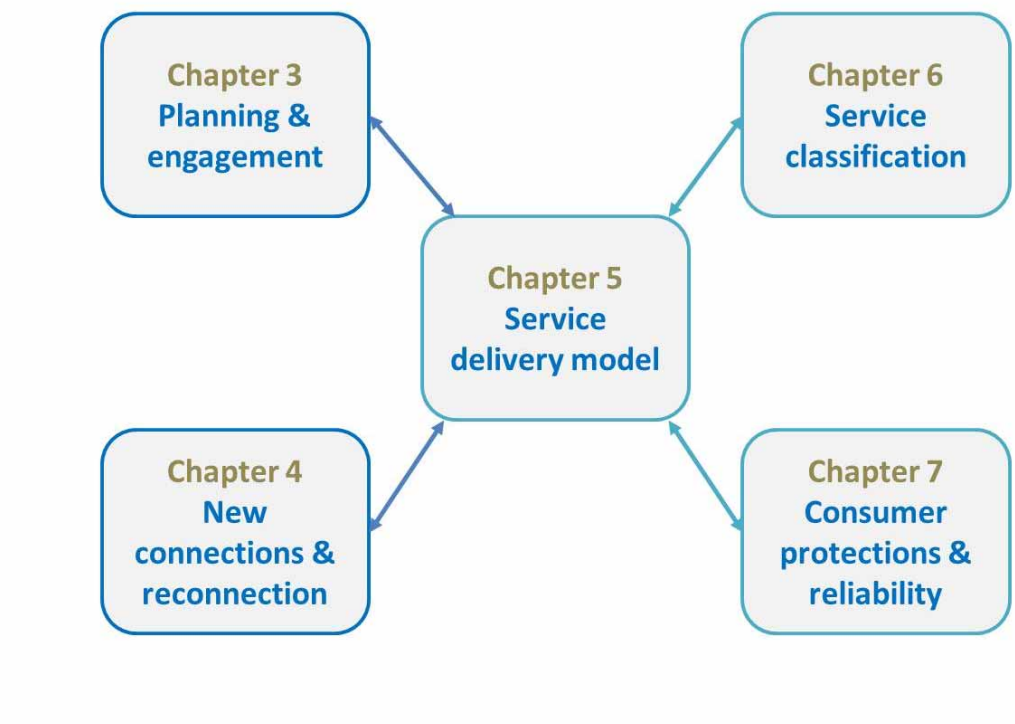
This report presents the Commission's analysis and final recommendations under priority 1 of the review.

The Commission has divided the key issues associated with the transition of grid-connected customers to DNSP-led SAPS into five discrete areas:

- the network planning and customer engagement arrangements to support the transition of existing DNSP customers to SAPS supply
- rules to govern the extent to which new customers might be provided with a connection by means of a DNSP-led SAPS and to which DNSPs' SAPS customers might be able to revert to supply from the interconnected grid
- the service delivery model, which sits at the heart of the arrangements for the ongoing provision of SAPS supply and refers to the inter-relationships between the full suite of activities and services involved, including local generation, network services and retailing, as well as supporting services such as metering
- the classification of services for the purposes of network regulation and the ring-fencing of non-competitive activities from competitive markets, which flows from the service delivery model, and

- the consumer protections provided to customers, which are also, in part, related to the allocation of the retail function.

Figure 2.10: Structure of the report



Source: AEMC

Figure 2.10 illustrates the linkages between these issues, which are covered in the following five chapters, as follows:

- Chapter 3 sets out the Commission's recommended approach to network planning to transition customers to a DNSP-led SAPS including efficiency tests and customer engagement
- Chapter 4 discusses the Commission's recommendations that DNSPs should not be permitted to offer new connections by means of a new SAPS and that customers should not have any special rights of reconnection to the interconnected grid
- Chapter 5 discusses the recommended DNSP service delivery model, and explains how this supports the Commission's objective of providing transitioned customers with their existing retail offers
- Chapter 6 discusses SAPS service classification under the recommended SAPS supply model, and how this impacts on the ring-fencing of contestable activities, and

- Chapter 7 covers the application of national and jurisdictional consumer protections to DNSP provided SAPS, including how these should be integrated into existing reliability frameworks.

Chapter 8 of the report focuses on the other deliverable for priority 1, the required amendments to the national framework to enable the transition of grid-connected customers to a SAPS facilitated by a party other than DNSP. The chapter sets out the Commission's recommendations on the decision-making framework and asset accounting provisions for such transitions.

Finally, Chapter 9 covers the process for implementing the Commission's recommendations under this review, and includes details on changes to the NEL and NERL which would be required to enable DNSPs to transition customers to DNSP-led SAPS. Table 9.1 provides a summary of the Commission's final recommendations and corresponding actions required for implementation.

2.6.3 Changes to the Commission's draft positions

Views expressed by stakeholders over the course of the review were overwhelmingly positive, with near-universal support for the introduction of framework changes to facilitate the use of SAPS by DNSPs where economic and consistent with the maintenance of existing consumer protections.

There was also general support for most of the more detailed recommendations made in the draft report. Where there was debate, most notably in the area of the service delivery model, the Commission has taken account of stakeholder comments in developing its final recommendations.

To this end, the Commission has taken a different approach to two of the positions it put forward in the draft report. First, in respect of the efficiency pre-condition, the Commission does not propose to introduce a new set of minimum SAPS project evaluation requirements to apply to smaller SAPS projects. Rather, the Commission recommends supplementing existing planning arrangements with a number of additions to the DAPR reporting requirements to increase transparency around SAPS opportunities. The reasons for this change are set out in section 3.4.

Second, in respect of the SAPS service delivery model and the two illustrative options presented in the draft report, the Commission has concluded that the delivery of SAPS services to customers would best be supported by the existing wholesale energy market arrangements, including AEMO's settlement system. However, rather than utilising the five-minute wholesale market spot price to settle the delivery of energy to SAPS customers, the Commission recommends that retailers should be charged an administered settlement price for that energy. The reasons for this decision are set out in chapter 5.

3 SAPS PLANNING AND ENGAGEMENT

RECOMMENDATION 1: FACILITATING TRANSPARENT DECISION MAKING

The existing distribution planning and investment framework – which includes the distribution annual planning report (DAPR), demand side engagement obligations and the regulatory investment test for distribution (RIT-D) – is largely appropriate and fit-for-purpose to encourage distribution businesses to make efficient planning and investment decisions in respect of stand-alone power systems.

To further support DNSPs to achieve efficient planning and investment outcomes in respect of SAPS, the Commission is recommending a small number of changes to the existing planning arrangements to increase transparency around both the opportunities for, and decisions made in respect of, SAPS.

First, the Commission recommends that the DAPR reporting requirements specified in schedule 5.8 of the NER be amended and clarified to include a number of items specific to SAPS. Specifically, DNSPs should be required to report on SAPS opportunities over the forward planning period, SAPS projects committed for implementation over the planning period and SAPS options considered in the past year. Further, DNSPs should be required to report on the total numbers of SAPS implemented, and customer premises transitioned to SAPS, in their areas.

Second, the Commission recommends that a change be made to the RIT-D principles set out in the NER to make it clear that DNSPs must (rather than may) quantify all classes of market benefits applicable to a credible option, where these may be material or likely to alter the selection of the preferred option. The quantification of market benefits is becoming increasingly important as the characteristics of traditional distribution investments have evolved.

To recognise the importance of effective and timely engagement between DNSPs and affected parties (including potential SAPS customers and the local public), the Commission also proposes a new set of SAPS customer engagement obligations on DNSPs.

The SAPS customer engagement obligations will require DNSPs to develop a SAPS customer engagement strategy, which must be documented and published on DNSPs' websites. In addition, DNSPs will be required to undertake a formal SAPS consultation process whereby DNSPs must provide formal, public notice to affected parties of their intention to proceed with a SAPS solution.

Based on the view that the existing planning and investment framework is sufficient to support the efficient roll-out of SAPS by DNSPs, the Commission is not proposing to prescribe a new assessment process for projects which are not subject to the RIT-D. Existing frameworks have been designed to support the identification, assessment and implementation of non-network options where these are efficient. We do not consider there is a compelling

case to treat SAPS options any differently, and therefore recommend that SAPS be considered under frameworks that are similar to, or an extension of, the existing frameworks for consideration of non-network options.

3.1 Background

3.1.1 Efficient planning and investment

The current framework for the regulation of DNSPs in the NER is designed to encourage these businesses to make efficient planning, investment and expenditure decisions. It uses obligations and incentives to encourage DNSPs to generate outcomes that consumers need, want and are willing to pay for, and to do so efficiently and in line with jurisdictional reliability standards.

Broadly, the promotion of efficient planning, investment and expenditure relate to two areas of the regulatory framework for DNSPs: the planning and investment framework; and the incentive regulation framework. These frameworks encourage the consideration of non-network options, provide information to businesses that may offer non-network solutions, and provide distribution businesses with incentives to invest in least-cost options. An overview of these frameworks is provided in Box 5 below.

BOX 5: **EFFICIENT PLANNING, INVESTMENT AND EXPENDITURE DECISIONS**

Planning and investment framework

Included in Chapter 5 of the NER, the distribution network connection, planning and expansion framework is designed to encourage distribution businesses and network users to make efficient planning and investment decisions.

It does so by creating obligations on, and a framework within which, distribution businesses can explore non-network options as alternatives to network investment. The key components of this framework include the following:

- **Distribution annual planning review and report.** DNSPs are required to analyse the future operation of their networks over a minimum forward planning period of five years. The outcomes of this review are published annually in a distribution annual planning report (DAPR). DNSPs are required to report on all distribution assets, and activities undertaken by DNSPs, that would be expected to have a material impact on the distribution network over the forward planning period.
- **Demand side engagement obligations.** DNSPs are required to develop a strategy (demand side engagement strategy) for how they intend to consider non-network options and engage with non-network providers. This strategy must be documented in a report (demand side engagement document) which includes certain information specified in the

rules, and which must be reviewed and published every three years. DNSPs are also required to establish and maintain a register of parties interested in being notified of developments related to DNSP planning and expansion activities.

- **Regulatory investment test for distribution (RIT-D).** The RIT-D aims to promote efficient investment in distribution networks by supporting DNSPs to make consistent, transparent and predictable decisions. DNSPs must apply the RIT-D, subject to certain criteria and processes, before investment decisions are made. In applying the test, DNSPs must consider all credible options (which may include both network and non-network options) when choosing how to address an identified need for investment in the network. The preferred option is the one which maximises the economic benefit to all those who produce, consume and transport electricity in the NEM.

Incentive regulation framework

Set out in Chapter 6 of the NER, the incentive regulation framework is designed to encourage distribution businesses to spend efficiently and to share the benefits of efficiency gains with consumers.

Specifically, it is designed to encourage distribution businesses to make efficient decisions on when to invest, what type of investment (network or non-network investment) to make and what type of expenditure (capital or operating expenditure) to incur in order to meet their network reliability, safety, security and quality requirements.

It does so by seeking to align the incentives (or savings) between capital and operating expenditure, and between network and non-network investment. These incentives are important as the majority of SAPS expenditure would be expected to be funded through operating expenditure.

The key incentive schemes include the efficiency benefit sharing scheme (EBSS), and the capital expenditure sharing scheme (CESS) and associated ex-post review mechanism for capital expenditure.

With respect to SAPS, the objective of the regulatory framework should be to achieve an outcome whereby DNSPs pursue and develop SAPS where these provide a more efficient model of supply for a customer (or group of customers) than continuing to provide them with standard supply via the grid (which requires maintaining, and at some point replacing, the distribution network).

The terms of reference for this review have asked the Commission to consider the need for a fit-for-purpose economic test to establish whether a SAPS model of supply provides an economically efficient alternative to standard supply for some customers. The Commission has also been asked to consider the need for such a test to adequately consider the impacts of SAPS on the market as a whole, including customers that will remain on the grid.[58]

58 Terms of reference, p. 10.

3.1.2 Customer choice

A key focus for this review has been the role of customer choice in the decision to move a customer off-grid to a SAPS model of supply. Customers being considered for transition to DNSP SAPS supply are not choosing to move off-grid for their own reasons. Rather, they are customers identified by a DNSP as those who could be more efficiently supplied via SAPS for the benefit of all customers.

Currently for a customer, the risk profile of receiving supply via a SAPS is quite different from that of grid supply, not least because of the differences that currently exist between the energy-specific consumer protections available to grid-connected customers and SAPS customers. Therefore, in the absence of a consumer protections framework applicable to SAPS, it may not necessarily be in the long term interests of all customers to move certain customers off-grid.

There are several approaches to protecting the long-term interests of customers identified by DNSPs for transition to a SAPS model of supply. These include requiring DNSPs to gain customers' consent to transition to a SAPS and prescribing minimum customer outcomes in lieu of consent provisions. Alternatively, the regulatory framework for SAPS could be designed to ensure that the energy-specific consumer protections afforded to SAPS customers are the same as those afforded to grid-connected customers.

A key question for this review has therefore been whether the long-term interests of consumers would best be approached by providing affected customers with a choice to move off-grid (that is, gaining their consent), by implementing a set of protections against potential adverse impacts on those customers (for example, mandating minimum customer outcomes) or by ensuring that existing consumer protections are, in all cases, maintained.

The review has also had regard to whether it is appropriate for matters associated with customer consent to be addressed within the framework established by the national energy law and rules, or whether there are mechanisms outside of the national energy frameworks which may be better suited to addressing matters related to the rights and protections of individuals.

3.2 Commission's draft position

3.2.1 Efficiency pre-condition

In the draft report, the Commission proposed to establish arrangements whereby a DNSP would only be able to transition a customer to SAPS supply where it had identified a SAPS solution as being more efficient than replacing or upgrading parts of a distribution system. DNSPs would need to meet this efficiency pre-condition by completing either the existing RIT-D, or a new set of minimum SAPS evaluation requirements.

The Commission's proposed approach would utilise the existing RIT-D and associated consultation process to test the efficiency of SAPS solutions for projects which meet the RIT-D cost threshold (and are not otherwise exempt projects). The Commission noted that certain areas of the RIT-D framework may require amendment to ensure the process and test were appropriate and fit-for-purpose to specifically test the efficiency of SAPS solutions.

To capture projects where a SAPS solution is a credible option but the RIT-D is not applicable, a new set of minimum SAPS project evaluation requirements would be established. These requirements would largely focus on the process of ensuring that SAPS solutions which are credible options and available in the competitive market, are identified and considered by DNSPs as part of the economic assessment process. The requirements could be designed to achieve an outcome equivalent to the RIT-D non-network screening requirements.

The Commission also noted its intention to consider whether any additional amendments may be needed to the distribution network planning and expansion framework to support the provision of SAPS by DNSPs.

3.2.2 Customer consent and engagement

In the draft report, the Commission set out its view that SAPS customers should continue to benefit from equivalent price and reliability protections following the transition to SAPS supply. Where this was achieved, there would be no need for DNSPs to obtain explicit consent from customers in order to transition them to off-grid supply. The Commission was of the view that obtaining explicit customer consent would be logistically challenging and present risks that small numbers of customers could veto changes that would benefit all consumers.

However, the Commission recognised that its final position in respect of customer consent would depend on whether the final SAPS service delivery model was broadly consistent with market arrangements which would allow customers to retain their existing retail offer with their current retailer. It noted that the impacts of any arrangements that would require customers to move to different retail arrangements may need further consideration.

In addition, the Commission recommended the development of a new SAPS customer information and engagement program with two specific obligations. First, DNSPs would be required to develop, publish on their websites and comply with a SAPS customer information and engagement strategy. Second, DNSPs would be required to provide formal, public notification to affected parties of the intent to proceed with a SAPS supply option. The public notification would include a request for submissions and DNSPs would be required to have regard to any submissions received.

3.3 Stakeholder views

3.3.1 Efficiency pre-condition

Regulatory investment test for distribution

Overall, most stakeholders were comfortable that the RIT-D would provide an appropriate framework to assess the efficiency of SAPS solutions for projects for which the RIT-D is applicable.[59] However, views were mixed on whether the current RIT-D rules would need to be amended to support the adequate consideration of SAPS solutions relative to other credible options.

59 Submissions to the draft report: Endeavour Energy, p. 1; AGL, p. 3; Spark Infrastructure, p. 3; AER, p. 4; SA Government, p. 2; Tesla, p. 3.

AGL agreed that the parameters of the RIT-D may need to change to support a comparative assessment of the market benefits and costs associated with the generation and retail aspects of SAPS against the NEM arrangements. It also considered that the parties that fall within scope of RIT-D may need to be broader.[60]

The AEC was also of the view that an assessment of SAPS may require consideration of costs which are broader than those associated with SAPS versus grid-supply, for example, the loss of industrial location opportunities. It supported additional classes of market benefits and costs being assessed under the RIT-D.[61]

More broadly, the SA Government considered that significant amendments would likely be required to the RIT-D rules to recognise that SAPS aren't connected to the grid and operate independent of the NEM.[62]

ENGIE noted that a RIT-D assessment of SAPS would require assumptions to be made on matters that are highly uncertain, making a meaningful quantification of net benefits difficult. It suggested the mandated use of AEMO scenarios and assumptions for all market benefits assessments under the RIT-D.[63]

Tesla considered that the RIT-D and associated amendments may need to be accompanied by additional incentives to encourage DNSPs to pursue the most cost-effective and reliable options. It noted that the EBSS would need to support SAPS.[64]

In contrast to the views above, the AER and TasNetworks did not believe changes would be required to the RIT-D in order to accommodate the consideration of SAPS.[65] Specifically, the AER noted that it was yet to identify any specific limitation in respect of the RIT-D that would undermine the effective use of SAPS.[66]

Horizon Power expressed support for amending or supplementing the RIT-D to ensure that projects which are economically viable but not currently captured by the RIT-D were adequately assessed - for example, projects that are required to address an urgent and unforeseen network issue, or projects below the RIT-D cost threshold.[67]

More broadly, Energy Queensland was of the view that an efficiency pre-condition would need to be fit-for-purpose while recognising existing market capabilities and linkage to tender processes for services.[68]

60 AGL, submission to the draft report, p. 3.
61 AEC, submission to the draft report, p. 1.
62 SA Government, submission to the draft report, p. 1.
63 ENGIE, submission to the draft report, p. 4.
64 Tesla, submission to the draft report, p. 3.
65 Submissions to the draft report: AER, p. 4; TasNetworks, p. 3.
66 AER, submission to the draft report, p. 4.
67 Horizon Power, submission to the draft report, pp. 10-11.
68 Energy Queensland, submission to the draft report, p. 2.

Minimum SAPS project evaluation requirements

Views among stakeholders were mixed on whether the inclusion of a new set of minimum SAPS project evaluation requirements applicable to projects which are not subject to the RIT-D was necessary and/or appropriate.

The AEC and SA Government both supported the introduction of a new set of minimum SAPS evaluation requirements.[69] The AER, CEC and AGL also expressed support for the development of such requirements on the basis that they would support the competitive testing of SAPS solutions.[70] Further to this, the AER considered that an obligation to test the market for these services would be essential to stimulate competition.[71]

While Endeavour Energy also expressed support for the minimum SAPS project evaluation requirements, it considered this framework should be commensurate with lower levels of materiality. On this basis, it suggested the development of a more objectives-based framework to apply in certain circumstances.[72]

Essential Energy and Tesla were broadly supportive of the proposed requirements.[73] However, Essential Energy considered the any process should be sufficiently flexible so that it is fit for purpose relative to the size and scale of potential solutions.[74] Tesla considered the process should be light-touch but broad enough to capture future off-grid solutions. Tesla also strongly recommended ensuring that DNSPs undertake a robust competitive tendering process.[75]

TasNetworks expressed in-principle support for the intent of the minimum project evaluation requirements but questioned whether these would be viable in practice given that they would be onerous and risk undermining efficiency and cost savings to customers.[76] As an alternative, it suggested the inclusion of more general, high level information on SAPS opportunities in the DAPRs, with further details provided to proponents on a confidential basis.[77]

The ENA considered noted its support for a simple, effective, non-onerous evaluation process which was fit-for-purpose relative to the size and scale of the potential solution. The ENA suggested that the policy intent could alternatively be achieved through DNSPs' DAPR processes.[78]

PIAC was of the view that existing frameworks, including the RIT-D, DAPR, AER ex-post review powers and DNSP ring-fencing arrangements, would provide transparency around project evaluation processes and would ensure that SAPS solutions were only pursued where

69 Submissions to the draft report: SA Government, p.2; AEC, p. 2.
70 Submissions to the draft report: AER, p. 4; CEC, p. 1; AGL, p. 3.
71 AER, submission to the draft report, p. 4.
72 Endeavour Energy, submission to the draft report, p. 1.
73 Submissions to the draft report: Essential Energy, p. 2; Tesla, p. 3.
74 Essential Energy, submission to the draft report, p. 2.
75 Tesla, submission to the draft report, p. 3.
76 TasNetworks, submission to the draft report, pp. 1,3.
77 TasNetworks, submission to the draft report, p. 2.
78 ENA, submission to the draft report, pp. 2-3.

they represented the most effective option. Nevertheless, PIAC expressed support for an additional set of minimum SAPS project evaluation requirements for cases where the RIT-D was not applicable.[79]

AusNet Services noted its support for the recommended approach whereby DNSPs engage with all potential SAPS proponents when seeking out the most efficient solution, noting that this would be consistent with DNSP practice. However, AusNet Services was uncertain about the timing of the proposed process (notionally the non-network option evaluation stage) and suggested that transparency around the performance requirements and capital costs of a SAPS solutions during the assessment stage would be preferable.[80]

The TEC considered that there would be benefit in the AER publishing SAPS guidelines to clarify the circumstances in which DNSPs would be required to undertake a SAPS project evaluation.[81]

Energy Queensland, Spark Infrastructure and Ausgrid were all opposed to the proposed minimum SAPS project evaluation requirements. Energy Queensland considered these to be too prescriptive and onerous, and noted that they may raise privacy concerns relating to information sharing of customer data with third parties.[82] Spark Infrastructure was of the view that the requirements would result in additional costs being incurred and considered that the existing governance arrangements would be sufficient to ensure efficient investment.[83] Ausgrid considered the requirements risked introducing unnecessary prescription and red tape into the rules.[84]

As a more efficient alternative, Ausgrid suggested that DNSPs could run a tender process to establish a panel of suppliers able to provide SAPS in a particular area, rather than having to engage with the demand side register every time it wished to introduce a SAPS.[85]

More broadly, the SA Government was of the view that the AER should be given a role within the decision process – for example, there may be benefit in requiring the AER to approve a RIT-D or minimum project evaluation outcome on the basis that assessments would be complex and not all affected parties may be equipped to participate in the process.[86]

3.3.2 Customer consent and engagement

Explicit informed consent

Overall, the majority of stakeholders expressed support for arrangements which would not require DNSPs to gain explicit informed consent (EIC) from customers being considered for transition to SAPS supply. In nearly all cases, this support was conditional on the broader regulatory framework for DNSP-led SAPS meeting the no-worse-off objective – that is,

79 PIAC, submission to the draft report, p. 8.
80 AusNet Services, submission to the draft report, p. 2.
81 TEC, submission to the draft report, p. 2.
82 Energy Queensland, submission to the draft report, p.4.
83 Spark Infrastructure, submission to the draft report, pp. 1, 3.
84 Ausgrid, submission to the draft report, p. 4.
85 Ausgrid, submission to the draft report, p. 4.
86 SA Government, submission to the draft report, p. 3.

ensuring SAPS customers retained the same price and reliability protections as equivalent grid-connected customers.[87]

PIAC, while supportive of the proposal not to include EIC within the framework, noted that consumers would retain the right of refusal for access to their property for the installation and use of SAPS.[88]

SAPS customer engagement strategy

The majority of stakeholders were also supportive of the proposed SAPS customer engagement strategy and formal consultation requirements.[89]

AGL considered the proposed approach struck the right balance between ensuring customers have sufficient information on the risks and benefits of SAPS, and managing the risk of veto. However, it considered that the AER would play important role in subjecting DNSPs' customer engagement strategy to independent and transparent review – an important safeguard in the absence of EIC.[90]

While Energy Queensland expressed support for the proposed customer engagement process and strategy, it was of the view that the level of engagement should be proportionate to the scale of the project. On this basis, Energy Queensland supported the development of overarching principles that must be applied by DNSPs when developing the strategy.[91]

Horizon Power considered that while customers affected by SAPS should not be able to block their transition, these customers should have a say in elements that affect them. In addition, Horizon Power considered that, if it is necessary to mitigate strong customer opposition in the short-term in order to secure long-term benefits to the NEM overall, affected customers should directly share in some of the financial benefits derived through the reduction in cross-subsidies.[92]

Endeavour Energy was of the view that DNSPs would be unlikely to risk reputational damage from transitioning customers strongly opposed to SAPS. It was strongly committed to obtaining consent through the SAPS customer engagement strategy and so noted support for this requirement. In the instance it was considered necessary to have some oversight of strategy, Endeavour Energy suggested that an AER guideline may be appropriate.[93]

While broadly supportive of the proposals, AusNet Services noted that extensive consultation by DNSPs with affected parties would be the practical expectation.[94]

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87 Submissions to the draft report: Spark Infrastructure, p. 3; CEC, p. 1; ENA, p. 3; Essential Energy, p. 2; AEC, p. 2; AER, pp. 3-4; Endeavour Energy, p. 1; AusNet Services, p. 2; EWON, p. 3; PIAC, p. 8.

88 PIAC, submission to the draft report, p. 7.

89 Submissions to the draft report: CEC, p. 1; SA Government, p. 3; Erne Energy, p. 3; ENA, p. 3; Essential Energy, p. 2; TasNetworks, p. 3; Tesla, p. 4; Red Energy and Lumo Energy (Red and Lumo), p. 2.

90 AGL, submission to the draft report, p. 3.

91 Energy Queensland, submission to the draft report, pp. 4-5.

92 Horizon Power, submission to the draft report, p. 2.

93 Endeavour Energy, submission to the draft report, p. 2.

94 AusNet Services, submission to the draft report, p. 3.

PIAC considered it was good practice for DNSPs to engage with customers and, on this basis, strongly supported the proposed SAPS customer engagement strategy.[95]

In contrast to these views, Spark Infrastructure suggested that the proposed SAPS customer engagement strategy and consultation process could come at a cost which outweighs any benefits.[96]

3.4 Commission's analysis and final position

Having regard to the views of stakeholders and its own analysis and review, the Commission considers that the existing distribution planning and investment framework – which includes the DAPR, demand side engagement obligations and the RIT-D – is largely appropriate and fit-for-purpose to encourage DNSPs to make efficient planning and investment decisions in respect of SAPS.

For this reason, the Commission has made a change to its draft recommendation in relation to the efficiency pre-condition. Specifically, the Commission does not propose to introduce a new set of minimum SAPS project evaluation requirements to apply to smaller SAPS projects. Rather, the Commission recommends supplementing existing planning arrangements with a number of additions to the DAPR reporting requirements to increase transparency around SAPS opportunities.

In addition, consistent with its draft recommendation, the Commission recommends introducing a new set of SAPS customer engagement obligations which will require DNSPs to develop and publish a SAPS customer engagement strategy, and to provide formal, public notice to affected parties of the intent to proceed with a SAPS supply solution.

The Commission's final recommendations and the reasons for its decisions are explained below.

3.4.1 Efficiency pre-condition

The Commission maintains its view that DNSP should only seek to transition an existing grid-connected customer to a SAPS where it has identified a SAPS solution as being the most efficient means of continuing to supply that customer. Consistent with existing arrangements, DNSPs would be required to use the RIT-D and associated consultation process to test the efficiency of credible SAPS options for projects which meet the RIT-D cost threshold and are not otherwise exempt projects.

However, for projects involving SAPS options which are not subject to the RIT-D, the Commission does not propose to require DNSPs to undertake a new assessment process. Consistent with existing rules, these projects would be planned and developed at least cost over the life of the investment.[97]

95 PIAC, submission to the draft report, p. 7.
96 Spark Infrastructure, submission to the draft report, p. 3.
97 NER cl. 5.17.3(d).

In the draft report, the Commission considered that the development of a specific test for projects involving SAPS options for which the RIT-D was not applicable, would be appropriate for the following reasons:[98]

- SAPS solutions may be included in the definition of non-network options and therefore DNSPs should be encouraged to engage with, and supported in their engagement with, potential non-network proponents. In addition, potential SAPS proponents should be provided with the formal opportunity to plan and offer efficient and cost effective SAPS solutions as alternatives to traditional network investment.
- Requiring DNSPs to follow a transparent process when assessing whether a SAPS solution provides the most efficient means of addressing an investment need on the network would provide assurance to affected customers that all credible network and non-network options — including SAPS options — have been considered.

While the Commission continues to support these objectives, it notes that existing frameworks have been designed to support the identification, assessment and implementation of non-network options where these are efficient. For example, effective engagement between DNSPs and non-network proponents is encouraged and supported through the existing demand-side engagement obligations on DNSPs.

On the basis that SAPS solutions will be treated as (or in a similar way to) non-network options for the purposes of the new regulatory framework for SAPS, the Commission considers that the existing planning and incentive frameworks remain appropriate to support the identification, assessment and implementation of SAPS.

To further support DNSPs to achieve efficient planning and investment outcomes in respect of SAPS, the Commission is proposing two changes to the existing planning arrangements to increase transparency around both the opportunities for, and decisions made in respect of, SAPS. These are discussed below.

Additional DAPR reporting requirements

The DAPR reporting requirements set out in schedule 5.8 of the NER focus on the identification of system limitations on a distribution network, with particular emphasis on sub-transmission assets, zone substations and, where the information is available, primary distribution feeders. To support key information on system limitations, the reporting requirements also require DNSPs to include a range of additional information in their DAPRs.[99] This additional information, to be provided at a high level only, is intended to provide important context to DNSPs' planning processes and activities.

The Commission considers there is benefit in making sure the DAPR provides transparency around a number of items specific to DNSP activities related to SAPS. Therefore, to the extent that this information is not already captured, the Commission recommends amending

98 AEMC, Review of the regulatory frameworks for stand-alone power systems - Priority 1, Draft report, 18 December 2018, p. 51.

99 This includes summary information on RIT-D projects completed or in progress, committed investments to be carried out within the planning period with an estimated capital cost of $2 million or more, and information on DNSPs' asset management approaches and demand management activities.

the reporting provisions specified in schedule 5.8 of the NER to ensure DNSPs are reporting on:

- SAPS opportunities over the forward planning period[100]
- SAPS projects committed for implementation over the planning period
- SAPS options considered in the past year,[101] and
- total numbers of SAPS implemented and customer premises transitioned to SAPS supply.

The proponents of SAPS will require DNSPs to provide sufficiently detailed and timely information on current and future opportunities for SAPS. This will enable them to make efficient planning decisions and propose feasible and cost-effective SAPS alternatives to network investment in a timely manner. The inclusion of SAPS specific information within DNSPs' DAPRs will therefore enable SAPS proponents to identify potential opportunities for SAPS over the forward planning period. This will support the submission of credible alternatives to traditional network investment by SAPS proponents to DNSPs.

In addition, high level reporting on committed SAPS projects and SAPS options considered in the previous year would enable the outcomes of the new regulatory framework for SAPS to be captured in an accessible format and in a central location. Among other benefits, this should help to reduce information asymmetries between the AER and DNSPs, thereby assisting the AER in its distribution determination processes.

The Commission recommends that the details of the proposed DAPR reporting requirements be considered further during the rule drafting phase of this review.

Minor amendments to the RIT-D to require quantification of market benefits

NER clause 5.17.1(d) states that a RIT-D proponent may, under the RIT-D, quantify each class of market benefits where any applicable market benefits may be material or the quantification of market benefits may alter the selection of the preferred option.

Importantly, under the current RIT-D, DNSPs are not required to quantify market benefits considered to be immaterial or that will not alter the selection of the preferred option. They are also not required to quantify market benefits for projects which relate to reliability corrective action.[102]

However, where a project is not for reliability corrective action, a credible option must have a positive net economic benefit in order to satisfy the RIT-D. The implication of the above is that the quantification of market benefits will effectively be required where a project is not for reliability corrective action.

The Commission has considered the implication of these requirements in the context of SAPS, including the potential ambiguity in respect of the obligation on DNSPs to only quantify market benefits in certain circumstances. For the reasons outlined below, the Commission

100 To the extent that such opportunities are not already captured under NER schedule 5.8(l)(1)(iv).

101 To the extent that these options are not already captured under NER schedule 5.8(l)(1)(i).

102 Reliability corrective action is a local term defined in NER cl. 5.10.2. It refers to DNSP investment in respect of its distribution network for the purpose of meeting the service standards linked to the technical requirements of NER schedule 5.1 or in applicable regulatory instruments and which may consist of network options or non-network options.

does not consider that an optional approach to the assessment of market benefits is appropriate going forward.

The optionality afforded to DNSPs in respect of the quantification of market benefits has been a feature of the RIT-D since its introduction in 2012.[103] In the final determination for the RIT-D rules, the Commission considered that the optional approach to the assessment of market benefits was appropriate on the basis that, in many cases, RIT-D projects would tend to have limited market benefits.[104]

However, it is important to recognise that the general characteristics of distribution investments have evolved over time. For example, the rise in distributed energy resources and the increased sophistication of demand management capabilities have shown that distribution investments are increasingly delivering benefits that have traditionally been seen at the transmission level.[105]

In addition, DNSPs are increasingly able to utilise the benefits of new technologies such as SAPS to meet their regulatory obligations towards facilitating the supply of electricity for customers. While these new technologies have the potential to reduce the costs of investing in, operating and maintaining distribution networks, they also have the potential to significantly improve the quality of services and reliability provided to customers (thereby reducing instances of involuntary load shedding).

For these reason, the Commission recommends that the NER provisions on the RIT-D should be amended to mandate the quantification of applicable classes of market benefit specified in the rules (and any additional classes of market benefit specified by the AER) where these may be material or where the quantification of market benefits may alter the selection of the preferred option, rather than leaving quantification optional in these circumstances.

The Commission is of the view that this change will support the RIT-D in being applied in a predictable, transparent and consistent manner by DNSPs. In addition, while this change may result in some DNSPs undertaking an additional layer of analysis than they otherwise would have done, the Commission considers this to be appropriate given that the market benefits being quantified will either be material or likely alter the selection of the preferred option.

The Commission's recommended amendment to the RIT-D principles would apply to all projects subject to the RIT-D and would not be limited to those projects for which a SAPS solution is a credible option.

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103 See: AEMC 2012, Distribution Network Planning and Expansion Framework, Rule Determination, 11 October 2012, Sydney.

104 Ibid, pp. 80-81.

105 This point is discussed by the AER in its recent decision on the application guidelines for the regulatory investment tests for transmission and distribution. In that report, the AER acknowledges stakeholder views that DER can increasingly affect wholesale markets, and that including market benefit classes relating to generation dispatch and competition benefits within the RIT-D would improve regulatory certainty and administrative efficiency. See: AER 2018, Final decision, Application guidelines for the regulatory investment tests, pp. 37-38.

Other changes to the planning and investment framework

In the draft report, the Commission set out its initial observations on the areas of the RIT-D framework which it considered may require amendment to make sure the RIT-D was appropriate and fit-for-purpose for assessing the efficiency of SAPS options.[106]

Consistent with existing arrangements, the Commission considers that the AER, through its RIT-D application guidelines review process, is best placed to consider and approve any additional classes of market benefits and costs which may be relevant to SAPS and within the scope of the RIT-D. In addition, the Commission considers it appropriate for the AER to determine whether it is necessary and appropriate for the RIT-D application guidelines to include guidance and worked examples on the application of the RIT-D to SAPS non-network options.

The Commission recommends that other matters relevant to the RIT-D and associated consultation process be considered further when changes to the NER resulting from this review are being drafted. Whether (and what) amendments may be needed to support the efficient assessment of SAPS options may depend on the specific amendments (including definition changes) made to the NEL and NER to enable services provided by means of SAPS assets to be distribution services.

3.4.2 Customer consent and engagement

Customer consent

As set out in Chapter 5, the Commission has decided to recommend that the SAPS service be delivered to a customer (or group of customers) using the existing wholesale energy market arrangements, including AEMO's settlement system. This approach makes it feasible for the SAPS retail service to be provided by competing grid retailers, thus allowing SAPS customers to maintain their relationships with existing retailers, and to retain their existing retail offers. This supports the seamless transition of existing grid-connected customers to SAPS and ensures that SAPS customers are no-worse-off in terms of price and the consumer protections they receive.[107]

Further, given that the reliability standards applicable to grid-supply will also be applied to SAPS supply, the Commission does not consider there is a need for DNSPs to seek, and SAPS customers to provide, explicit consent for the transition to SAPS supply.[108] The Commission therefore does not recommend including any form of explicit informed consent provisions within the regulatory framework for transition to a SAPS.

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106 AEMC, *Review of the regulatory frameworks for stand-alone power systems - Priority 1*, Draft report, 18 December 2018, pp. 45-49.

107 Consumer protections provided by the NECF are also maintained for SAPS customers by means of the existing requirement in the NERL for entities selling energy to persons for premises to be authorised retailers (unless they are exempt). As noted elsewhere in this report, some jurisdictions will need to amend their NERL application Acts to ensure the NECF applies to SAPS customers.

108 Under section 38 of the NERL, a customer's explicit informed consent is required if the customer is to be transferred to a new retailer or a new market retail contract. The recommended SAPS service delivery model does not require either of these changes upon transitioning a customer to a DNSP SAPS. Nor would a transition to a SAPS be treated as a disconnection (to which various restrictions apply under the NERR).

SAPS customer engagement obligations

Consistent with its draft position, the Commission recommends requiring a DNSP to carry out a comprehensive program of information provision and consumer engagement where it has identified SAPS supply as being the most efficient means of continuing to supply a customer (or group of customers) with energy, regardless of whether a RIT-D is also required.

The new SAPS customer engagement obligations recognise that effective and timely engagement between distribution businesses and affected parties (including potential SAPS customers and the local public) is critical to the successful roll-out of SAPS as an efficient alternative to traditional network investment.

Specifically, the Commission recommends imposing two specific obligations on DNSPs.

First, DNSPs should be required to develop a SAPS customer engagement strategy setting out how the DNSP intends to engage and consult with affected parties. This strategy must be documented in a SAPS customer engagement document published on the DNSP's website. The DNSP should also be required to comply with a SAPS customer engagement strategy when engaging with affected parties throughout the planning, transition and enduring stages of SAPS supply.

These obligations would support DNSPs in providing, and affected parties in accessing, information on how, when and with whom a DNSP will engage during the planning, development and operational stages of a SAPS project.

Second, DNSPs should be required to provide formal, public notice to affected parties of the intent to proceed with a SAPS solution. The notice would include a request for submissions and DNSPs would be required to have regard to any submissions received. An outline of potential formal SAPS consultation provisions is included in Box 6.

BOX 6: **FORMAL SAPS CONSULTATION PROVISIONS**

The formal SAPS consultation provisions could be designed as follows:

- A DNSP who has identified a SAPS as providing an efficient alternative to grid supply for a customer (or group of customers) will be required to give at least six months' notice of the proposal to transition a customer (or group of customers) to SAPS supply, to the following parties:
  - every customer affected by the proposal
  - if the landowner is not the customer, the landowner, and
  - the public in the area in which the SAPS will be located.
- The notice to each affected customer and any landowner must:
  - outline the proposal, and
  - give the customer and any landowner a reasonable period in which to comment on the proposal.
- The notice to the public must be by way of a notice:

- published on its website and in a newspaper that is published at least weekly and that circulates in the area to which the proposal relates, and
- that outlines the proposal and specifies the time within which any person may comment on it.

The inclusion of formal consultation requirements in the NER will support DNSPs in making sure that relevant information on SAPS projects is made accessible to all parties who may be affected by a decision to transition a customer(s) to SAPS supply. It also provides key stakeholders with an ability to participate in the consultation process – this is particularly important in the absence of an explicit consultation process for projects which are not subject to the RIT-D.

In addition, the formal SAPS consultation provisions will provide a safeguard against concerns that a DNSP has not consulted widely enough or released sufficient information to the public in respect of a potential SAPS project.

4 NEW CONNECTIONS AND RECONNECTION

RECOMMENDATION 2: FACILITATING EFFICIENT CONNECTIONS

The Commission has considered whether DNSPs should be permitted to provide new connections via SAPS, and whether customers who have been transitioned by a DNSP to a SAPS should be allowed to reconnect to the interconnected grid and the Commission has made a number of recommendations in this regard.

First, the Commission considers that new customer connections to new SAPS should be provided by the competitive market, rather than by DNSPs. A DNSP's ring-fenced affiliate would be able to provide SAPS to new customers, at cost reflective pricing. This means that new customers connecting to a new SAPS will be unable to access cross- or direct subsidies arising from DNSP supply.

Second, DNSPs should be allowed to provide an offer to connect to an existing DNSP-led SAPS, where the connection to the DNSP-led SAPS would be more efficient than connecting to the interconnected grid.

Third, the Commission considers that DNSPs' current connection policies, including cost allocation and capital contribution policies, can be extended to DNSP led-SAPS. Doing so will address issues associated with the allocation of costs to facilitate the connection of new customers to existing DNSP SAPS and with increases in the loads of an existing DNSP-led SAPS customers.

Fourth, the Commission considers that SAPS customers should have no special right of reconnection to the interconnected grid once transitioned to a SAPS by a DNSP. In addition, the Commission considers it appropriate that DNSP-led SAPS be considered to be part of a DNSP's ~~'~~ network~~s~~. Customers supplied via a DNSP-led SAPS would therefore be considered as being connected to the DNSP's distribution network.

4.1 Background

Customers are currently able to establish their own individual power systems at a new property as an alternative to paying for a connection to the grid. They are also able to disconnect from the interconnected grid and to arrange their own power supply (with some restrictions).

Most customers who are currently grid-connected do not face price incentives to move to off-grid supply where it would be efficient for the grid as a whole for them to do so. Current grid-connected customers in remote areas are only likely to move to off-grid supply if it is no more expensive than their current tariff. The tariffs paid by most grid-connected remote customers do not reflect the high costs of supplying those specific customers. Instead, tariffs tend to reflect the average cost of supplying power to all customers in the DNSP's area.

Given existing tariff structures and cross-subsidies, remote grid-connected customers are unlikely to choose to move to off-grid supply provided by a competitive provider, even when there would be economic benefits for consumers overall. For this reason, it would be efficient to allow DNSPs to facilitate the provision of SAPS for currently connected customers as a regulated service where competition is not practicable and off-grid supply would be cheaper than maintaining a grid connection.

Conversely, new customers without a grid connection are likely to have a financial incentive to obtain off-grid supply from the competitive market where the cost of establishing a grid connection (which could be quite costly for remote customers) is more expensive than obtaining off-grid supply.

New customers, and customers who have previously chosen to disconnect from the interconnected grid, can request a DNSP to provide an offer to connect the customer to the DNSP's local network.[109] Although the DNSP is required to provide an offer to connect, the customer is required to pay the full costs of extending the network to connect to their premises, and some portion of any costs required to augment the shared network, if applicable. If a customer connection contract (including connection costs) is agreed, under the NERL the DNSP is then required to provide connection services in accordance with the relevant contract.[110]

Customers who have chosen to disconnect from the interconnected grid currently have the same rights as any customer wishing to connect to the grid, should they wish to reconnect to the grid. However, the purpose of developing a national framework for SAPS facilitated by DNSPs is to capture the efficiency benefits associated with supplying a customer, or group of customers, via a SAPS rather than continuing to supply those customers via the interconnected grid. The establishment of a SAPS is therefore based on an assumption that the existing assets connecting those customers to the grid will be either taken out of service or removed completely. Nevertheless, the terms of reference of this review also requested the Commission consider the rights of customers to reconnect after transition to a DNSP-led SAPS.[111]

4.2 Commission's draft position

4.2.1 New connections

In the draft report the Commission considered that DNSP-led SAPS should be restricted to current grid-connected customers. The Commission was concerned about the potential impacts on the development of the competitive market of DNSPs supplying new connections by means of new DNSP SAPS, as well as the potential for new connections by DNSPs to exacerbate cross-subsidies paid by other electricity consumers or subsidies paid by some jurisdictional governments. This recommendation was consistent with the position outlined in the Western Power rule change.

109 NER Chapter 5A.
110 NERL s. 66.
111 Terms of reference, p. 6.

However, the Commission noted the risk that, if customers are not able to connect to existing DNSP-led SAPS, overall efficiencies may be lost by requiring the DNSP to offer an inefficient grid connection. To address this risk, the Commission suggested that DNSPs should be allowed to fulfil their connection obligations by providing a connection offer for a new connection to a pre-existing DNSP-led SAPS, where it is more efficient to do so than to connect that customer to the interconnected grid. An approach of redefining the DNSP's network to include pre-existing stand-alone systems was proposed.

It was proposed that if there are any scenarios in which DNSP-led SAPS should be allowed for new connections, for example where there is no competitive provision of SAPS in very remote areas, these could be determined by the AER. A suggested approach was that the provision of new SAPS systems for new connections could be a ring-fenced activity, in which case the AER would have the ability to waive ring-fencing restrictions in certain circumstances.

4.2.2 Reconnection

In the draft report the Commission indicated it was considering recommending that DNSP SAPS should be included within the definition of DNSP's distribution networks (or otherwise treated equivalently in the rules). This would negate the need for revised reconnection policies as a customer who is supplied electricity from a DNSP-led SAPS would not be classified as disconnected whilst being supplied via a DNSP-led SAPS. Disconnection would only occur if the customer was disconnected from the DNSP-led SAPS, and the customer's right of reconnection would be determined by the most efficient reconnection to the DNSP's network, which would likely be to the DNSP-led SAPS.

Under this approach, if the SAPS was not meeting quality of supply standards, then the DNSP would be required to repair or upgrade the SAPS in the same manner it would be required to repair or upgrade its local network supply, with the same service standards and consumer protections applying to DNSP-led SAPS as to the interconnected grid. It is unlikely that the SAPS could not be repaired or upgraded to achieve satisfactory standards. If for any reason it was more efficient to reconnect the customer to the interconnected grid than to continue proving supply to the SAPS, the DNSP could reconnect the customer to its interconnected network.

The Commission recommended that the DNSP should be required to communicate extensively with the customer prior to transitioning the customer to a SAPS. Certain information would be required to be provided to the customer prior to the transition, including that the SAPS is considered part of the DNSP's network with the same service standards and consumer protections, and importantly, that the customer has no right of reconnection back to the interconnected grid.

4.3 Stakeholder views

4.3.1 New connections

In submissions to the draft report stakeholder views on whether new customers should be eligible to connect via a new DNSP-led SAPS were divided, as they were in submissions to the

issues paper. Views continued to range from all SAPS for new customers being required to be procured from the competitive market, SAPS being able to be provided by DNSPs for new customers in specific circumstances only, through to DNSPs being able to provide SAPS to new customers whenever it is more efficient than connecting the customer to the grid.

In relation to the Commission's draft recommendation to redefine the DNSP's network to include DNSP-led SAPS, allowing DNSPs to connect new customers to a pre-existing SAPS if efficient, stakeholders were overwhelmingly supportive. However, the AER suggested that broader scenarios be considered and that the connection costs a customer would incur when connecting to an existing DNSP-led SAPS be clarified. The AEC's submission was the only one which expressed some concerns on allowing new connections to pre-existing SAPS, due to the potential impacts this may have on the competitive processes.[112]

The AER in its submission considered it was preferable for new customers to continue to face incentives to procure a SAPS from a competitive provider in place of a grid connection, as did the South Australian Department for Energy and Mines and the AEC. The South Australian Department for Energy and Mines noted that it did not foresee circumstances in which DNSP provision of SAPS to new customers is needed.[113]

In contrast, TasNetworks and Energy Queensland considered that DNSPs should be allowed to supply new customers via a DNSP-led SAPS where it is efficient to do so, with TasNetworks noting this could in some cases eliminate unnecessary augmentation expenses. Energy Queensland considered that a competitive market for provision of SAPS will be not be stalled by DNSPs providing SAPS for new connections.[114]

The ENA and a number of individual DNSP submissions expressed views that DNSPs should be able to offer customers new connections via a DNSP SAPS in certain circumstances. ENA noted in its submission that although most new customers would face price signals to procure their own SAPS, there were some situations were it may be appropriate for DNSPs to provide a SAPS to fulfil its connection obligations, for example, where a customer wishes to be connected to access the associated regulatory protections, and provision of a DNSP-led SAPS would be more efficient.[115]

In its submission Ausgrid noted that under NSW contestability arrangements new connection assets are paid for by customers in the competitive market. In its view, these arrangements would help drive innovation and competition for SAPS. The customer could then chose to gift the new assets to the DNSP, with the DNSP then efficiently continuing to operate and maintain the SAPS, levering the existing economies of scale and scope of the DNSP.[116]

A number of DNSP submissions expressed the view that in areas where there is no effective competition, ring-fencing waivers allowing DNSPs to supply new customers with a SAPS

112 Submissions to the draft report: AER, p. 3; SA Government, pp. 3-4; AEC, p. 2; Spark Infrastructure, p. 3; Endeavour Energy, p. 3; ENA, p. 3.

113 Submissions to the draft report: AER, p. 3; SA Government, p. 3; AEC, pp. 2-3.

114 Submissions to the draft report: TasNetworks; p. 4; Energy Queensland, p. 2, 5-6.

115 ENA, submission to the draft report, p. 3.

116 Ausgrid, submission to the draft report, p. 4.

would be appropriate. Further, Energy Queensland suggested that a ring-fencing waiver should be automatic in remote areas where there is no competition.[117]

4.3.2 Augmentation

The issue of augmentation of a DNSP SAPS where the customer's load has substantially increased was raised by Tesla in its submission, with Tesla querying who would be responsible for augmentation of the SAPS. Tesla noted in many circumstances where a grid-connected customer's load increases, the customer will simply be faced with additional usage charges. If a customer who is connected to a SAPS has a major increase in load, this may require the SAPS capacity being upgraded, incurring augmentation costs.[118]

4.3.3 Reconnection

Stakeholders that addressed the issue of reconnection in submissions were overwhelmingly supportive of the Commission's draft recommendation to redefine the DNSP's network to include DNSP-led SAPS, with customers who have been transitioned to DNSP-led SAPS consequently not considered to be disconnected. The ENA supported this approach as the efficiency benefits of a DNSP-led SAPS are retained without the risk that those customers will seek to reconnect to the grid and likely incur significant cost-reflective connection charges.[119]

In further comments supporting this approach, Energy Queensland noted the importance of being able to remove the part of the grid that the SAPS is replacing, and that customers will receive equivalent consumer protections, reliability and security standards as grid-connected customers. TasNetworks noted the importance of robust consultation including informing customers that there is no right of reconnection back to the interconnected grid.[120]

4.4 Commission's analysis and final position

4.4.1 New connections

The Commission remains of the view that new connections via new SAPS should be provided by the competitive market and not via DNSP-led SAPS. Unlike the interconnected grid the provision of SAPS to new customers does not exhibit natural monopoly characteristics. Therefore, where price incentives exist for the customer to procure a SAPS rather than connect to the interconnected grid, the SAPS should be supplied by the competitive market.

This position aligns with the Commission's recommendation in the final determination for the Western Power rule change that new connections should be supplied with SAPS by the competitive market, rather than by a DNSP. Only customers with no incentive to go off-grid, that is currently connected customers receiving cross-subsidies, should be eligible to be supplied by a DNSP-led SAPS.[121]

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117 Submissions to the draft report: Endeavour Energy, p. 2; Energy Queensland, p. 6.

118 Tesla, submission to the draft report, p. 4.

119 Submissions to the draft report: ENA, p. 4; TasNetworks, p.4; Energy Queensland, p. 7; Spark Infrastructure, p. 3, Endeavour Energy, p. 1.

120 Submissions to the draft report: Energy Queensland, p. 7; TasNetworks, p. 4.

121 AEMC, *Alternatives to grid-connected network services*, rule determination, 19 December 2017, p. 49.

The Commission considers it is likely that a DNSP IPS will be a very different proposition, and cost, to one procured from the competitive market. Although it is likely that some consumer protections and safety regulations will be placed on third-party SAPS, the full suite of consumer protections may not apply.[122]Therefore, a DNSP IPS is likely to be at a higher price point than many other third-party IPS, and is unlikely to materially impact the competitive market for new SAPS. The issue of cross and direct subsides, however, remains a concern for the Commission, as they would be exacerbated if DNSPs are allowed to provide new connections via new SAPS.

The Commission has considered an approach similar to the NSW contestability framework where the customer would be responsible for procuring a SAPS from the competitive market, and could then gift the connection asset to the DNSP, with the DNSP then responsible for the ongoing maintenance and operation of the system. This approach would allow those customers to access the consumer and other protections of grid connection. The Commission acknowledges this would somewhat mitigate against the concern that DNSPs providing SAPS for new connections would adversely impact the competitive market for SAPS. Although this approach would not initially increase cross subsidies or direct subsidies, the Commission is concerned that ongoing operation and maintenance costs may increase cross subsides. Additionally, SAPS have a much shorter asset life than most components of the traditional interconnected grid, and once the asset is at the end of its useful life the DNSP will be responsible for replacing the SAPS, with costs smeared over all customers. Consequently, the Commission is not recommending allowing customers to procure SAPS in the competitive market and gift them to the DNSP.

Although the Commission is recommending that DNSPs should not be allowed to provide SAPS for new connections, a ring-fenced DNSP affiliate would be able to offer SAPS to new connections, with some transparency and competition benefits. Customers supplied by a ring-fenced DNSP affiliate would not be able to access cross subsidies.[123] However, the requirements relating to separate offices and separate staff for services supplied by ring-fenced affiliates may be waived under the regional office exemption if there are less than 25,000 connection points within a 100 kilometre radius of the relevant office. The AER may also waive those requirements on other grounds, on application from the DNSP.[124] The regional office exemption, or a waiver of the requirements for separate offices and separate staff on other grounds, would allow the DNSP to share staff and office space with its ring-fenced affiliate that supplies SAPS to new customers. Given these existing provisions, the Commission does not consider that an additional automatic exemption for the provision of SAPS in specific rural areas is warranted.

122 The Commission will further consider these issues as it progresses with Priority 2 of its review of the regulatory framework for SAPS. Priority 2 addresses third-party SAPS (i.e. SAPS provided by parties other than DNSPs).

123 See section 3 of the AER's *Ring-fencing Guideline - Electricity Distribution*, v.2 October 2017 (Ring-fencing guideline). No waivers can be granted for the requirements regarding separate accounts and cost allocation.

124 Ring-fencing guideline~~s~~, sections 4.2.1(b)(iii), 4.2.2(b)(iii), 5.

New connections to existing DNSP-led SAPS

If DNSP-led SAPS for existing customers are classified as part of the DNSP's network, then the DNSP would be able to offer to connect customers to its pre-existing DNSP-led SAPS, in the same manner as it would for its main distribution network. This will most likely be in the form of connections to existing DNSP-led microgrids, but could also include connecting to pre-existing DNSP individual power systems, which could be developed into microgrids to supply additional customers.

The Commission considers that allowing DNSPs to offer to connect new customers (those that did not previously have a connection either to the interconnected grid or to a DNSP SAPS) to existing DNSP-led SAPS where it is more economically efficient than a connection to the interconnected grid is appropriate as the existing DNSP-led SAPS were provided to customers when they transitioned from the interconnected grid, replacing that part of the interconnected grid. The Commission acknowledges that this may not be appropriate in all situations, for example, when the existing DNSP-led SAPS is an IPS located on another customer's property, and the customer with the existing DNSP-led SAPS does not give the DNSP permission to use their land to augment the existing SAPS and connect a new customer. However, there may be situations where this is appropriate, for example to connect to a DNSP-led microgrid, or an IPS which is located on an easement. Further, the DNSP could potentially negotiate with the customer for permission to use their property for the purposes of providing a new connection to the DNSP-led SAPS.

If a new connection is made to a DNSP-led SAPS the cost allocation between connection and augmentation requires consideration. The Commission considers that connection and augmentation costs should be allocated in the same way as for new connections to the interconnected grid. Therefore, the connection from the existing DNSP-led SAPS to the new connection point would be payable by the customer, and any costs to augment the SAPS to facilitate the new connection would be apportioned in the same way between the customer and the DNSP as for connection to the interconnected grid.

Consequently, the Commission recommends allowing DNSPs to offer to connect new customers to existing DNSP-led SAPS where it is more economically efficient than connecting to the interconnected grid.

4.4.2 Augmentation

The Commission has also considered the allocation of costs where the customer's load has increased, resulting in augmentation of the SAPS being required to increase the SAPS' capacity. Currently grid-connected customers are entitled to draw a certain capacity at their premises, without incurring augmentation charges. Once the load threshold is passed (which differs depending on the DNSP and, in some cases, by whether the customer is classified as urban or rural), customers are required to fund any shared network augmentation. For example, for a customer requesting connection to Ausgrid's distribution network the

threshold in an urban area is 100Amps per phase, and a rural area is 25kVA single phase, after which a customer must contribute to the cost of any required network augmentation.[125]

The Commission considers it is reasonable for DNSPs to apply their connection policies to DNSP SAPS in the same manner as they would for grid-connected customers. This would mean that if a customer who is supplied by a DNSP-led SAPS increases their load to a level that requires the capacity of the SAPS to be augmented, but remains below the capital contribution threshold, the DNSP would be required to increase the capacity at no additional cost to the customer. If the customer increases their load above the applicable threshold, the customer will be required to make a capital contribution for any capacity above that threshold, in line with the DNSP's existing connection policy.

4.4.3 Reconnection

The Commission recommends that customers who have transitioned to a DNSP-led SAPS should have no special right of reconnection to the interconnected grid. The Commission considers that redefining the DNSP's network to include DNSP-led SAPS would negate the need for revised reconnection policies as a customer who is supplied electricity from a DNSP-led SAPS would not be classified as disconnected whilst being supplied via a DNSP-led SAPS. Disconnection would only occur if the customer was disconnected from the DNSP-led SAPS (as well as from the interconnected grid), and the customer's right of reconnection would be determined by the most efficient reconnection to the DNSP's network, which would likely be to the DNSP-led SAPS.

The Commission considers this would be appropriate as the DNSP-led SAPS will be subject to the same consumer protections, safety, technical and reliability standards, as well as network regulation as the DNSP's interconnected network. As noted in the draft report, the DNSP would be required to repair or upgrade the SAPS in the same manner it would be required to repair or upgrade its local network supply area if quality of supply obligations are not being met. It is unlikely that the SAPS could not be repaired or upgraded to achieve satisfactory standards. If for any reason it was more efficient to reconnect the customer to the interconnected grid than to continue providing supply via the SAPS, the DNSP could reconnect the customer to its interconnected network.

If connection assets that were decommissioned and removed when the customer was transitioned to a DNSP-led SAPS would need to be replaced to 'reconnect' a customer this would negate the efficiency of providing the customer with a DNSP-led SAPS. Additionally, reconnecting the customer to the interconnected grid would likely be at large cost, incurred either by the individual customer, or customers as a whole if costs are smeared.

As noted early in this chapter, the Commission recommends that the DNSP should be required to communicate extensively with the customer prior to transitioning the customer to a SAPS. This should include providing information that the SAPS is considered part of the DNSP's network with the same service standards and consumer protections, and importantly, that the customer has no right of reconnection back to the interconnected grid.

125 Ausgrid, *Connection policy - connection charges,* July 2018, pp. 8-9.

5 SAPS SERVICE DELIVERY MODEL

RECOMMENDATION 3: SAPS SERVICE DELIVERY MODEL

The SAPS service provided to a customer (or group of customers) incorporates a suite of activities and services including local generation services, network services and retail services, as well as supporting services such as metering. This raises questions of how to define and allocate responsibility for these services, and whether this should be different to existing arrangements in the NEM.

Throughout this review, the Commission has considered a number of options for arrangements to support the delivery of SAPS activities and services, including retail services, to SAPS customers. This includes a number of options put forward by stakeholders.

Having considered these options in detail, the Commission has concluded that the delivery of the SAPS service to a customer (or group of customers) would best be supported by the existing wholesale energy market arrangements, including AEMO's settlement system.

However, rather than utilising the five-minute wholesale market spot price to settle the delivery of energy to SAPS customers, the Commission considers that retailers should be charged an administered settlement price for that energy.

Utilising the existing wholesale energy market arrangements makes it feasible for the SAPS retail service to be provided by competing grid retailers, thus allowing SAPS customers to maintain their relationships with existing retailers, and to retain their existing retail offers. This supports the seamless transition of existing grid-connected customers to SAPS and enables SAPS customers to be left no-worse-off in terms of price, following the transition to SAPS supply. It also negates the need for DNSPs to seek consent from customers for their transition to SAPS.

In addition, utilising an administered settlement price removes retailer risk associated with price volatility in the spot market and therefore also the need for retailers to hedge SAPS customer load with NEM generators. Further, settling the energy delivered to SAPS customers using an administered price removes any incentive for retailers to send SAPS customers wholesale price signals which are not consistent with minimising the cost of their SAPS.

The key features of the Commission's recommended SAPS service delivery model are described further in this chapter.

5.1 Background

How to define and allocate responsibility for the suite of services required to provide customers with the broader SAPS service, including generation, network and retail services, has been a key focus of this review.

A SAPS can be thought of as providing both a generation service and a network (or network substitution) service, in a similar way to a generator providing a non-network solution to a DNSP currently does. The difference for a SAPS is that it is providing a total, as opposed to a partial, substitute for the network activity.

As such, it may be possible for the suite of services required to supply a customer via a SAPS to all be provided by a DNSP or, on the DNSP's behalf, as a single service by a single proponent or as separate services by a number of proponents. Alternatively, a number of separately identifiable services may be provided to end consumers through the nexus of an authorised retailer, in a way more similar to existing NEM arrangements.

Precisely which services are required to supply customers via a SAPS, and in particular which services would be provided by DNSPs as distribution services, could depend on a number of factors, including the location, scale and complexity of the SAPS, the feasibility of retail competition and restrictions on DNSP ownership and/or operation of certain assets.

There are a myriad of possible models for SAPS service delivery, and a key question for this review has been whether a national framework should be designed to support one approach to SAPS service delivery (which could accommodate various circumstances) or whether it is appropriate to focus on establishing a framework that supports multiple approaches to SAPS service delivery, depending on the circumstances at hand (for example, the degree of SAPS penetration).

In developing and assessing the possible options for SAPS service delivery, the Commission has had regard to the potentially complex flow of payments between the customer and the DNSP, and any other parties responsible for providing the different services within a SAPS.

In all cases, the objective has been to develop SAPS service delivery arrangements which enable customers who are transitioned to SAPS by a DNSP to continue to receive distribution charges equivalent to the cross-subsidised price they currently pay for distribution services.

Provision of retail services

While connected to the grid, customers are able to switch retailers at any time, including when another retailer provides a more attractive offer.[126] Retail competition can play a valuable role in keeping prices down and in providing innovative services tailored to customer preferences.

A key issue for this review has therefore been whether it is possible, practical and efficient for SAPS customers to retain their current retailer, retail offer and access to retail competition (in jurisdictions where there is retail competition). Where this is feasible, it may make sense to utilise the existing retail market arrangements to support the supply of energy to SAPS customers.

However, where it is determined to be impractical or inefficient to retain existing retail arrangements, the creation of a new model of retail service provision would be necessary. This model would need to be designed to continue to provide SAPS customers with

126 In practice, the extent of retail competition varies between jurisdictions. There is currently limited retail competition for small customers in regional Queensland and in Tasmania.

equivalent price, and other, protections. This is likely to require retail price regulation. In order to retain existing consumer protections, the Commission considers it would be appropriate for retail services to be managed by an authorised retailer.

5.2 Commission's draft position

In the draft report for the review, the Commission presented two illustrative options for SAPS service delivery to facilitate further discussion and illustrate how the ongoing supply of electricity to customers supplied via SAPS could work.[127] The two options were included in the draft report to stimulate discussion around the trade-offs involved in providing for customers transitioned to a SAPS to continue to access the benefits of the competitive retail market now and into the future.

In summary, the 'NEM consistency option' primarily sought to preserve customers' access to the competitive retail market, allowing SAPS customers to retain their current retail offer and relationship with their existing retailers in order to make the transition to SAPS service delivery as seamless as possible. This option utilised the existing wholesale energy market arrangements, including the settlement system, in order to minimise the need for, and cost of, new systems.

In contrast, the 'integrated service delivery option' assumed that existing NEM arrangements were not optimal for SAPS supply and that the arrangements for SAPS providers should reflect any efficiency benefits available through services being provided by specialised, integrated service providers. However, as such, the arrangements under this option necessarily diverged from current NEM retail and wholesale settlement arrangements, with the implication that SAPS customers would not have been able to retain their current retailer and retail offer.

The suitability of the two options presented was somewhat dependent on the level of adoption of SAPS by distribution businesses, and both options had clear advantages and disadvantages.

Appendix A considers the two illustrative SAPS service delivery options in detail, as well as a number of other approaches to SAPS service delivery suggested by stakeholders over the course of this review.

BOX 7: TERMINOLOGY USED TO DESCRIBE THE SAPS SERVICE DELIVERY OPTIONS

The essential design element that differentiates the illustrative SAPS service delivery options put forward by the Commission in the draft report relates to price – specifically, the price charged (or cost imposed) to the customer-facing party (the retailer) for the energy it delivers to the SAPS customer.

127 AEMC, *Review of the regulatory frameworks for stand-alone power systems*, Draft report, 18 December 2018, section 4.4.

In each model, this essential design element makes it possible to achieve the model's primary objective. It also has implications for a number of the other design elements, referred to below as the *distinct elements* of each of the models.

In addition to the essential and distinct design elements, there are a number of common elements which would have the same design under each of the service delivery options considered. These common elements include matters such as the setting and measurement of reliability standards, the rights of reconnection, the approach to the classification of SAPS services etc. The Commission's final recommendations in respect of the common elements are considered in chapters 3, 4, 6 and 8 of this report.

The essential design element and, where relevant, the distinct design elements, of each of the SAPS service delivery models considered by the Commission as part of this review, are discussed further in the next sections.

5.3 Stakeholder views

Broadly half of the stakeholders who responded to the draft report expressed either a preference or in-principle support for the NEM consistency service delivery option.[128] In many cases, this was driven by a desire to implement arrangements which were customer focussed and as least disruptive as possible to both the market and to customers being transitioned to SAPS supply.

The other half of the stakeholders expressed a preference for an integrated approach to SAPS service delivery.[129] The views of a number of these stakeholders appeared to be influenced by a general desire to see arrangements implemented which would more easily support the optimal design and use of SAPS.

A number of stakeholders also proposed variations of, or alternatives to, the two options put forward by the Commission in the draft report, in an effort to address some of the disadvantages of the options, while continuing to capture the benefits. A summary of these options is provided in table 5.1 below with a more detailed overview provided in Appendix A.

Table 5.1: Alternative options proposed in submissions

ALTERNATIVE OPTIONS	DEFINING FEATURES
AusNet Services NEM consistency model with DNSP ownership of SAPS	• Utilise existing wholesale and retail market arrangements • Existing retailer-customer relationships would be maintained • DNSPs would own and operate SAPS

128 Submissions to the draft report: SA Government, p. 5; AGL, pp. 3-4; TasNetworks, pp. 2, 5; Red and Lumo, p. 1; ENGIE, pp. 3-4; AEC, p. 4; AEMO, p. 2.

129 Submissions to the draft report: Energy Queensland, pp. 8-9; Endeavour Energy, pp. 1-3; Erne Energy, p. 3; Spark Infrastructure, p. 4; Ausgrid, pp. 4-5; Horizon Power, p. 1; TEC, p. 2.

ALTERNATIVE OPTIONS	DEFINING FEATURES
Essential Energy NEM consistency model with SAPS generation costs reflected in DUOS charges	• Utilise existing wholesale and retail market arrangements • Existing retailer-customer relationships would be maintained • The wholesale settlement price would be set at zero • Costs of SAPS generation would be recovered through a DUOS charge that includes the costs of the SAPS • SAPS DUOS charge would be capped to ensure no worse objective could be met
PIAC NEM consistency model with zero wholesale price	• Utilise existing wholesale and retail market arrangements • Existing retailer-customer relationships would be maintained • The wholesale settlement price would be set at zero
SA Government NEM consistency with average monthly spot price	• Utilise existing wholesale and retail market arrangements • Existing retailer-customer relationships would be maintained • The wholesale settlement price would be set at the average spot price for each month
Essential Energy NZ approach to SAPS	• Based on the Base Power product provided by PowerCo NZ • DNSPs would own and maintain SAPS • Customers would pay a maintenance fee to the DNSP and purchase own diesel • No role for a retailer
PIAC Payment from DNSP to cede grid-connection	• Customers offered the opportunity to cede their entitlement to existing grid supply in exchange for a payment from the DNSP • Customer would own SAPS or lease SAPS from a third party • DNSP has no further role

5.4 Commission's recommended SAPS service delivery model

Having analysed the two illustrative SAPS service delivery options, and having considered the range of variations of, and alternatives to, these options put forward by stakeholders, the Commission believes that the best approach to the delivery of the SAPS service is through a NEM consistent approach which utilises an administered settlement price charged to retailers for the delivery of energy to SAPS customers.

This section provides a description of how the Commission's recommended model – the 'NEM consistency (administered settlement price) model' – would operate, and the reasons for the Commission's decision. In some places, the descriptions are relatively high-level recognising

that detailed drafting of the regulatory framework for SAPS in the NER and NERR, including the service delivery option, will be developed as part of the next stage of work on these reforms.[130]

5.4.1 Overview

The essential element of the Commission's recommended service delivery model is that the customer-facing party would be charged an administered settlement price for the energy it delivers to the customer. Existing wholesale energy market arrangements, including the settlement system, will be used, amended as necessary to provide for the SAPS specific settlement price.

Utilising the existing wholesale energy market arrangements makes it feasible for the SAPS retail service to be provided by competing grid retailers, thus allowing SAPS customers to maintain their relationships with existing retailers, and to retain their existing retail offers. This supports the seamless transition of existing grid-connected customers to SAPS and ensures that SAPS customers are no-worse-off in terms of price, following the transition to SAPS supply.

Further, utilising an administered settlement price (rather than the spot price) would remove retailer risk associated with price volatility in the spot market and hence also the need for retailers to hedge SAPS customer load with NEM generators. It also removes the risk of customers receiving price signals which are not consistent with the optimal use of SAPS.

The distinct elements of the Commission's recommended option are as follows:

- Existing retailers would continue to provide retail services to SAPS customers based on current retail service offerings.
- Retailers would not be exposed to wholesale spot price risk for SAPS customers and therefore would not hedge price risk with NEM-based generators.
- SAPS generators would be chosen by DNSPs through a tender (or equivalent) process.
- SAPS generators would receive the administered settlement price plus a payment similar to a network support payment consistent with the agreed competitive tender price for providing SAPS generation services.[131]
- Based on the flow of payments to the SAPS generators, the existing ring-fencing requirements would be expected to apply meaning that DNSPs would outsource the provision of the SAPS generation functions to third-party providers (noting that the AER may, and does, grant exemptions for reasons such as geographic remoteness).
- DNSPs would continue to provide network services over the SAPS grid, with network assets included in the RAB.

130 However, the Commission has prepared proposed drafting instructions for changes to the NEL and NERL to allow for this SAPS service delivery model - see Chapter 9 and Appendix C.

131 It is possible to design the arrangements such that AEMO would pay the administered settlement price to the DNSP (rather than directly to the SAPS generator). The DNSP would then make a combined payment to the SAPS generator, equivalent to the administered settlement price plus the SAPS generation support payment. The optionality around this design feature will be considered further during the rule drafting stage of the review.

- DNSPs would receive funding for the payment made to SAPS generators, and for any expenditure required for the distribution service, through existing regulatory mechanisms.
- Existing metering roles, responsibilities and processes would be utilised, potentially with minor changes.
- Changes would be required to AEMO's settlement systems to allow SAPS retailers and generators to be settled at the administered settlement price, rather than the wholesale market spot price.

Consistent with the Commission's two illustrative SAPS service delivery models, the savings associated with the provision of SAPS by a DNSP would be socialised over all of that DNSP's customers, consistent with the EBSS and CESS.

5.4.2 Delivery of SAPS functions

Provision of retail functions

The provision of retail services, including billing and customer management services, to customers who have been transitioned to SAPS supply would continue to be facilitated via the competitive retail market.

This means that SAPS customers would be able to retain their existing retailer and retail offer. In areas where there is effective retail competition, SAPS customers would be able to choose and switch retailers at any time, including when another retailer provides a more attractive offer. In areas without effective retail competition, customers would continue to pay the jurisdictionally-regulated retail price.

Provision of generation functions

The distinguishing feature of SAPS is that they are capable of supplying a customer (or group of customers) with energy that is generated and controlled at the local level, from a unit which operates autonomously and which is not connected to the interconnected grid. The generation of electricity is therefore a key feature of the service provided by means of SAPS assets (and associated services).

Under the Commission's recommended option, where ring-fencing restrictions apply, DNSPs would outsource the provision of the SAPS generation functions and sub-functions to third-party providers, including possibly to DNSP ring-fenced affiliates. However, DNSPs would remain responsible for ensuring compliance with all relevant distribution obligations, including jurisdictional reliability standards.[132]

Provision of SAPS distribution functions

As noted previously, a SAPS can be thought of as providing both a generation service and a network (or network substitution) service, similar to a generator providing a non-network solution to a DNSP. However, where multiple properties are provided with a SAPS service via a microgrid, this distribution network role is substantive and meaningful. In an APS, there

132 Reliability standards in the context of SAPS are discussed in section 7.3.

may be no traditional network assets. Under the Commission's recommended option, the distribution network function would continue to be provided by the DNSP in all cases.

Provision of metering functions

In the NEM, retailers are typically responsible for arranging metering services for their residential and small business customers. A retailer must appoint a 'metering coordinator' for each of its customers' connection points. In general, the retailer provides instructions to the metering coordinator for any metering work needed by the customer. The metering coordinator is then responsible for the provision of metering services and all issues related to the metering installations for which it has been appointed.

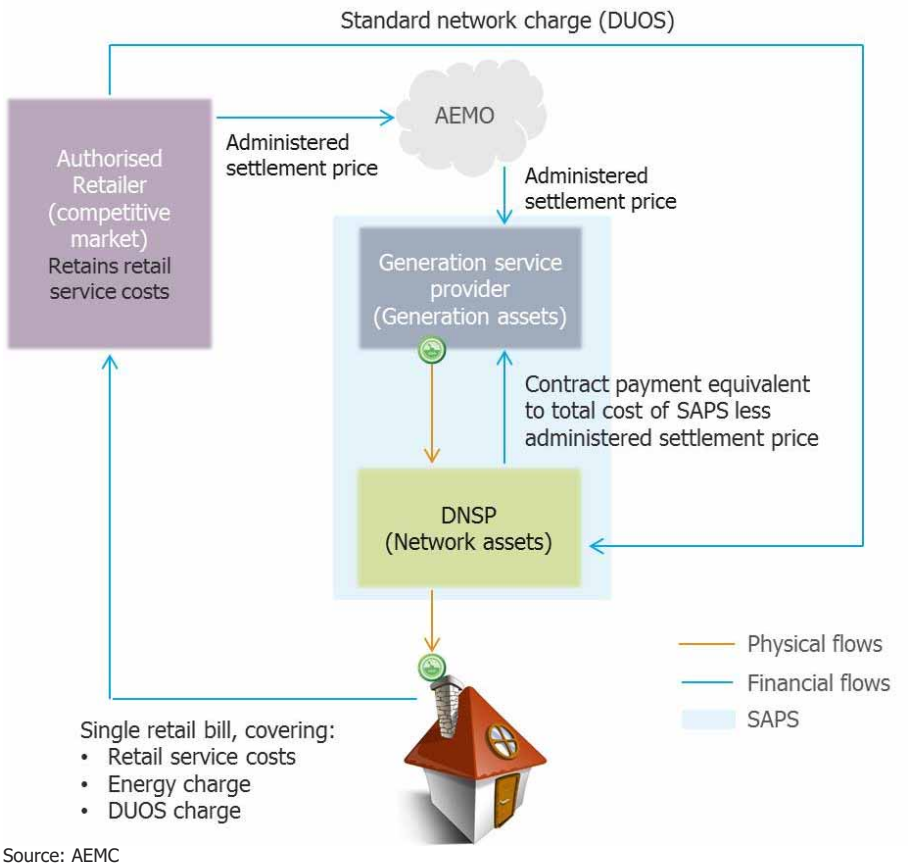
Under the Commission's recommended SAPS service delivery option, it is assumed that the provision of metering services to SAPS customers would continue to be provided by a metering coordinator appointed by the SAPS customer's retailer, consistent with existing arrangements in the NER.

In order for a DNSP to be able to appropriately design and size a SAPS, SAPS customer load would need to be monitored prior to the installation of a SAPS on the customer's property. This may require the installation of an advanced meter on the customer's premises which, in turn, may require DNSPs to negotiate with the customer's retailer and metering coordinator to arrange for the deployment of such a meter. Alternatively, DNSPs may be able to install a network device adjacent to a customer's existing meter to enable it to monitor the customer's load for the purpose of appropriately designing and sizing the SAPS.

5.4.3 Financial flows

The figure below highlights the financial flows of the NEM consistency (administered settlement price) option.

Figure 5.1: NEM consistency (administered settlement price) model



Source: AEMC

The SAPS customer would continue to pay its existing retailer (under its existing retail contract) who, in turn, would forward the standard network charges to the DNSP and would settle the energy delivered to SAPS customers with AEMO at the administered settlement price.

The SAPS generator would also receive an energy payment from AEMO at the administered settlement price, together with a make-whole payment from the DNSP consistent with the contractual arrangements for SAPS generation services between the DNSP and the SAPS generator.[133]

The above figure also includes a separate element highlighting the potential role of the DNSP as the SAPS network service provider. This service is unlikely to be substantive for individual power systems, but is likely to be required for microgrids.

133 Alternatively, the administered settlement price might be paid directly to the DNSP, with the DNSP then paying for the whole cost of the generation service through the contract.

5.4.4 Key matters for consideration

Establishing the administered settlement price

To manage their financial risks and have more certainty over wholesale energy costs, retailers enter into various wholesale hedging contracts. These contracts fix (in whole or in part) the wholesale price retailers pay for electricity over the course of a year, or several years. Retailers then fix their retail prices to customers to allow for the recovery of their total costs to serve, including their hedging costs.

To remove price risk altogether, while preserving a NEM consistent approach as much as possible, the price at which SAPS customers are settled would need to be set at or below retailers' costs of hedging, with as much certainty as possible.

Given that the cost of hedging varies between retailers depending on their risk preferences and hedging strategies, achieving this objective would require the administered price to be set equal to or less than the price at which the most efficient retailer is able to hedge its SAPS customer load. This would ensure that all retailers were incentivised to continue to supply SAPS customers under their existing retail offers.

One possible approach to determining and implementing the administered settlement price would be to include a relatively simple formula in the rules which would set the price to apply for a specified period (for example, one year). AEMO could be required to notify the market a certain amount of time in advance of the wholesale price to be applied to SAPS customer loads for the upcoming period. The AER, consistent with its existing functions, would be responsible for ensuring the administered settlement price was set and notified in accordance with the rules.

This and other matters relevant to the determination and implementation of the administered settlement price will be considered further during the development of rules to implement the SAPS regulatory framework (discussed further in chapter 9).

SAPS cost-reflective price signals

There are a number of ways to send SAPS customers time-of-use pricing signals which are consistent with the underlying cost drivers of SAPS. These signals could, for example, be provided by setting the administered settlement price on a time-varying basis, as noted above. DNSPs could also use SAPS-specific network tariff structures, designed to send time-of-use pricing signals more closely aligned to the cost drivers of specific SAPS.[134]

Alternatively, it may be more effective for DNSPs to pursue alternatives to tariff reform, including measures such as energy efficiency and appliance upgrades, to drive a degree of behavioural change and assist in optimising the design and use of SAPS.

134 The existing network pricing arrangements, including the existing Tariff Structure Statement process, would support DNSPs in developing such tariffs, if appropriate.

For clarity, the Commission does not envisage that DNSPs would be able to reassign SAPS customers to a new tariff class, with a higher overall tariff level, for the purposes of recovering a greater proportion of SAPS costs from SAPS customers.[135]

Distributed energy resources

Grid customers enjoy certain rights to install and operate distributed energy resources (DER) at their premises. The value they obtain from the DER would depend upon their retail tariff structure and level (including any feed-in-tariff) and how the DER is programmed to respond to this.

To the extent that a customer earmarked for transition to SAPS is currently receiving a retail tariff which provides value from DER, the value this customer receives would remain unchanged following the transition to SAPS, at least for the period that the SAPS customer remains on their current retail offer.

In terms of future decisions by SAPS customers to invest in DER, these customers, like grid-customers in increasingly constrained open-access networks, may be physically limited in their ability to receive value from DER. Decisions on whether to allow SAPS customers to invest in DER would need to be made by each DNSP on a case by case basis, subject to the technical limitations of the SAPS (including the size of the batteries) installed.

Application of losses

In the context of an IPS, the energy within a SAPS should always net to zero meaning there should be no transmission or distribution losses that need to be accounted for in energy settlement. In this case, the distribution loss factor for SAPS connection points could simply be set to 1 and SAPS connection points could be excluded from the determination of unaccounted for energy (once global settlement changes have been introduced).

As noted by AEMO in its submission to the draft report, the netting arrangement might best be achieved by using metered energy at a SAPS customer's premises to determine the SAPS generation output, with a virtual metering arrangement at the generation connection point. This arrangement would work for SAPS connections where there is a one generator to one customer connection, or a one generator to multiple customer connection.[136]

The application of losses within a microgrid will be considered further during the next phase of work for this review.

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135 This approach was suggested by Essential Energy in its alternative to the NEM consistency option which utilised SAPS-specific network tariffs. Tariffs applicable to SAPS customers in the new tariff class would need to be developed consistent with the pricing principles in the rules, which would require them to be cost reflective and therefore much higher than the customer's previous network tariff. While the Essential Energy submission appears to contemplate that some level of cross-subsidisation might be retained, it does not specify how this might occur. To the extent that the NER is open to interpretation in respect of whether SAPS customers could be reassigned to a new tariff class (and hence new tariff level) based on the source of their generation, then changes to the NER may be required to clarify that SAPS customers and equivalent grid customers must be treated equally in respect of the tariff class to which they are assigned. Essential Energy's alternative option is discussed further in Appendix A.

136 AEMO, submission to draft report, pp. 2-3.

5.4.5 Analysis

Benefits of the NEM consistency (administered settlement price) model

Access to the competitive retail market

The NEM consistency (administered settlement price) model broadly emulates the conditions under which a customer would be supplied if they were connected to the grid (other than the nature of the physical supply arrangements). Retailers would continue to be charged the standard network tariff for their SAPS customers and would be charged an administered wholesale energy price for their SAPS customers. As long as the administered price was set at a level which does not increase retailers' costs to serve SAPS customers, there should be no incentive for retailers to alter the retail tariffs currently being provided to these customers.

Maintaining consistency with the NEM in this sense therefore provides a simple and straightforward means of ensuring that grid-customers being transitioned to SAPS will be no-worse-off in respect of the price they pay for energy (and, as with the other models, they will also continue to retain the other consumer protections due to the requirement for a SAPS retailer to be authorised).[137] It also supports a seamless transition to SAPS and, in doing so, negates the need for DNSPs to seek, and relevant customers to provide, explicit informed consent for the transition to SAPS.

This model also enables SAPS customers to retain choice and control over their retailer and retail offer through facilitating continued participation in the energy market.

Managing price risk

The key feature of the Commission's recommended model is the use of an administered settlement price designed to completely remove price risk associated with SAPS customers, and so the need for retailers to hedge SAPS customer load. Unlike in the NEM consistency option using spot prices, the removal of price risk ensures that contract market liquidity would not be impacted by the increased penetration of SAPS.[138] It also ensures that the link between the financial incentives on NEM generators and the physical needs of the system is not disturbed, as retailers would have no incentive to hedge SAPS customer load.

Price signals

The use of an administered settlement price would remove spot price volatility and so too the incentives on retailers to continue to pass through wholesale price signals which may be inconsistent with the optimal use of SAPS. This would remove potential productive inefficiencies from customers consuming energy in a way that is inconsistent with the optimal consumption pattern for SAPS, and would also provide an opportunity for customers to respond to any price signals that are cost reflective and sent through SAPS-specific network tariff structures.

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137 Note that some States' NERL application Acts will need to change to enable NECF consumer protections to be applied to SAPS customers.

138 While the overall supply of hedges would continue to fall under this option as some NEM generation is replaced by SAPS generation, so too would the demand for hedges.

Scalable

A key issue with the NEM consistency option was the risk of adverse consequences for retailers and their customers from continuing to settle SAPS customers at the spot price where the penetration of SAPS was high.[139]

Using an administered settlement price for the purpose of removing price risk and hence the need for retailers to hedge SAPS customers means that the Commission's recommended model is scalable.

Issues with NEM consistency (administered settlement price) model

Promoting retail competition

Using an administered settlement price may, depending on the level at which it is set, reduce retailers' ability to compete on price given that wholesale costs represent the largest proportion of costs that retailers have the ability to control. This could, over the medium to long term, potentially reduce retailers' appetite for actively seeking out and supplying SAPS customers.

Administrative complexity

There would be some administrative costs associated with determining the administered settlement price, as well as ongoing administrative costs if the price needs to be reassessed and revised periodically.

In addition, this option would require AEMO to amend its settlement systems to accommodate a SAPS specific administered settlement price. The Commission understands that the costs associated with these changes are unlikely to be significant, but notes that further detailed design work is required.

5.4.6 Conclusion

Having analysed the two illustrative SAPS service delivery options and the range of alternatives and variations put forward by stakeholders, the Commission believes that the best approach to the delivery of the SAPS service is through a NEM consistent approach which utilises an administered settlement price charged to retailers for the delivery of energy to SAPS customers.

By utilising existing wholesale market arrangements, including the settlement system, the Commission's recommended model will facilitate a seamless transition to SAPS. In doing so, this model negates the need for DNSPs to seek, and relevant customers to provide, explicit informed consent for the transition.

Further, by emulating the conditions under which a customer would be supplied if they were connected to the grid, this model also provides a simple and straightforward means of ensuring that grid-customers transitioned to SAPS will be no-worse-off in respect of the price they pay for energy. It also avoids the need for retail price regulation.

139 The trigger point between a low and high SAPS penetration scenario will be influenced by several factors including the number of customers transitioned to SAPS, the location of SAPS (that is, the NEM region) and the hedging strategies of retailers.

The use of an administered settlement price (rather than the wholesale market spot price) also removes the adverse outcomes associated with the NEM consistency option using spot prices. It does so by eliminating price risk associated with SAPS customers, thereby removing the need for retailers to use the contract market in order to hedge SAPS customers load.

In the absence of a waiver or exemption from the current ring-fencing obligations, the Commission's recommended service delivery model provides for DNSPs to procure SAPS generation services from third-parties (including from their own ring-fenced affiliates) rather than owning and controlling the assets themselves. This is consistent with existing arrangements for distribution service classification. Implementation of the recommended regulatory framework for SAPS is discussed further in Chapter 9.

Drawing on the assessment framework outlined in Chapter 2, a summary of the key outcomes associated with the Commission's recommended SAPS service delivery model is provided in Table 5.2.

Table 5.2: Summary of key outcomes

No-worse-off Does the model allow SAPS customers to be no-worse-off in respect of the price they pay for energy?	Yes Model broadly maintains consistency with the NEM. SAPS customers can retain their existing retailer and retail price.
Risk allocation Does the model support the efficient allocation of risks to (and between) the parties providing the activities and services associated with SAPS?	Yes Model removes need for retailers to manage price risk associated with SAPS customers. Model is also designed to allow SAPS generators to recover the total costs of the SAPS consistent with the agreed contract price.
Competition Does the model support competition and contestability in the provision of activities and services associated with SAPS?	Yes. Provision of retail services would continue to be facilitated through the competitive retail market. Provision of generation services would be facilitated through a competitive tender process (or equivalent) facilitated by the DNSP.
Transparency Are the arrangements clear, consistent and transparent?	Yes Model broadly maintains consistency with the NEM and so does not require the introduction of a different set of arrangements to apply to

	SAPS. Approach to determining and implementing the administered settlement price will be set out in the rules.
Costs Are the regulatory and administrative costs associated with implementing the model proportionate to the benefits?	Yes While the model will introduce low levels of regulatory and administrative cost and complexity, the benefits of implementing a model which seeks to broadly maintain consistency with the NEM while removing price risk associated with SAPS customers, should outweigh any costs. The model has significantly lower administrative costs than other models that would require the introduction of regulated retail prices for SAPS customers.

As explained in Chapter 1, the key objective of this review is to improve the economic efficiency of distribution service delivery (and associated SAPS service delivery) for the long-term benefit of both grid-connected and SAPS-supplied customers.

Importantly, by facilitating a seamless transition to SAPS and avoiding the need for DNSPs to seek, and customers to provide, explicit informed consent, the Commission's recommended service delivery model will enable DNSPs to capture the significant efficiency gains available from transitioning customers with a high cost-to-serve, from grid supply to SAPS supply.

Implementation of the recommended regulatory framework for SAPS is discussed further in Chapter 9.

6 SAPS SERVICE CLASSIFICATION

RECOMMENDATION 4: ECONOMIC REGULATION OF SAPS

The Commission recommends that the NEL and NER be amended to enable DNSPs to utilise SAPS to provide distribution services. This would allow DNSPs to recover revenue for these services via regulated revenue where:

- DNSPs must undertake expenditure in order to provide services to meet their regulatory obligations or licence requirements, and
- it is more efficient for DNSPs to provide these services via a SAPS solution rather than by replacing or upgrading parts of the distribution system.

The Commission has considered the various ways that the NER and NEL could be amended in order to realise this change and recommends an approach whereby the NEL will provide for the rules to prescribe which components of a SAPS will be considered to provide distribution services, and so will be subject to classification by the AER.

Having regard to the recommended SAPS service delivery model, it is the Commission's view that a stand-alone power system comprises two components, each providing a separate service:

- a stand-alone power system distribution system, which will provide a distribution service, and
- a generating system(s) connected to the stand-alone distribution system, which provides a generation service and is also an input into the distribution service.

The generation service would not be a distribution service and so would not be subject to classification by the AER. In addition, the AER's ring-fencing guideline would prevent DNSPs from providing SAPS generation services directly. DNSPs will instead need to procure these services from a third party, a subsidiary or other affiliate of the DNSP unless granted a waiver by the AER or subject to a deemed exemption.

The existing framework for distribution service classification in the NER is broadly appropriate and fit-for-purpose to support the AER in classifying the SAPS distribution service as a standard control service. However, the Commission considers there may be benefit in clarifying in the NER that the appropriate classification of the distribution services provided by means of a SAPS is as a standard control service. Exactly how this clarification should be provided should be consulted on further at the rule development stage.

Note: AER, Ring-fencing Guideline - Electricity Distribution, version 2, October 2017.

6.1 Background

6.1.1 Distribution services and SAPS services

Supplying electricity to customers via poles and wires connected to the national grid is a core distribution service that is currently classified as a standard control service. DNSPs earn

regulated returns for these services and typically charge all customers receiving the same standard control service the same network prices based on fixed charges and the volume of electricity consumed (rather than charging different customers different prices depending on the cost to provide that service to the customer).

Currently, DNSPs are unable to recover expenditure on SAPS from regulated revenue on the basis that SAPS assets (and associated services) cannot provide distribution services under the current definitions in the NER (and related definitions in the NEL). This is because SAPS assets would not be considered to be providing services by means of, or in connection with, a distribution system.[140] This restriction means that DNSPs are currently unlikely to install SAPS assets themselves, or to purchase SAPS services from the competitive market, in order to supply electricity to customers, even where SAPS would provide an efficient alternative to grid-supply.

Unregulated third parties, including ring-fenced subsidiaries of DNSPs, can currently provide SAPS services to customers. However, because they are unable to do so on the same terms as a DNSP provides its standard distribution services — that is, with a cross-subsidy — prospective customers would generally be required to pay more than they do now, and thus would not choose this service.

The Western Power rule change request sought to allow SAPS supply to be treated in the same way as supply provided by means of traditional poles and wires — that is, by allowing the service provided by means of a SAPS solution which replaces, or substitutes, all of a distribution system for a given customer, to be treated as a distribution service. Under the current rules, this would allow the AER to determine how that service should be classified and regulated.[141]

6.1.2 Distribution service classification

Service classification is the first step in the distribution network regulation process because it determines which services will be economically regulated and in what form. It is a key input into DNSPs' regulatory proposals and the AER's distribution determinations.

Services that are considered to be distribution services may be assigned a specific service classification in the NER, or may otherwise be classified by the AER. Service classification is the basis for the application of ring-fencing.

A brief overview of the current distribution service classification framework is set out in Box 8.

140 As defined in NER chapter 10, "distribution services" are services provided by means of, or in connection with, a distribution system.

141 See: Western Power rule change, available on the Commission's website under project code ERC0215. This rule change is also summarised in section 2.4 of this report.

BOX 8: DISTRIBUTION SERVICE CLASSIFICATION FRAMEWORK

Service classification is the foundation of the economic regulatory framework. The economic regulatory framework provides a structure for determining which services will be economically regulated, which services will be subject to a negotiate/arbitrate framework and which services will remain unregulated. This occurs through the distribution service classification process led by the AER and set out in Chapter 6 in the NER. The AER can only classify those services provided by DNSPs which meet the definition of distribution service as set out in the NER.[a] In doing so, the AER may:

- classify distribution services as direct control services — these services will be subject to economic regulation[b]
- classify distribution services as negotiated distribution services — these services will be subject to a negotiate/arbitrate framework, or
- determine not to classify a distribution service at all — these services will be unregulated distribution services.

Services that are classified as direct control services are economically regulated under the incentive based framework, also set out in Chapter 6 of the NER. This framework provides DNSPs with the opportunity to recover the efficient costs of providing these services through regulated revenues. Importantly, the regulatory framework incentivises DNSPs to provide direct control services efficiently.[c] On the basis that DNSPs are incentivised through the regulatory framework to provide services efficiently, they are provided with discretion to choose how they provide economically regulated services. Specifically, the framework provides DNSPs with discretion to provide direct control services by using any combination of:[d]

- network or non-network options[e]
- operating or capital expenditure
- a variety of technologies, and/or
- providing the services 'in-house' or procuring the services from third parties or appropriately ring-fenced related entities.

In contrast, the costs of services provided by DNSPs which are not classified as direct control services cannot be recovered through regulated revenues, regardless of the means of service delivery. In other words, if a service is not classified as a direct control service, DNSPs cannot use regulated revenues to recover the costs of investing in assets that provide that service, or recover the costs of procuring such a service from the contestable market. Importantly, the NER only permits distribution services to be classified. Inputs — that is, the various components or activities which a DNSP uses to provide a distribution service to a customer (including assets used to provide the service) — cannot be classified.

Note: a A "distribution service" is defined in Chapter 10 of the NER as "a service provided by means of, or in connection with, a distribution system". Services which do not meet the definition of 'distribution service' are termed 'non-distribution services'. The AER's powers to classify distribution services are set out in Part B of Chapter 6 of the NER.

b Once the AER has determined that a service should be classified as direct control, the next step under clause 6.2.2 of the NER is to further classify it as either a standard control service or alternative control service. Standard control services are often bundled together and form the basic charges for use of the distribution system. Alternative control services are only used or requested by certain customers, such as a customer requested electricity pole relocation.

c It does so by locking in DNSPs' total revenue requirement prior to each regulatory control period. DNSPs' returns are then determined by their actual costs of providing services. This high level incentive regulatory framework is then enhanced through specific incentive schemes for capital expenditure, operating expenditure, service standards and demand management.

d As a partial restriction on the delivery methods listed below, the AEMC's final rule for the Contestability of energy services rule change strictly prohibited DNSPs from providing direct control services through direct ownership of assets positioned behind (as distinct from in-front) of the meter, subject to exemptions. See: National Electricity Amendment (Contestability of energy services) Rule 2017 No. 16.

In the context of SAPS, the service classification framework provides a means for determining whether the activities and services associated with the generation, distribution and possibly also the sale of electricity, within a SAPS:

- are distribution services, and so fall within the NER service classification framework,
- constitute 'other services' (non-distribution services) and so cannot be classified and are therefore unregulated, or
- are inputs to a distribution service and so also cannot be classified and are therefore unregulated.[142]

Importantly, the approach taken to the classification of the activities and services associated with SAPS will depend (among other things) on the SAPS service delivery model and the changes to definitions in the NEL and NER implemented as an outcome of this review.

6.1.3 Ring-fencing of regulated distribution services from other services

Given that service classification is the basis for the application of ring-fencing, the classification of SAPS services by the AER will impact on DNSPs' ability to provide these services themselves.

Ring-fencing involves the identification and separation of business activities, costs, revenues and decision-making for direct control services from those that are associated with providing services in a competitive market.

The AER's electricity distribution ring-fencing guideline imposes obligations on DNSPs to separate the legal, accounting and functional aspects of regulated distribution services from other services provided by a DNSP or an affiliated entity.[143]

The objective of the ring-fencing obligations that apply to DNSPs is to provide a level playing field for third party providers in new and existing markets for contestable services, such as those for metering and energy storage services, in order to promote competition in the provision of electricity services. Without effective ring-fencing, DNSPs could hold significant advantages in such markets.

The AER's ring-fencing guideline addresses two potential harms with two separate sets of obligations for DNSPs.

142 Noting that "unregulated" here is referring to economic regulation of DNSPs; these services may be regulated under other parts of the national energy framework, for example the NECF.

143 The AER is required to establish the Guideline under NER cl. 6.17.2(a).

- First, the Guideline addresses the risk of a DNSP cross-subsidising other services with revenue earned from provision of distribution (and transmission) services. It does this through legal separation of the DNSP, which may only provide distribution services, from affiliated entities that may provide other electricity services.[144] The legal separation obligation is supported by other obligations for the DNSP to maintain separate accounts, follow defined cost allocation methods and be able to report on transactions between itself and its affiliates.
- Second, the Guideline addresses the risk of a DNSP favouring its own negotiated services or other distribution services, or an affiliated entity's other electricity services, in contestable markets. The Guideline does this by imposing behavioural obligations on DNSPs, including restrictions on sharing and co-locating staff, information and on co-branding of advertising materials.

The AER may grant a waiver (on application) from the prohibition on DNSPs providing non-distribution services, for instance where a DNSP is required by law to provide the non-distribution service. One example given by the AER of services where a waiver may be granted is "isolated network services in remote areas".[145]

In addition, the ring-fencing guideline includes a number of exemptions to specific obligations in certain circumstances. For example, in respect of regional and remote areas, the guideline includes an automatic exemption from the physical separation requirements for regional offices that have less than 25,000 customer connection points within a 100 kilometre radius of the office. This exemption recognises that the requirement for physical separation may impose unnecessary additional costs on a DNSP. It also recognises that, in these areas, the potential for development of competition may be limited.[146]

In summary, the ring-fencing guideline requires non-distribution services ('other services') to be provided by a third party, a subsidiary or other affiliate of a DNSP, or by a DNSP if the circumstances are such that the prohibition is waived.

6.2 Commission's draft position

6.2.1 Distribution services - NEL and NER changes

In the draft report, the Commission recommended that the NEL and NER be amended to enable DNSPs to utilise SAPS assets (that is, assets which are not physically connected to the interconnected grid) to provide distribution services. This would allow DNSPs to recover revenue for these services via regulated revenue where:

- DNSPs must undertake expenditure in order to provide services in order to meet their regulatory obligations or licence requirements, and

144 DNSPs may (and some do) provide transmission services in addition to distribution services.

145 In this case, the AER would consider granting a waiver from the guideline's legal separation obligation. AER, Electricity Distribution Ring-fencing Guideline - Explanatory Statement, November 2016, pp. 42-43.

146 The AER considers that a current or potential competitor of the DNSP would contact it if the particular regional office was supplying to a contestable, or potentially contestable, market. AER, Electricity Distribution Ring-fencing Guideline - Explanatory Statement, November 2016, pp. 42-43.

- it is potentially more efficient for DNSPs to provide those services via a SAPS solution rather than by replacing or upgrading existing parts of the distribution system.

The Commission explained that the intent of making this change would be to enable DNSPs to transition a customer (or group of customers) from supply via the interconnected grid to supply via a SAPS, where a SAPS solution provides an efficient alternative to replacing or upgrading existing network and/or connection assets.

There are a number of possible ways that the NER and NEL could be amended in order to realise this change. The Commission noted its intention to explore the various options and approaches available to implement this change in the final report for this review.

6.2.2 SAPS service classification

In the draft report, the Commission explained that the current framework for distribution service classification provides the AER with discretion in respect of how it classifies (and therefore economically regulates) the activities and services provided by DNSPs. This level of discretion enables the regulator to make decisions appropriate to the circumstances of each DNSP in a changing environment.

Having regard to this framework, the Commission set out its view that the outcomes desired by this review — that is, the provision of SAPS by DNSPs as a regulated service — could be achieved using the current framework for distribution service classification. It considered that once the SAPS service delivery model was finalised, any uncertainty around how the AER might approach the classification of the activities and services associated with SAPS would be removed.

That said, the Commission also set out its intention to consider further whether there would be any benefit in providing some additional direction or guidance to the AER in the NER in respect of how the activities and services associated with SAPS should be classified to make certain that the activities provided by means of SAPS assets provide, or include, a standard control service.

6.2.3 Provision of SAPS services by DNSPs

In respect of the provision of SAPS services by DNSPs, the Commission explained that the existing economic regulation, planning and incentive frameworks— which encompass the service classification process, ring-fencing guidelines and rules in respect of restricted assets — were designed to support the development of competitive markets where competition is feasible, and to support efficient, incentive-based regulation of monopoly networks where competition is not feasible.

Therefore, having regard to existing frameworks, the Commission did not consider it was necessary or appropriate to develop additional mechanisms which would enable the AER to consider restricting the ability of DNSPs to provide certain SAPS services, or own certain SAPS assets, beyond the mechanisms that already exist in the rules.

However, the Commission noted its intention to consider whether there would be benefit in outlining the factors that the AER may wish to consider when classifying services and/or

considering waiver applications (or developing any deemed exemptions) to the ring-fencing obligations, specifically in respect of any SAPS services subject to those restrictions.

In addition, the Commission set out its view that SAPS assets should be considered as in-front of the meter assets (rather than behind-the-meter assets) meaning that DNSPs would not, under the current rules, be restricted from owning or controlling these assets where they are used to provide a standard control service.[147]

However, the Commission also noted its intention to consider further whether there would be benefit in providing the AER with additional guidance or direction in respect of considering exemptions to the restrictions on ownership and control of behind the meter assets, in SAPS specific circumstances.

6.3 Stakeholder views

6.3.1 Distribution services - NEL and NER changes

A number of stakeholders explicitly noted their support for the Commission's proposal to amend both the NEL and NER to remove existing barriers to DNSPs being able to provide SAPS as a regulated service.[148] Energy Queensland, for example, considered that the inclusion of SAPS as a regulated standard control service would provide regulatory certainty to DNSPs and ensure DNSPs do not have to comply with the ring-fencing guidelines.[149] Tesla considered an approach which ensures the continued cross-subsidisation of SAPS services was a necessary catalyst for a market with high costs and access difficulties.[150]

No stakeholder expressed opposition to the Commission's draft proposals on this matter.

6.3.2 SAPS service classification

The ENA, SA Government and Essential Energy agreed with the Commission's view that the existing service classification arrangements were appropriate to accommodate SAPS.[151]

However, Essential Energy considered further clarity was needed in respect of the service delivery model to determine exactly how SAPS services would be treated under the current framework.[152] The ENA also considered it would be beneficial if the AEMC clearly articulated its policy intent to ensure there is no ambiguity in how the rules will be interpreted and enforced by the AER.[153]

147 It did so on the basis that the service provided to a SAPS customer by means of SAPS assets would be the same as the service provided to grid-connected customers by means of the grid — that is, a supply of electricity to the customer's meter. See draft report, pp. 90-92.

148 Submissions to the draft report: CEC, p. 1; Spark Infrastructure, p. 3; Energy Queensland, p. 7; Horizon Power, pp. 2,11; Erne Energy, p.2.

149 Energy Queensland, submission to the draft report, p. 7.

150 Tesla, submission to the draft report, p.5.

151 Submissions to the draft report: SA Government, pp. 4-5; Essential Energy, p. 2. ENA, p. 4.

152 Essential Energy, submission to the draft report, p. 2.

153 ENA, submission to the draft report, p. 4.

Endeavour Energy noted the importance of the AEMC and the AER being aligned in their views on the suitability of the existing arrangements to lead to an outcome where SAPS are considered to provide a regulated service.[154]

AusNet Services was firm in its view that there should be no room for question on service classification. It considered that the final report should provide sufficient guidance to ensure that the direct control services criteria are met by DNSP SAPS solutions.[155]

Energy Queensland also expressed support for the provision of guidance to the AER on the matters to take into account when determining SAPS service classification. In addition, it considered that the potential impacts of SAPS service classification on DNSP policies and instruments – for example, DNSP connection policies – should be considered in the next part of the view.[156]

The AER considered that it would be important to clearly identify and establish how the existing service classification framework should be applied in order to drive appropriate outcomes for SAPS. It also noted that the application of the non-network support concept for SAPS may require clarification in respect of DNSPs' recovery of regulated revenue so a third party can be fully reimbursed by the DNSP.[157]

AusNet Services and Energy Queensland were also broadly supportive of SAPS generation being treated as an input to the distribution service on the basis that this would allow DNSPs to deliver SAPS as a fully integrated SAPS solution.[158]

6.3.3 Provision of SAPS services by DNSPs

The majority of DNSPs agreed with the Commission's view that SAPS assets should be considered as in-front of the meter assets, thereby avoiding possible restrictions on DNSPs owning SAPS assets when used to provide standard control services.[159] Horizon Energy suggested that the NEL and NER be amended to this effect.[160]

TasNetworks considered there was no need to place any further restrictions on DNSP provision of SAPS services, and DNSP ownership of SAPS assets, on the basis that the existing ring-fencing obligations already provide effective safeguards.[161]

AusNet Services considered it would be important for networks to have flexibility in terms of SAPS ownership. It expressed concern in relation to third party ownership of assets where DNSPs are accountable for the regulated service and immaturity of the market for SAPS that are built to DNSP specifications.[162]

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154 Endeavour Energy, submission to the draft report, p. 2.
155 AusNet Services, submission to the draft report, p. 2.
156 Energy Queensland, submission to the draft report, pp. 7-8.
157 AER, submission to the draft report, p. 5.
158 Submissions to the draft report: Energy Queensland, pp. 7-8. AusNet Services, p. 2.
159 Submissions to the draft report: TasNetworks, p. 2; Endeavour Energy, p. 2; Ausgrid, p. 4; AusNet services, p. 2; Horizon Power, p. 11; SA Government, pp. 4-5.
160 Horizon Power, submission to the draft report, p. 11.
161 TasNetworks, submission to the draft report, p. 4.
162 AusNet Services, submission to the draft report, p. 1.

Horizon Power also considered that, irrespective of the service delivery model, incentive structures should ensure that DNSPs select the most economically efficient utility-grade service choice for customers.[163]

The ENA and Erne Energy welcomed consideration of further guidance to the AER regarding the granting of possible exemptions/waivers from the ring-fencing obligations to allow DNSPs to provide SAPS assets.[164]

The SA Government did not support the AER being provided with the ability to provide exemptions from ring-fencing obligations, where these apply. This is because the SA Government could not foresee any circumstance where DNSPs would need to provide non-network services, such as generation.[165]

Tesla was of the view that, irrespective of the SAPS service delivery model, DNSPs should contract or procure SAPS services and assets from the contestable market.[166]

The AEC expressed a similar view and noted its view that DNSPs would still enjoy a comparative advantage even where SAPS were provided by a ring-fenced affiliate.[167] The AEC also suggested the use of the Australian Standard Geographical Classification system as basis for determining any areas deemed to be unable to be serviced competitively.[168]

ENGIE considered that the best way to foster innovation and drive down costs was to support competition in the installation of SAPS. It also considered it imperative that DNSPs be required by the rules to provide clear, transparent and detailed technical specifications to potential SAPS proponents, and that a tender process be clearly stipulated.[169]

6.4 Commission's analysis and final position

6.4.1 Distribution service - NEL and NER changes

Consistent with the position put forward in the draft report, the Commission recommends that the NEL and NER be amended to enable DNSPs to utilise stand-alone power systems to provide distribution services. This would allow DNSPs to recover revenue for these services via regulated revenue where:

- DNSPs must undertake expenditure in order to provide services to meet their regulatory obligations or licence requirements, and
- it is more efficient for DNSPs to provide these services via a SAPS solution rather than by replacing or upgrading parts of the distribution system.

Removing existing barriers to DNSPs providing SAPS as a regulated activity would allow DNSPs to transition a customer (or group of customers) from supply via the interconnected grid to supply via a SAPS, where it is efficient to do so.

163 Horizon Power, submission to the draft report, pp. 11-12.
164 Submissions to the draft report: Erne Energy, p. 2; ENA p. 4.
165 SA Government, submission to the draft report, pp. 4-5.
166 Tesla, submission to the draft report, p. 4.
167 AEC, submission to the draft report, p. 3.
168 AEC, submission to the draft report, p. 3.
169 ENGIE, submission to the draft report, p. 2.

The Commission has considered the various ways that the NER and NEL could be amended in order to realise this change. As explained in Chapter 9, the Commission recommends an approach whereby the NEL will provide for the rules to prescribe which components of a SAPS will be considered to provide distribution services, and so will be subject to classification by the AER.[170]

Having regard to the recommended SAPS service delivery model, it is the Commission's view that a stand-alone power system (that is, both an individual power system and a microgrid) will comprise two components:

- a stand-alone power system distribution system, which will provide a distribution service to SAPS customers, and
- a generating system(s) connected to the stand-alone distribution system, which will provide a generation service to SAPS customers and is also an input into the distribution service.

In respect of the second point, under the recommended SAPS service delivery model, the SAPS generator would be providing two distinct services. First, it would be providing a generation service to SAPS customers. This would not be part of the distribution service provided by DNSPs to SAPS customers and would be paid for via AEMO through the wholesale market at the administered settlement price. Second, the SAPS generator would be providing a service to the DNSP and would be paid the contractually agreed amount by the DNSP. To this extent, the SAPS generation would be providing an input into the distribution service.

The outcome of the above is that the services provided by the SAPS generator both to the DNSP and to the SAPS customer would not be subject to classification by the AER. Further, the generation service provided to SAPS customers would not be a distribution service for the purpose of economic regulation, and therefore the AER's ring-fencing guidelines would apply to the provision of this service by DNSPs (this is discussed further below).[171]

6.4.2 SAPS service classification

Having considered stakeholder views and its own analysis and review, the Commission continues to believe that the existing framework for distribution service classification in the NER is, in general, appropriate and fit-for-purpose to support the AER in determining the classification of the distribution service provided by means of a SAPS.

In the draft report, the Commission noted its intention to consider further whether there would be benefit in providing the AER with additional direction or guidance in the NER in respect of how the activities and services associated with SAPS should be treated within the regulatory framework. The purpose of doing so would be to help ensure that the outcomes desired by this review – that is, the provision of SAPS by DNSPs as a regulated service – would be achieved.

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170 Changes to NER clause 6.1.1, which limits the AER's economic regulation of distribution services to those provided via distribution services that form part of the national grid, are also likely to be required.

171 It would be an "other service" as defined in the ring-fencing guideline.

Having considered this matter further, the Commission considers there may be benefit in providing the AER with some direction in the NER to clarify that the appropriate classification of the distribution service provided by means of these assets is as standard control services. This is likely to be particularly beneficial where the assets associated with the stand-alone distribution system are difficult to discern, as might be the case for individual power systems.

Exactly how this clarification should be provided should be consulted on further at the rule development stage.

6.4.3 Provision of SAPS services by DNSPs - application of ring-fencing guideline

The Commission considers that the AER's distribution ring-fencing guideline is appropriate and well-suited to supporting the development of competitive markets where competition is feasible, opening up new markets to competition and providing effective regulation (through exemptions) where competition is not feasible.

As noted above, based on the operation of the Commission's recommended SAPS service delivery model, the generation activities and services provided by means of a SAPS would be taken as providing an "other service" to SAPS customers (in addition to an input to the distribution service) for the purposes of economic regulation.

Under the AER's ring-fencing guideline, this means that DNSPs would be prevented from providing the "other services" portion of the SAPS generation services directly and would instead need to procure these services from a third party, a subsidiary or other affiliate of the DNSP.

The Commission recognises that DNSPs are currently able to provide "inputs" to distribution services themselves. However, it is not feasible for DNSPs to provide the input component of the SAPS generation service while being restricted from providing the "other service" component. While this is consistent with the current arrangements for network support arrangements, in developing the detailed rules to apply the recommended framework for DNSP-led SAPS, the Commission may consider where any further clarification in the rules on this matter would be helpful.

The AER's ring-fencing guideline recognises that strict adherence to the ring-fencing obligations might, in some circumstances, result in outcomes that are not in the interests of consumers.[172] For this reason, the guideline makes provision for:

- the AER to grant waivers (on application from the DNSP) from the prohibition on the provision of non-distribution services by the DNSP,[173] and
- deemed exemptions to specific ring-fencing restrictions.[174]

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172 AER, Final Decision SA Power Networks, Ring-fencing Waiver - Construction and Maintenance Contracts, September 2018, p. 2.

173 One example given by the AER of services where a waiver may be granted is "isolated network services in remote areas". In this case, the AER would consider granting a waiver from the guidelines' legal separation obligation. See: AER, Electricity Distribution Ring-fencing Guidelines – Explanatory Statement, November 2016, pp. 42-43.

174 For example, in respect of regional and remote areas, the guideline includes an automatic exemption from the physical separation requirements for regional offices that have less than 25,000 connection points within a 100 kilometre radius of the office. This exemption recognises that the requirement for physical separation may impose unnecessary costs on a DNSP and that, in these areas, the potential for competition may be limited. See: AER, Electricity Distribution Ring-fencing Guidelines – Explanatory Statement, November 2016, pp. 42-43.

The Commission considers that, in circumstances where it may be appropriate or more efficient for a DNSP to provide SAPS generation services directly, these mechanisms provide a suitable means for the AER to consider relaxing some or all of the ring-fencing restrictions.

The Commission has considered also whether there may be benefit in outlining a set of factors that the AER may wish to consider when considering waiver applications, or developing any deemed exemptions, to the ring-fencing obligations specifically in respect of non-distribution services associated with SAPS.

Having considered stakeholder views on this matter, the Commission does not believe it is necessary to develop a specific set of arrangements to guide the AER when considering waiver applications in respect of the provision of services related to SAPS. The rules provide the AER with considerable discretion in respect of its ability to waive (or add to) a DNSP's obligations under the ring-fencing guidelines.[175] The Commission does not consider there is a compelling case to deviate from the current approach by introducing additional prescription to apply in respect of the AER's decisions regarding SAPS services.

In addition, the Commission does not consider it is necessary to establish a set of factors to assist the AER in developing potential new deemed exemptions (similar to the existing 'regional office exemption') to apply in the context of SAPS. The process for amending the ring-fencing guidelines is set out in the NER and includes requirements on the AER to consult with a range of parties, including jurisdictions, participants, AEMO and other interested parties, in accordance with the distribution consultation procedures. The Commission considers these arrangements are sufficient to ensure that matters related to the potential development of new deemed exemptions (or changes to existing deemed exemptions) will be carefully considered and widely consulted.[176]

Finally, in line with the Commission's position in the draft report, the Commission considers that SAPS assets should be considered in-front of the meter assets.

175 NER clause 6.17.2.

176 NER clause 6.17.2(d).

7 APPLICATION OF CONSUMER PROTECTIONS

RECOMMENDATION 5: APPLICATION OF CONSUMER PROTECTIONS TO SAPS CUSTOMERS

The existing energy-specific consumer protection framework, including national consumer protections in the NECF and jurisdictional consumer protections, are appropriate for, and should apply to, DNSP-led SAPS.

The Commission has followed a general principle that energy-specific consumer protections for customers being supplied via a DNSP-led SAPS should be equivalent to those for grid-connected customers because DNSPs will be not required to gain the consent of customers.

Based on this principle, the Commission has considered the existing national energy-specific consumer protections, including any need for additional SAPS-specific consumer protections, existing jurisdictional consumer protections and reliability of supply obligations and has made a number of recommendations.

First, the Commission recommends that the full suite of consumer protections in the NERL and NERR be extended to SAPS customers such they continue to receive the same protections as equivalent grid-connected customers. For this recommendation to be enacted, changes to the NERL and NERR will be required, and some jurisdictions will need to amend their NERL application legislation to remove the restriction to grid-connected customers.

In addition, the Commission considers it is important to provide key information to customers being transitioned to a DNSP-led SAPS to help customers understand any differences between SAPS supply and standard supply. Consequently, the Commission recommends changes to the NERR to oblige DNSPs to provide information to customers transitioning to, or moving into, a DNSP-led SAPS.

Second, the Commission recommends that the current jurisdictional protections, including safety and technical regulation, as well DNSP land access rights, be extended to cover DNSP-led SAPS. For this recommendation to be enacted, jurisdictional governments and jurisdictional regulators will need to review their legislative frameworks to confirm that jurisdictional protections cover customers in DNSP-led SAPS, and make any necessary amendments if any of the protections are found to not apply to customers in DNSP-led SAPS in their current form.

Third, the Commission recommends that reliability standards, GSL payments and the STPIS be extended to apply to DNSP-led SAPS in a way that achieves equivalency with standard supply. For this recommendation to be enacted, changes to the reliability standards and GSL schemes will be required in most jurisdictions to broaden their application to cover DNSP-led SAPS customers.

7.1 National energy specific consumer protections

7.1.1 Background

Under the national electricity regulatory framework there are a number of energy-specific consumer protections for grid-connected customers. National energy-specific consumer protections are found primarily in the NECF, the main legal instruments of which are the NERL and the NERR. The NECF:[177]

- 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 Australian Consumer Law and state and territory safety and concession regimes.

Currently, consumer protections under the NECF do not generally apply to customers receiving supply from a SAPS, except for microgrids in Queensland and, potentially, the ACT.[178] Consumers in NSW, Tasmania and South Australia who move off-grid would lose their energy-specific consumer protections under the NECF.[179] No consumers in Victoria are covered by the NECF, however, they would likely be covered by protections under the Victorian Energy Retail Code, as they will be supplied by a licensed retailer. The Energy Retail Code applies protections to Victorian consumers similar to many of those in the NECF.

Many of the energy-specific consumer protections under NECF are likely to remain valuable for customers receiving supply via a SAPS. For DNSP-led SAPS, it is reasonable for a consumer to expect energy-specific consumer protections equivalent to those they would have received under standard grid supply. For example, customers receiving supply via a DNSP-led SAPS should be entitled to requirements regarding accurate metering and regular billing that are equivalent to the requirements for grid-supplied customers.

In its analysis of consumer protections for customers in DNSP-led SAPS, the Commission has also considered the need for any energy-specific consumer protections specific to customers receiving supply via a SAPS.

In the Western Power rule change the Commission agreed with stakeholders that certain off-grid-specific consumer protections may be necessary in addition to energy-specific consumer protections equivalent to those provided to grid-connected customers under the NECF. For example, obligations requiring the DNSP to provide potential SAPS customers with information that is specific to the consumer's supply via a SAPS to help them understand the

177 The NECF currently applies, with jurisdictional 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.

178 The Acts adopting the NERL in Queensland and in the ACT do not limit the application of the NECF to the sale of electricity to customers connected to the interconnected national grid. If the seller of electricity in a microgrid in those jurisdictions is not exempt, it would need to be an authorised retailer and it would be subject to the full provisions of the NECF.

179 The Acts adopting the NERL in each of these jurisdictions specify that 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.

reality of supply via a SAPS. This could include information on the components that comprise the SAPS.[180]

In addition, there should be consumer consultation requirements for DNSPs seeking to transition customers to a SAPS. These are further discussed in section 3.4.2.

7.1.2 Commission's draft position and recommendation

In the draft report, the Commission considered that, for DNSP-led SAPS, consumer protections should be equivalent to those under standard supply arrangements, with the consumer protections provided under the NECF extended to apply to customers receiving electricity from a DNSP-led SAPS. Some of the NECF consumer protections the Commission considered important to maintain included:

- rights to access energy services
- informed consent requirements
- dispute resolution procedures
- minimum contractual standards
- billing, tariff and payment minimum requirements
- disconnection requirements, and
- protections for vulnerable customers.

It was recommended that the majority of consumer protections provided under the NECF be applied to DNSP-led SAPS models of supply without change, however, the Commission noted in the draft report that some amendments to the consumer protections under the NERL and NERR (or alternatively jurisdictional regulations) may need to be made depending on the SAPS model of supply. If the SAPS model of supply necessitated changes to the consumer protections that the customer would have received under grid-connection, the Commission's draft position was that an equivalent consumer protection should be incorporated for DNSP-led SAPS to the extent practicable.

Additional consumer protections for DNSP-led SAPS

The Commission proposed, in the draft report, to amend the NERR to include SAPS specific consumer protections for customers being supplied via a DNSP-led SAPS. These additional obligations related to the provision of information both when the DNSP is considering transitioning the customer to SAPS supply, and when the customer has been transitioned to SAPS supply, to help them understand the realities of supply under a SAPS. At a minimum, the Commission considered it was reasonable that the following SAPS specific consumer protections were added to the NERR:

- Information provision obligations incorporated in consultation requirements where the DNSP is considering transitioning the customer to a SAPS, covering issues such as quality

180 AEMC, *Alternatives to grid-supplied network service*, rule determination, 19 December 2017, p. 45.

of supply and performance standards, safety issues, communication functions and interactions with other assets, among other issues.[181]

- Information provision obligations when a customer transitions to a SAPS, or moves into a premises supplied by a DNSP-led SAPS, covering issues such as system redundancy, performance under different conditions, outages and customer interactions with the SAPS, among other issues.

7.1.3 Stakeholder submissions

In submissions to the draft report stakeholders, including most DNSPs, retailers, PIAC, energy ombudsmen, the AER, the ACCC, the Clean Energy Council, Tesla, Spark Infrastructure, and the Department for Energy and Mining, South Australia, overwhelmingly agreed with the general principle that energy-specific consumer protections for customers being supplied via a DNSP-led SAPS should be equivalent to those for grid-connected customers.[182]

The Commission's objective that customers should be no worse off if they are transitioned from grid-connection to a DNSP-led SAPS, including access to consumer protections, was supported by a number of stakeholders in submissions.[183] PIAC considered the customer should see as little change as possible, with consumer protections remaining the same and the standard of supply maintained in terms of voltage, frequency and outages.[184]

In its submission, EWON noted that in its experience many small remote communities face higher energy consumption and cost due to extreme temperatures, leaving them more vulnerable to higher energy debt. Therefore, many consumers in remote areas are likely to continue to need a higher level of support from their energy retailer.[185]

SAPS-specific consumer protections

A number of stakeholders agreed with the Commission that additional SAPS-specific consumer protections may be required for customers who are transitioned to a DNSP-led SAPS, including consultation requirements and/or information provision.[186] For example, the South Australian Department for Energy and Mines considered that appropriate SAPS-specific consumer protections may include information provision obligations to customers in regions where the DNSP is considering transitioning customers to SAPS, once the transition of a customer to a SAPS has been determined and to new customers moving into, or connecting to, an existing DNSP-led SAPS.[187]

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181 The Commission's recommendations on developing SAPS customer information and engagement requirements on DNSPs are discussed in Chapter 3.

182 Submissions to the draft report: AER, p. 5; ACCC, p. 1; PIAC, p. 7; Red and Lumo p. 2; AGL, p. 4; ENA, p. 6; Endeavour Energy, p. 3; Essential Energy, p. 1; Ausgrid, p. 5; EWON, p. 1; EWOQ, p. 1; TasNetworks, p. 5; Western Power, p. 1; SA Government, p. 1; Tesla, p. 6; Energy Queensland, p. 9; Spark Infrastructure, p. 4: Clean Energy Council, p. 1.

183 Submissions to the draft report: AER, p. 4; AGL, p. 4.

184 PIAC, submission to the draft report, p. 7.

185 EWON, submission to the draft report, p. 2.

186 Submissions to the draft report: EWOQ, p. 1; Tesla, p. 6; EWON, p. 6; Red and Lumo, p.2; SA Government, p. 5.

187 SA Government, submission to the draft report, p. 5.

In its submission to the draft report, Spark Infrastructure considered that additional SAPS-specific consumer protections are not warranted, unless there is a requirement for customers to behave differently than if they were grid-connected,[188] and Endeavour Energy recommended that the Australian Consumer Law be considered in respect of product warranties and guarantees to ensure the review only addresses areas only where gaps exist to avoid overlapping obligations.[189]

Energy Queensland, it its submission to the issues paper provided some more specific suggestions on the information provisions required for DNSP-led SAPS, both when the DNSP is considering transitioning a customer to a SAPS, and once a customer has transitioned to a SAPS model of supply.

The information Energy Queensland recommended be provided to customers when consulting on transition to a SAPS included:

- quality of supply and performance standards
- safety issues
- remote communication functions
- interactions with the customers assets e.g. solar PV, and
- any other considerations for customers such as potential impacts on land valuations.[190]

Information specific to the SAPS that should be provided to the customer on transition to the SAPS (and potentially prior to transition) included:

- level of redundancy based on customer usage
- guaranteed performance under different conditions
- operational support models for failure
- outages and questions, and
- things the customer themselves may be able to do, for example, if there is some equipment failure.[191]

7.1.4 Commission's analysis and final position

The Commission's position throughout this review has been that the consumer protections for DNSP-led SAPS should be equivalent to those under standard supply arrangements.

The Commission considered that under certain SAPS models of supply some amendments to the consumer protections in the NERL and NERR would need to be made to provide an equivalent consumer protection, for example retail price controls if there was no access to retail competition. However, the model of supply recommended in the final report preserves (as much a possible) access to retail competition, and the customer will continue to be supplied by a licensed DNSP and an authorised retailer, each subject to the full range of

188 Spark Infrastructure, submission to the draft report, p. 4.
189 Endeavour Energy, submission to the draft report, p. 3.
190 Energy Queensland, submission to the issues paper, p. 15.
191 Energy Queensland, submission to the issues paper, p. 15.

obligations under the NECF. The Commission has received no compelling arguments restricting the extension of any provisions to DNSP-led SAPS.

All the consumer protections under the NECF would remain valuable for customers in DNSP-led SAPS under the recommended SASP service delivery model. Consequently, the Commission considers that the full suite of consumer protections under the NERL and NERR should be extended to customers being supplied via a DNSP-led SAPS.

Application of NECF to SAPS customers in each jurisdiction

As noted in the draft report, analysis carried out by the Commission suggests that under current arrangements, consumer protections under the NECF do not generally apply to customers receiving supply from a SAPS, except for microgrids in Queensland. The Commission therefore considered that in order to apply the NECF to customers in SAPS in these jurisdictions, amendments to the legislation applying the NERL in NSW, South Australia and Tasmania would be required. These amendments are discussed in Chapter 9.

In Victoria, if SAPS customers are supplied by a licensed retailer, the Commission's analysis suggests that they would be covered by protections under the Victorian Energy Retail Code. The application of consumer protections to SAPS customers in Victoria remains a matter for that jurisdiction, however, if Victoria decides to implement the national arrangements for DNSP-led SAPS the Commission considered that a consistent approach to consumer protections would be required.

SAPS-specific consumer protections

The supply of customers from a DNSP-led SAPS will likely involve some differences from standard supply for the customer, even if the model of supply closely mimics grid-connection. It is important that the customer is aware of any differences as well as their rights and obligations prior to transition to a DNSP-led SAPS, and is provided with the specifics of the SAPS system supplying electricity to the premises and any other pertinent information once transition is complete.

Therefore, the Commission considers that amendments to the national consumer protections will be required to include additional information provision obligations on DNSPs, both prior to transitioning the customer to a SAPS, and once the customer has transitioned to a SAPS model of supply, to help customers understand the reality of supply under a SAPS. These information provision obligations would sit in the NERR. To the extent required, further details could be included in a guideline.

At a minimum, the Commission recommends that the following SAPS specific consumer protections are added to the national consumer protections:

- information provision obligations incorporated in consultation requirements where the DNSP is considering transitioning the customer to a SAPS, covering quality of supply and performance standards, safety issues, communication functions, interactions with the

customer's other assets, customers rights and obligations, and arrangements for placement of the SAPS.[192]

- information provision obligations when a customer transitions to a SAPS, or moves into a premises supplied by a DNSP-led SAPS, covering issues such as system redundancy, performance standards under different conditions, outages and customer interactions with the SAPS, any capacity restrictions, customers rights and obligations, including where system augmentation is required, among other issues.

The specific information provision obligations, including the issues that must be covered as a minimum will be consulted on further at the rule development stage.

7.2 Jurisdictional consumer protection considerations

7.2.1 Background

To provide a complete set of consumer protection and safety regulations to consumers receiving electricity under a SAPS model of supply, there are state and territory energy functions that need to be considered.

Under the AEMA, state and territory functions include distributor technical and safety requirements, small customer dispute resolution, service reliability standards and the determination of distribution and retail service areas.[193] In addition to reliability, which is discussed separately in the next section, the jurisdictional consumer protections and safety regulations that should be analysed to determine if they should be applied to DNSP-led SAPS include:

- retail price protections
- access to state and territory concessions and rebates
- access to independent dispute resolution for both distribution and retail services
- safety requirements and monitoring regimes
- technical regulation such as equipment and performance standards, and
- other GSL payments.

Each of these consumer protections are discussed in more detail below.

Retail price protections

Under the AEMA, jurisdictions may utilise retail energy price controls where competition is "not yet effective for a market, group of users or a region".[194] Retail energy price controls can be transferred to the AER and the AEMC at the discretion of each jurisdiction.[195] For example, the AER's retail exempt selling guideline, applicable to exempt sellers, contains a pricing condition. In Tasmania, the ACT, the Northern Territory and for Ergon Energy's distribution

192 The Commission's recommendations on developing SAPS customer information and engagement requirements are in Chapter 3.
193 COAG, Australian Energy Market Agreement, Annexure 2.
194 COAG, Australian Energy Market Agreement, s. 14.15.
195 COAG, Australian Energy Market Agreement, s. 14.15(b).

network area in Queensland, the jurisdictional regulators have set regulated retail prices for grid-connected customers.[196]

Access to state-based energy concessions and rebates

Standard supply residential customers who meet certain conditions may be eligible for state-based electricity concessions and other payment assistance schemes. All residential standard customers are informed of the availability of energy rebates and payment assistance by their NERL authorised retailer, and can contact their retailer to determine if they meet the requirements to receive a concession.

Access to independent dispute resolution

Distributors and retailers are required to be members of any jurisdictional ombudsman schemes. Energy ombudsmen provide independent dispute resolution services for disputes relating to energy. Small customers can access jurisdictional energy ombudsmen to resolve disputes and complaints with their retailer and/or DNSP, with the retailer or DNSP bound by the ombudsman's decision.

Safety of electricity supply

When designing their grid connected networks, DNSPs are required to comply with a range of detailed safety obligations, taking all reasonable steps to make the network safe. Safety obligations vary between jurisdictions, and some jurisdictions impose obligations on DNSPs to implement a safety management system that expressly considers safety of the public, workers, property, the environment, and safety risks arising from a loss of supply. Jurisdictional regulators generally have audit and enforcement powers, and can apply penalties for failure to comply with these requirements.

Technical regulation such as equipment and performance standards

DNSPs must adhere to a number of technical regulations and design and performance standards when supplying grid-connected customers, and designing their networks. For example, there are design standards relating to overhead lines, underground lines, substations, generators, services and customer installations. In addition, there are quality of supply obligations relating to voltage range, frequency, and disturbances as well as enforcement regimes to monitor compliance with the obligations.

Other GSL categories

Under jurisdictional GSL schemes, each jurisdiction has GSLs for different services, with some jurisdictions having many GSLs, and some only a few. In addition to reliability GSLs discussed in the next section, some other jurisdictional GSLs include:

- notice of planned interruption

196 In the ACT, the Independent Competition and Regulatory Commission sets regulated prices for ActewAGL's retail regulated tariffs. In Tasmania, the Economic Regulator approves the regulated offer prices offered by Aurora Energy. In the Northern Territory, the Utilities Commission sets the maximum retail prices for small customers through an Electricity Pricing Order. In Queensland, the Queensland Competition Authority determines the regulated retail electricity price for Ergon Energy's standard contract.

- timeliness of new connections
- missed scheduled appointments
- timely repair of faulty streetlights
- wrongful disconnection
- time to respond to complaints
- time to respond to notification of a problem, and
- hot water complaints.

Ability to access land required for the supply of electricity

Although not a consumer protection, under jurisdictional regulations DNSPs have specific land access rights in order to install and maintain systems to supply grid-connected customers. For example, DNSPs may have rights to occupy public or private land, cross land, or resume land, undertake works, vegetation management and bushfire prevention measures. It is an area that also needs to be considered by jurisdictions in the context of SAPS supply.

7.2.2 Commission's draft position and recommendation

In the draft report the Commission considered that current jurisdictional consumer protections that cover grid-connected customers should be extended to customers in DNSP-led SAPS, with DNSP-led SAPS treated as an extension of the DNSP's distribution network. The intent of this approach was for customers in DNSP-led SAPS to receive consumer protections that are equivalent to what they received prior to transitioning to a SAPS.

The Commission's initial analysis suggested that many of these consumer protections may automatically apply to DNSP-led SAPS, as an authorised retailer would be required under all of the SAPS models of supply being considered by the Commission, and the customer would continue to be supplied by their current DNSP. However, the Commission noted that it had not undertaken detailed analysis of all jurisdictional regulatory instruments for each of the jurisdictional protections, and that the position may vary depending on the exact wording of the jurisdictional instrument in question.

The Commission considered that jurisdictions would need to review their legislative frameworks to confirm that jurisdictional protections extend to customers in a DNSP-led SAPS, and make any necessary amendments to the regulatory framework, codes, guidelines and any other legislative instruments if any of the protections are found to not apply to customers in DNSP-led SAPS in their current form.

7.2.3 Stakeholder submissions

Stakeholders who commented on jurisdictional consumer protections overwhelmingly agreed with the Commission's draft recommendation that jurisdictional consumer protections should be extended to DNSP-led SAPS.[197] For example, EWON considered that customers in a DNSP-

197 Submissions to the draft report: SA Government, p. 5; Clean Energy Council, p. 1; EWOQ, p. 1; Essential Energy p. 1; TasNetworks, p. 5; Red and Lumo, p. 2; ENA, p. 6; AGL, p. 4; PIAC, p. 7; EWON, p. 1: Spark Infrastructure, p. 4.

led SAPS should be able to access jurisdictional consumer protections including jurisdictional rebates, safety and technical regulations, and external dispute resolution.[198]

In relation to retail price protections, stakeholders were generally in agreement that some form of retail price protections would be required if there is no access to retail competition.[199] For example, Endeavour Energy supported price protections for an integrated service delivery model.[200] TasNetworks was supportive of the Commission's draft recommendation to extend existing jurisdictional pricing arrangements to DNSP-led SAPS customers in areas where there is current price regulation.[201]

In its submission to the draft report, the AEC cautioned against any approach that does not preserve competition, stating that requiring retail price controls is inconsistent with the long-term interest of consumers and that effective competition is required to maintain downward pressure on prices.[202]

7.2.4 Commission's analysis and final position

The Commission continues to consider that jurisdictional consumer protections should be extended to cover customers in DNSP-led SAPS including concessions, energy ombudsman, safety and technical standards to provide a complete framework for customers being supplied via a DNSP-led SAPS.

To better understand the intricacies of each jurisdiction's differing arrangements, the Commission has engaged with many of the State Government energy departments and jurisdictional regulators in the course of this review. However, the Commission has not carried out a detailed analysis of individual jurisdictional legislative instruments.

High level analysis of each consumer protection regulated by jurisdictions is detailed below.

Retail price protections

The recommended SAPS service delivery model closely emulates the conditions under which a customer would be supplied if they were connected to the national electricity grid — that is, with access to retail competition maintained. Therefore, in areas with market competition, customers would have retailer choice and be able access available market offers in the same manner as if they were grid-connected. Similarly, in areas where there is jurisdictional price regulation, for example in Tasmania and regional Queensland, customers would continue to pay the regulated price. Under this model of supply, the Commission considers that additional retail price protections would not be required.

198 EWON, submission to the draft report, p. 1.

199 Submissions to the draft report: Clean Energy Council, p. 1; EWOQ, p. 1; ENA, p. 6; AGL, p. 4; EWON, p. 1: Endeavour Energy, p. 3.

200 Endeavour Energy, submission to the draft report, p. 3.

201 TasNetworks, submission to the draft report, p. 5.

202 AEC, submission to the draft report, pp. 4-5.

Access to energy concessions and rebates

Vulnerable customers may be eligible for jurisdictional concessions or rebates. These are generally in the form of concessions and rebates for pension and concession card holder and/or low income customers, life support and medical energy cost rebates and emergency assistance towards energy costs.

A prerequisite for many of these rebates or concessions is that the applicant must be a customer of a retailer (or exempt seller in some cases) and be listed as the account holder. As the model recommended for DNSP-led SAPS includes retail services being provided by an authorised retailer, the Commission considers that customers in DNSP-led SAPS should be eligible for these rebates if they were eligible and met the other prerequisites as a grid-connected customer.

Access to energy ombudsman schemes for independent dispute resolution

As the customer will be supplied by a licensed DNSP and an authorised retailer who are required to be members of the jurisdictional energy ombudsman schemes, the Commission's analysis suggests that customers in a DNSP-led SAPS will be able to access energy ombudsman schemes for independent dispute resolution with either the DNSP or the retailer, and that decisions made by the respective energy ombudsman would be binding in the same way as they would for grid-connected customers. The individual jurisdictional regulatory instruments governing energy ombudsman schemes may need to be reviewed by each jurisdiction to confirm if this is the case.

Safety of electrical supply

Safety obligations are generally placed on DNSPs via jurisdictional safety Acts, Regulations, guidelines and licence conditions. Some jurisdictions have different safety legislation for DNSPs than other for other parties working on electrical infrastructure or 'electrical installations', other jurisdictions have one set of legislative instruments applying to electricity safety in general. Regardless, if DNSP-led SAPS are considered to be a distribution system (or similar, under jurisdictional definitions), the DNSP's safety obligations may extend to DNSP-led SAPS. If they are not automatically extended to DNSP-led SAPS, the Commission recommends that amendments are made to extend the DNSP's safety obligations to cover DNSP-led SAPS as well as the interconnected grid.

Technical regulation such as equipment and performance standards

Technical regulations and design and performance standards that DNSPs must adhere to when supplying their customers and designing their networks, as well as quality of supply obligations, would likely extend to DNSP-led SAPS, if SAPS are considered to be part of the distribution system under jurisdictional definitions. However, the Commission has not carried out a detailed investigation of the technical regulations applying in each jurisdiction. If technical regulations and design and performance standards are not automatically extended to DNSP-led SAPS, the Commission recommends that amendments are made to extend the DNSP's obligations to cover DNSP-led SAPS as well as the interconnected grid.

Other GSL categories

The Commission's high level analysis suggests that GSL categories that apply in different jurisdictions, apart from interruption of supply,[203] would be able to be applied to DNSP-led SAPS. There are no feeder categories or other issues that would restrict the application GSLs in categories such as notification of planned interruption, time to respond to complaints, missed scheduled appointments or connection timeframes.

Ability to access land required for the supply of electricity

In consideration of the land access rights conferred on DNSPs to provide electricity services in their distribution areas, if the DNSP-led SAPS is considered to be a distribution system under the relevant jurisdictional definition, then it is likely that the DNSP's land access rights would extend to maintaining DNSP-led SAPS and installing any associated distribution network. In some jurisdictions, if the SAPS is required to be located on the customer's property the DNSP may need to negotiate with the property owner to install a SAPS on their property.

Summary of recommendations

In summary, the Commission continues to consider that customers in DNSP-led SAPS should receive consumer protections that are equivalent to those they received prior to transitioning to a SAPS. Consequently, current jurisdictional consumer protections that cover grid-connected customers should be extended to customers in DNSP-led SAPS, with DNSP-led SAPS treated as part of the DNSP's distribution network.

As mentioned above, initial analysis suggests that many of these consumer protections may automatically apply to DNSP-led SAPS, as the customer would continue to be supplied by their current DNSP and an authorised retailer. However, the Commission has not undertaken detailed analysis of all jurisdictional regulatory instruments, and the position may vary depending on the exact wording of the jurisdictional instrument in question. Therefore, reviews of each regulatory instrument will be required by the responsible jurisdictional body.

7.3 Reliability

7.3.1 Background

Reliability of electricity supply is a key factor considered in the national energy objective. In the Western Power rule change, the Commission considered that having appropriate reliability standards for off-grid supply should be a prerequisite for rules allowing DNSP-led SAPS, and to enable the provision of SAPS by DNSPs to meet the NEO.[204] As reliability at the distribution level (and to a lesser extent transmission level) is a key customer concern, and reliability of SAPS will help determine whether allowing DNSP-led SAPS will help meet the NEO, it is important it is explored in detail in this review.

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203 In most jurisdictions interruption of supply GSL thresholds are categorised by feeder category, with different thresholds applicable for each category. Interruption of supply GSLs are discussed in more detail in the next section.

204 AEMC, *Alternatives to grid-supplied network services*, rule determination, 19 December 2017, p. 40.

Reliability refers to the extent to which customers have a continuous supply of electricity. A reliable supply of electricity requires generators to produce electricity and the transmission and distribution networks to transport the electricity to customers in real time.

In the NEM, the reliability that customers experience is a combination of the service provided by generators, transmission networks, and distribution networks. The Reliability Panel sets the reliability standard for generation in the NEM, which currently requires there to be sufficient generation to meet 99.998% of annual demand. However, most of the outages that customers experience are due to issues on the distribution networks. Each state and territory government retains control over how transmission and distribution reliability is regulated, which has resulted in different regulations in each jurisdiction.[205]

In general, each state and territory 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. Most states and territories also have a number of other measures to regulate distribution reliability.

In the context of stand-alone power systems, the reliability of supply of electricity will be determined by the service provided by the stand-alone power system. Irrespective of the source of an interruption to customer supply, the reliability associated with a SAPS system should be considered 'distribution reliability' for regulatory purposes on the basis that any interruptions to SAPS customers would be considered to be primarily within the control of the distribution business.

There are three types of reliability standards and service levels that DNSPs are required to aim to meet:

- jurisdictional reliability standards
- guaranteed service levels, and
- national reliability targets within economic regulation.

Jurisdictional reliability standards — SAIDI and SAIFI

The levels of reliability that must be provided by distribution (and transmission) networks are generally contained in jurisdictional licence conditions or in state codes or regulations. Jurisdictional distribution reliability levels are generally measured by the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI). Requirements for determining SAIDI and SAIFI targets, and the entity that determines the SAIDI and SAIFI targets, differ by jurisdiction.

Overall SAIDI is determined by the average minutes of supply interruption per customer. Overall SAIFI is determined by the average number of interruptions per customer. Most jurisdictions restrict SAIDI and SAIFI to unplanned supply interruptions. These measures are usually calculated by categories of feeder type. However, Tasmania does not categorise

205 COAG, Australian Energy Market Agreement, Annexure 2.

customers by feeder type, instead using geographical regions (which may make it easier to apply this measure to SAPS).

Guaranteed service levels

Under standard supply arrangements, customers (small customers only, in some jurisdictions) who are connected directly to the DNSP's network are subject to, by way of local legislation or codes, Guaranteed Service Levels (GSLs) covering areas such as reliability, customer service and connection and disconnection.

For reliability, there are generally GSLs for unplanned supply interruptions covering both duration and frequency of interruption. If the distributor does not achieve a minimum service level, it is required to pay the customer a nominal amount (ranging from $20 to $605 depending on the jurisdiction) in recognition that the GSL has been breached. The GSL payments are not intended to be reflective of the costs the customers may have incurred as a result of the interruption(s), but rather are some financial recognition of the outage(s).

To access a GSL payment, customers must be connected directly to the DNSP's distribution network through a metered connection point. The reliability thresholds that trigger a GSL payment vary between jurisdictions. Further, in most jurisdictions thresholds differ depending on the classification of the feeder the customer is supplied from (i.e. whether they are supplied by a CBD feeder, urban feeder, short rural feeder, long rural feeder or isolated feeder) and/or by distributor, or geographic region.

National reliability targets within economic regulation – STPIS

In addition to the jurisdictionally set service reliability standards, there are reliability performance targets for DNSPs set by the AER. These are set under the service target performance incentive scheme (STPIS).[206]

The AER is responsible for designing the STPIS under Chapter 6 of the NER. The primary purpose of STPIS is to encourage distributors to maintain existing levels of reliability and make improvements where customers are willing to pay for that improvement. The STPIS is applied in the Australian Capital Territory, New South Wales, Queensland, South Australia, Tasmania and Victoria.

Under the STPIS, DNSPs receive revenue increments (or decrements) for given levels of performance. The reliability supply parameters under STPIS are unplanned SAIDI, unplanned SAIFI and MAIFI (Momentary Average Interruption Frequency Index).

7.3.2 Commission's draft position and recommendation

In the draft report, the Commission recommended that jurisdictional GSLs for unplanned outages, and jurisdictional reliability standards including SAIDI and SAIFI cover DNSP-led SAPS. In addition, it was also recommended that the national STPIS includes DNSP-led SAPS in the calculation of DNSPs' targets.

206 Section 2.1(a) of the AER's Electricity distribution network service providers - Service target performance incentive scheme, version 2.0 (November 2018).

It was noted in the draft report that to achieve this recommendation, jurisdictions would need to review the legislative instruments for GSL schemes and reliability standards to determine if any changes are required to apply the scheme and standards to DNSP-led SAPS. Additionally, DNSPs will be required to provide monitoring and communications functionality within the SAPS, so unplanned outage information can be recorded and utilised to determine any applicable GSL payments, as well as jurisdictional and national reliability standards.

The Commission noted it would further examine the STPIS rules and guidelines to confirm that DNSP STPIS targets will incorporate DNSP-led SAPS in the final report, and that this may depend on how the DNSP's network is defined.

The Commission's draft position was to not recommend additional reliability standards or targets for individual SAPS, rather customers in DNSP-led SAPS are to receive protections equivalent to grid-connected customers.

7.3.3 Stakeholder submissions

In their submissions to the draft report, the majority of stakeholders agreed that the reliability standards and service levels that apply for DNSP-led SAPS should be equivalent to those that apply for grid-connected customers.[207]

TasNetworks, ENGIE and AGL were supportive of STPIS and jurisdictional reliability schemes, or equivalent, being extended to SAPS customers.[208]

The South Australian Department for Energy and Mines was supportive of customers of DNSP-led SAPS receiving reliability standards equivalent to grid-connected customers to provide confidence to those customers. However, it suggested that the exact standards that apply to standard grid-connected customers will not be appropriate. It considered that each jurisdiction will need to consider their reliability requirements and how these may apply to SAPS including a potential SAIDI and SAIFI target for a SAPS feeder, and a review of appropriate GSLs.[209]

In its submission to the draft report, Ausgrid noted that NSW reliability standards do not currently cater for SAPS. Nevertheless, Ausgrid considered that equivalent, though not necessarily exactly the same, reliability standards should apply to DNSP-led SAPS. Further, Ausgrid noted that the isolated nature of SAPS may present new challenges of maintaining supply, especially when undertaking planned maintenance.[210]

A number of stakeholders expressed views in relation to achievable reliability levels for off-grid supply solutions. ARENA considered that customers would be able to leave the grid while maintaining current reliability standards using a mix of technology including concentrated solar thermal, PV, batteries and diesel.[211] Although the ENA and AEC noted trials to date

207 Submissions to the draft report: SA Government, p. 7; Clean Energy Council, p. 1; AER, p.5; Tesla, p. 6; Energy Queensland, p. 9; Ausgrid, p. 5; TasNetworks, p. 5; Essential Energy, p. 1; Endeavour Energy, p. 3; ENA, p. 6; ENGIE, p. 6; AGL, p. 4; PIAC, p. 7; EWON, p. 1.

208 Submissions to the draft report: TasNetworks, p.5; ENGIE, p. 6; AGL, p. 4.

209 SA Government, submission to the draft report, p. 7.

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

211 ARENA, submission to the draft report, p. 1.

suggest improved reliability compared to grid supply, [212] Horizon Power noted that the long-term reliability and service quality of SAPS is untested, and choice of equipment may result in differences in the amount of maintenance and replacement required to maintain reliability levels.[213]

7.3.4 Commission's analysis and final position

The stakeholder consultation that the Commission has undertaken as part of this review, including bilateral meetings and site visits to remote IPS and microgrids, has underscored the key importance of reliability to customers.

For DNSP-led SAPS the Commission continues to consider that reliability, security and quality standards with equivalent principles to those for grid-connected customers should apply. Although the standards and measures do not necessarily need to be exactly the same as those that apply to grid-connected customers, reliability standards, GSL payments and STPIS should be extended to encompass DNSP-led SAPS. In most jurisdictions, changes to the reliability standards and GSL schemes will be required to broaden their application to cover DNSP-led SAPS customers.

In the course of this review, the Commission has considered the appropriateness of developing additional reliability standards to reflect the reliability experienced by customers in each SAPS, as suggested by some stakeholders in submissions to the issues paper. However, the Commission considers that applying reliability standards to individual customers is not in line with the treatment of customers in the rest of the NEM. Consequently, the Commission does not recommend additional reliability standards or targets for individual SAPS.

The extension of jurisdictional reliability standards, GSL schemes, and STPIS to DNSP-led SAPS is discussed briefly below, and in more detail in Appendix B of this report.

Jurisdictional reliability standards – SAIDI and SAIFI

The Commission considers that SAIDI and SAIFI and other jurisdictional reliability standards should continue to apply to customers when they are transitioned to DNSP-led SAPS. The requirements for determining SAIDI and SAIFI targets differ by jurisdiction. These measures are calculated by categories of feeder type in New South Wales, Queensland, Victoria and South Australia, with different measures applying for each distributor. There are currently no feeder categories identified for SAIDI and SAIFI that would be applicable for off-grid supply in these jurisdictions.

Tasmania does not categorise customers by feeder type for reliability standards and instead uses geographical regions. There are five supply reliability categories, under which 101 geographical communities are grouped. It appears likely that this approach would be able to accommodate DNSP-led SAPS.

212 Submissions to the draft report: AEC, p. 5; ENA, p. 6.

213 Horizon Power, submission to the draft report, p. 6.

Guaranteed Service Levels

The Commission considers that customers supplied via DNSP-led SAPS should have access to equivalent supply interruption GSLs as standard supply customers. Currently, in most jurisdictions, GSLs for unplanned supply interruptions apply to customers connected to DNSPs' distribution network through a metered connection point, with thresholds for GSL payments differing depending on the classification of the feeder the customer is supplied from (i.e. whether they are supplied by a CBD feeder, urban feeder, short rural feeder, long rural feeder or isolated feeder), or whether the customers are in an area considered to be metropolitan or non-metropolitan/ rural.

If GSL thresholds are set by feeder category, some jurisdictions will need to provide an additional feeder category or similar to accommodate off-grid supply. Queensland has an isolated feeder category which already applies to off-grid supply. Additionally, jurisdictions will need to review their instruments to ensure customers with a metered connection point in a DNSP-SAPS are classified as satisfying the current pre-condition in some jurisdictions that customers must be connected directly to the DNSP's distribution network through a metered connection point to be able to access GSL payments.

National reliability targets within economic regulation – STPIS

STPIS provides networks with incentives to maintain existing levels of reliability and make improvements where customers are willing to pay for that improvement. The Commission considers that STPIS should encompass DNSPs' SAPS as well as their main distribution network. This scheme would apply to SAPS as the supply of electricity via SAPS should be classified as a standard control service.[214]

Other considerations

In order to determine the number of unplanned interruptions experienced by customers in a DNSP-led SAPS so GSL payments and reliability standards can be applied, it is clear that monitoring and communications functions will be required within the SAPS.

The treatment of exclusions and major event days when determining the DNSP's performance against reliability standards also requires consideration. When considering the performance of a distribution network (or when applying an incentive scheme), it is common to remove events that are beyond the control of a distribution business from the calculation of distribution reliability standards.[215]

When considering stand-alone power systems, there are unlikely to be many (if any) interruptions to supply caused by the generation and network elements of a SAPS which would be considered outside the control of the distribution business, and therefore which would need to be considered for exclusion from the reliability standards. However, in the

214 See section 6.4.

215 The removal of some types of interruptions from a data set being considered when calculating distribution reliability standards could occur for 'exclusions' (that is, where an interruption, or the impact of the interruption, is outside the control of the distributor) or 'major event days' (where the interruptions on that day are not regarded as representative of daily operation, usually due to the weather conditions on the day). While there is broad agreement between stakeholders on the definitions and treatment of exclusions and on the definitions and treatment of major event days in the calculation of jurisdictional reliability standards, these are not prescribed in the national frameworks.

context of other interruptions outside the control of the DNSP (for example, a major natural disaster), the Commission considers that the relevant regulatory body would be best placed to make a decision on whether or not to adjust the data on interruptions to take account of these events, consistent with current jurisdictional arrangements.

Summary of recommendations

The Commission's final position is that jurisdictional GSLs for unplanned outages, and jurisdictional reliability standards including SAIDI and SAIFI should cover DNSP-led SAPS. In addition, STPIS should include DNSP-led SAPS in the calculation of DNSPs' targets.

This contributes to maintaining the Commission's principle that customers should be no-worse-off on transition to a DNSP-led SAPS.

To implement this recommendation, jurisdictions will need to review the legislative instruments for GSL schemes and reliability standards and make any changes to apply the scheme and standards (or equivalent standards) to DNSP-led SAPS. This may require the creation of additional feeder categories or similar in many jurisdictions.

As the supply of electricity via a DNSP-led SAPS should be classified as a standard control service, and the Commission is recommending changes to include DNSP-led SAPS under the definition of the DNSP's distribution system, STPIS can be extended to encompass DNSP-led SAPS along with the DNSP's interconnected network.

Treatment of exclusions and major event days to determine which supply interruptions may be considered outside of the DNSPs' control, and therefore excluded from distribution reliability standards, require consideration by jurisdictional regulators for GSL schemes and jurisdictional reliability standards, and by the AER for STPIS.

The Commission considers that to be able to determine whether DNSPs have met reliability standards, or if GSL thresholds have been exceeded, DNSPs will be required to provide monitoring and communications functionality within the SAPS, to record unplanned outage information.

The changes that may be required to provide jurisdictional reliability standards and GSL schemes in each jurisdiction, as well as to apply STPIS to DNSP-led SAPS, are discussed in more detail in Appendix B of this report.

8 TRANSITION TO THIRD-PARTY SAPS

RECOMMENDATION 6: DECISION MAKING FRAMEWORK

As required by the terms of reference, this report also includes a number of recommended amendments to the national frameworks to enable the transition of existing DNSP customers to SAPS supply provided by parties other than the local distribution business (that is, to a "third-party SAPS").

In relation to the decision making framework for customer transition to a third party SAPS, the Commission recommends that the third party obtain the written consent of each prospective SAPS customer, having regard to a set of explicit consent requirements, before transitioning them to a third party SAPS. The explicit consent requirements should include requirements to disclose, in a readily understandable manner, information on:

- the third party provider
- 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.

The transition of grid-customers to third-party SAPS supply may involve the transfer, removal or decommissioning of assets previously used to supply these customers from the grid. In relation to asset transfer and stranded assets arrangements for third party SAPS, the Commission recommends that the third party compensate the DNSP for costs related to stranded assets as a result of the transition, under AER guidance. In addition, the existing asset disposal methodology should apply to a DNSP's regulated assets that are sold to a third party.

This chapter discusses the Commission's analysis and final recommendations on a national framework for customer transition from a DNSP interconnected grid or DNSP SAPS[216] to a third party SAPS.

The chapter covers the:

- preconditions for a customer to transition from a DNSP interconnected grid or SAPS to a third party SAPS
- stranding of assets and transfer of assets between a DNSP and the third party when a customer transitions from a DNSP interconnected grid or SAPS to a third party SAPS.

216 This chapter considers a DNSP SAPS to be part of the DNSP's distribution system, consistently with the Commission's final recommendations in this report.

8.1 Approach

The Commission defines third-party SAPS as SAPS that a party other than the local DNSP (third party) owns, operates or controls (SAPS service provider).

Third-party SAPS include third party individual power systems and microgrids that supply:[217]

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

This chapter discusses the Commission's analysis and draft recommendations in relation to the first two, that is, third party stand-alone power systems that supply customers that transition from a DNSP interconnected grid or DNSP SAPS.

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

- the customer (for an individual power system)
- community group (customers of a microgrid)
- local council
- developer
- embedded network operator, and
- a third party electricity market participant (which may be a retailer or a ring-fenced affiliate of a DNSP).

The framework will not specify the types of third parties that may offer a SAPS.

Under Priority 2 of the review[218] the Commission is developing regulatory arrangements for service delivery and consumer protections for third party stand-alone power systems. The Commission's Priority 2 recommendations will set out a framework for the ongoing regulation of third party SAPS.

8.2 Customer consent requirements

In developing a national decision making framework to support the transition of DNSP customers[219] to a SAPS facilitated by a third party, this chapter considers the following:

- should customer consent, or approval from a regulator, be required where the third party that facilitates the transition is not the customer[220]

217 Under Priority 2 of the review, the Commission may have different recommendations based on whether the SAPS is a microgrid or individual power system.

218 The Commission will publish a draft report that covers Priority 2 of the review in June 2019.

219 DNSP customers in this chapter refers to customers of a DNSP interconnected grid and DNSP SAPS customers. Consistent with the Commission's recommendations elsewhere in the report, DNSP grid refers to both the interconnected grid and any DNSP SAPS as well.

220 For example, in the event that a local council or embedded network operator is considering moving a group of customers to a SAPS model of supply, whether consent should be obtained from some, or all, of the affected customers before proceeding.

- if customer consent is required, what consent mechanism should be used, how should consent be obtained, and what proportion of transitioned customers should consent to the transition, and
- what consent conditions should apply?

8.2.1 Background

The Commission's draft recommendation on the decision making framework for customers to transition from a DNSP interconnected grid or DNSP SAPS to a third party SAPS considered the drivers behind the decision to transition customers to a third party SAPS.

The Commission considered that, unlike DNSP-led SAPS that would be driven by economic efficiency objectives,[221] the drivers for the decision by a third party to transition customers to a SAPS may include one or a combination of the following:

- regional development policy
- innovation initiatives
- environmental considerations, and
- self sufficiency initiatives.

These initiatives may be driven by the customer/s or by a third party.

The Commission considered that the framework would not specify the drivers for customers to transition to a third party SAPS, but rather would consider them in the context of an efficiency pre-condition and consent.

8.2.2 Commission's draft position

Efficiency pre-condition

The Commission considered whether it would be appropriate for a third party to proceed with the transition of DNSP customers to a third party SAPS if there is a risk that the decision will have a negative impact on economic efficiency.

The Commission noted the submissions of AGL, Ausgrid, Endeavour Energy, Energy Queensland, Western Power and ENA to the effect that the DNSP's customers that are left behind may have to pay more than they otherwise would have for their electricity supply to cover historical costs that were incurred in order to support customers that are now transitioning to a third party SAPS.[222]

However, the Commission considered that any efficiency loss or gain due to the transition of DNSP customers to a third party SAPS would be primarily linked to the allocation of returns on fixed capital expenditure between the two sets of customers. This is discussed further in section 8.3, and would be addressed by the recommended mechanism to compensate the customers remaining on the grid for reallocation of the costs associated with any stranded assets.

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221 Chapter 3 discusses the efficiency case for transitioning customers off the grid when a DNSP is leading the transition.

222 Submissions to the issues paper: AGL, p. 6; Ausgrid, p. 7; Endeavour Energy, p. 3; Energy Queensland, pp. 18-19; Western Power, p. 3; ENA, p. 10.

Customer consent and regulator approval

The Commission considered the role of customer choice in the decision to move customers to off-grid supply where this is facilitated by a third party. The Commission's draft position was that a third party should obtain the consent of customers transitioning to the third party SAPS.

Customers transitioning to a third party SAPS are being disconnected from the DNSP grid, and are therefore likely to have to give up their electricity retail offer or modify it and are also likely to experience a different service level. In cases where these customers have been benefiting from a cross subsidy across the interconnected grid from lower cost to serve customers, these customers will lose access to the cross subsidy and may pay more for their electricity supply. Moreover, as discussed in section 8.3, these customers may be required to pay compensation to the DNSP for transferred or stranded assets.

The Commission also considered whether the consent of customers left behind on the grid should also be sought if they were impacted by the transition in any way, for instance through asset costs being spread across a smaller number of customers and thereby increasing tariffs. However, the Commission decided that as with any instance of customer disconnection, the consent of the customers left behind should not be required. Rather, customers remaining on the grid would be kept whole through the stranded asset mechanism described in section 8.3.

The Commission applied the same rationale to determine that consent from the AER or jurisdictional regulator to transition DNSP customers to a third party SAPS should also not be required. Customers moving to a SAPS should be doing so on a fully informed basis, and customers remaining with the DNSP will be kept largely whole.

Customer consent mechanism

The Commission considered that the third party should obtain the explicit informed consent of each customer in written form before transitioning them from the DNSP grid to a third party SAPS.

Conditions for the transition and reconnection

The Commission's draft position was that customer consent to transition to third party off-grid supply should be based on a set of conditions that include:

- information about the third party
- information about the SAPS system
- the SAPS supply model, setting out service and maintenance responsibilities[223]
- expected consumer outcomes such as prices, service standards and consumer protection safeguards.

The Commission also considered that an obligation for reconnection should not rest with the DNSP. A DNSP's remaining customers should not bear the cost of providing, or the cost of

223 The Commission will review the SAPS supply model and consumer protection framework for customers transitioned to third party SAPS in more detail in priority 2 of the review.

remaining ready to provide, reconnection services to customers who have chosen a different supply option. Rather, the DNSP should be free to remove or reallocate its infrastructure and to divest any interest in land that it no longer requires, for the benefit of its remaining customers. Reconnection should be treated as a new connection service in the normal manner, as set out in chapter 5A of the NER.

8.2.3 Stakeholder submissions

The South Australian Governmengt and the AER were supportive of the AEMC's draft recommendations.[224] Energy Queensland considered that recommendations for the transition to third-party SAPS would be premature before the framework for third-party SAPS was finalised.[225] AGL considered that the Commission should examine whether to align the decision-making framework for DNSP and third-party SAPS.[226]

Efficiency pre-condition

AusNet Services agreed that demonstration of efficiency was not relevant to an unregulated service decision.[227] TasNetworks expressed some concern about whether all stranded and incremental costs would be captured in compensation to DNSPs, recognising the AEMC's draft position that an efficiency pre-condition is not required.[228] The ENA noted that, while it advocated for an efficiency precondition in its submission to the issues paper, it could accept that no efficiency pre-condition is proposed given that the proposed asset transfer and stranded assets framework accounts for this in the form of commercial arrangement and compensation for efficiency losses.[229]

Customer consent and regulator approval

TasNetworks considered that the third party should offer broad consultation.[230]

AusNet Services supported consent where the service offering was different.[231]

Customer consent mechanism

EWON, the South Australian Department for Energy and Mining, ENA, Ausgrid, Essential Energy and Endeavour Energy supported explicit informed consent of transitioned customers as a requirement for customers transitioning to a third party provider.[232] Of these, Ausgrid, EWON and the South Australian Government explicitly clarified that customers meant all transitioned customers (that is, 100 percent).

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224 Submissions to the draft report: South Australian Government, p. 7; AER, p. 7.
225 Energy Queensland, submission to the draft report, p. 2.
226 AGL, submission to the draft report, p. 5.
227 AusNet Services, submission to the draft report, p.3.
228 TasNetworks submission to the draft report, p. 5.
229 ENA, submission to the draft report, p. 6.
230 TasNetworks, submission to the draft report, p. 4.
231 AusNet Services, submission to the draft report, p. 2.
232 Submissions to the draft report: Endeavour Energy, p. 3; Essential Energy, p. 7; Ausgrid, p. 6; ENA, p. 6; EWON, p. 3, South Australian Government, p. 2.

EWON supported the provision of detailed information to customers but stated that "It is critical however that this information is provided in 'easy English' and is therefore easily understood by CALD [culturally and linguistically diverse] and low-literacy customers."[233]

TasNetworks considered that DNSP consent should also be obtained in order to avoid adverse technical outcomes and costs.[234]

Conditions for the transition and reconnection

AusNet Services agreed with the Commission's reasoning that explicit informed consent from customers is necessary where the customer becomes subject to a different service offering.[235] EWON also agreed with the Commission's that consent should be based on a set of requirements that include providing the customer with detailed information.[236] Likewise, ENA supported the view that customers should be fully aware of the likely price and reliability impacts before they transition.[237]

ENGIE and TasNetworks said that the same technical and reliability standards should apply to SAPS as apply to the distribution network.[238] TasNetworks also said that if third party SAPS could allow for lower standards of service, then the same freedom should be allowed to DNSPs to tender on a negotiated basis.

PIAC considered that certain consumer protections, such as compliance with safety regulations, access to independent dispute resolution processes and compliance with minimum warranty obligations, should be considered unalienable.[239] Consumer protections for third party SAPS will be considered more generally in our priority 2 work.

Energy Queensland agreed that customers supplied by a SAPS solution should not have a right to reconnection, noting that reconnection costs could be significant if parts of the network have been removed and replaced with a SAPS, and that these costs should not be shared by all customers.[240]

TasNetworks suggested that, as with DNSP SAPS, there should be no automatic right of reconnection to the grid.[241]

8.2.4 Commission's analysis and final recommendation

Efficiency pre-condition

The Commission has maintained its draft position. No formal efficiency pre-condition is proposed. Customers should be free to move to a different supply model, subject to addressing consequences for other customers, as discussed further in section 8.3.

233 EWON, submission to the draft report, p. 3.
234 TasNetworks, submission to draft report, p. 3.
235 AusNet Services, submission to the draft report, p. 3
236 EWON, submission to the draft report, p. 3.
237 ENA, submission to the draft report, p. 6.
238 Submissions to the draft report: ENGIE, p. 6; TasNetworks, p. 6.
239 PIAC, submission to the draft report, p. 6.
240 Energy Queensland, submission to the draft report, p. 7.
241 TasNetworks, submission to the draft report, p. 6

Consent of customers

The Commission's final recommendation is that a third party should obtain the consent of customers before transitioning them to a third party SAPS. The Commission has considered the role of customer choice in the decision to move customers to off-grid supply where this is facilitated by a third party. This is relevant to the transition cases in which the third party that facilitates the transition is not the customer(s). [242]

The Commission considers that, for the purpose of consent, transition to a third party SAPS is equivalent to disconnection from the DNSP, which can currently only be done at the customer's request.

The Commission considers that a third party should seek the consent of a customer before transitioning it to a third party SAPS for the following reasons:

- the customer will have to disconnect from the DNSP grid and enter into a connection agreement with the third party SAPS provider.
- the customer is likely to have to give up its electricity retail offer or modify it and is also likely to experience a different service level (improved or worsened).
- in cases where the customer has been benefiting from a cross subsidy across the interconnected grid from lower cost to serve customers, the customer is also likely to lose access to the cross subsidy and may pay more for its electricity supply.
- the customer may be required to pay a compensation to the DNSP for stranded assets.[243]

The draft report also considered whether the consent of customers left behind on the grid should also be sought if they were impacted by the transition.[244] The Commission's draft position was that, as with any instance of customer disconnection, the consent of the customers left behind should not be obtained.[245] The Commission has not received submissions opposing this position[246], and its final recommendation is unchanged. Under the Commission's proposal, customers left behind will not be left to pay for assets that are stranded as a result of other customers migrating to a SAPS supply.

Approval of the regulator

The Commission has maintained its position on consent requirements from the AER or jurisdictional regulator to transition DNSP customers to a third party SAPS. The Commission considers that the AER's approval should not generally be required prior to transfer to a third party SAPS. Rather, the AER would enforce the consent requirements that would be contained in the NER, including information disclosure requirements. The AER may however have a role in approving stranded asset and asset transfer aspects, as discussed in section 8.3.

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242 For example, in the event that a local council or embedded network operator is considering moving a group of customers to a SAPS model of supply, there is a question around whether the Council should be required to obtain consent from some, or all, of the affected customers before proceeding.

243 This is discussed further in section 8.3.

244 For instance, through asset costs being spread across a smaller number of customers and thereby increasing tariffs.

245 The compensation of the remaining customers for asset re-allocation costs is discussed below.

246 noting that TasNetworks position was qualified - see pp. 5-6 of TasNetworks submission to the draft report.

The Commission will examine general authorisation and tenure issues for third party microgrids as part of its priority 2 work.

Customer consent mechanism

Having established that it is necessary for customers to consent to being transitioned off the grid to a third party SAPS, the Commission has considered the mechanism to seek consent. This includes how consent should be obtained, and the proportion of transitioned customers that should consent to the transition.

The Commission considers that customer consent to disconnect from the DNSP grid and transition to a third party SAPS should be obtained in written form. For the purpose of consent, transition to a third party SAPS is analogous to disconnection from the DNSP, which can currently only be done at the customer's request. As such, the Commission recommends that the national framework set out consent conditions, similar in purpose to the explicit informed consent provisions in the NERR, but relating to DNSP customers that a third party seeks to connect to a third party SAPS.

Consistent with most submissions the Commission continues to consider that, when a group of customers is being transitioned off the DNSP grid by a third party, all customers in that group should consent to the transition. Where supply is to be from an IPS the individual customer's consent must, of course, be obtained.

Conditions for the transition and reconnection

A third party wishing to transition a customer or group of customers off the DNSP grid and to a SAPS should provide the customer(s) with relevant detailed information. The Commission also considers that the third party should consult with the customer(s) over a specific period between proposing the transition and the transition (if it goes ahead).

The Commission considers that the relevant information provided by the third party should constitute a set of consent conditions, and include information on:

- the third party
- the SAPS system
- the SAPS supply model, including service and maintenance responsibilities[247]
- expected consumer outcomes such as prices, service standards and consumer protection safeguards.

As discussed above, the Commission considers that customers who have transitioned to a third party SAPS should be treated as disconnected customers for the purposes of the national grid, and as such, agrees with submissions that reconnection to the DNSP grid would be treated as a new connection, including requirements to contribute to the cost of connections where applicable.[248] Therefore, a separate DNSP reconnection obligation should not be a consent condition for these customers.

247 The Commission will review the SAPS supply model and consumer protection framework for customers transitioned to third party SAPS in more detail in priority 2 of the review.

248 In accordance with the requirements of chapter 5A of the NER.

Final recommendations: Decision making framework

In summary, the Commission's recommendations in relation to the decision making framework for customer transition to a third party SAPS are as follows:

- a third party should obtain written consent of each customer, based on a set of explicit consent requirements, before transitioning them to a third party SAPS
- explicit 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.

The Commission considers that these recommendations enable energy consumers to select the energy supply option that they consider to be in their long term interest on an informed basis.

8.3 Asset transfer and stranded assets

This section discusses the Commission's recommendations in relation to the framework for payment and regulatory treatment of transferred and stranded assets when customers transition from a DNSP to a third party SAPS proponent. Stranded assets are those that are no longer required to supply either the transitioned customers or customers remaining on the grid. The section discusses the following:

- asset transfer
- stranded assets, and
- accounting for asset transfer and stranded assets.

8.3.1 Background

Transitioning customers from the interconnected grid to a third party SAPS supply model may involve the removal or decommissioning of the set of assets previously used to supply the transitioned customers from the grid, and may also entail the transfer of other assets between the DNSP and the third party SAPS provider. As customers may transition to a third party SAPS before the DNSP assets serving them reach the end of their economic lives, these DNSP assets may be stranded as a result of the transition.

This section considers the transfer of assets between a DNSP and the third party when a customer transitions from a DNSP interconnected grid or SAPS to a third party SAPS, and the treatment of stranded assets.

8.3.2 Commission's draft position

Asset transfer

The Commission considered that the third party may wish to purchase DNSP assets after customers decide to transition from the DNSP grid to a third party SAPS. This may be more relevant where, for example, customers are transitioning from a DNSP SAPS to a third party SAPS, or from a DNSP interconnected grid to a large microgrid (for example a whole town, which would contain existing distribution assets that could be used for the microgrid).

The Commission considered that these transfers would be governed by commercial negotiations between the DNSP and third party as the DNSP may not wish to sell the assets, and the third party SAPS provider may not wish to purchase them.

However, the Commission considered that the compensation for the transferred assets that the DNSP receives from the third party should be included in the DNSP's regulatory accounts. Moreover, the Commission considered that any assets that are no longer used to supply DNSP customers should be removed from the DNSP's regulatory asset base. This is discussed further below.

Stranded assets

The Commission's draft recommendation was that the third party should compensate the DNSP for costs related to stranded assets as a result of the transition under AER guidance, and may choose to levy this compensation on the transitioned customers.

As discussed earlier, customers may transition before the DNSP assets serving them reach the end of their economic lives. Such assets would then be stranded if:

- the DNSP and the third party SAPS provider do not agree on an asset transfer, in cases where the assets would have been useful for the third party SAPS
- the assets are not useful for the third party SAPS (for example, interconnected grid assets in case of a transition from DNSP interconnected grid or different SAPS solution assets in case of a transition from a DNSP SAPS).

The Commission considered that the third party should compensate the DNSP (and through the DNSP its retained customers) for the loss that resulted from asset stranding.

Accounting for asset transfer and stranded assets

The Commission's draft recommendation was that the national framework should set out provisions for the AER to account for any asset transfer, re-allocation and stranding in the DNSP's regulatory accounts.

Transitioning customers from a DNSP's interconnected grid or SAPS to a third party SAPS would result in the following:

- assets that are directly linked to the supply of electricity to the transitioned customers would either become stranded or be acquired by the third party
- assets that were previously used to supply electricity to both the transitioned customers and those that are left behind on the DNSP's grid but, going forward, will only be used to

supply the customers that continue to be grid connected, will be allocated fully to these remaining DNSP grid customers.

The Commission considered that the DNSP should be required to remove from its RAB the value of any assets that it no longer required to serve the remaining grid customers, which includes stranded assets and assets transferring to the SAPS. The Commission also considered that the current asset disposal methodology in the NER could be used to write off assets from the RAB.

The Commission considered that, for assets that become fully allocated to the remaining grid connected customers, the DNSP would allocate the depreciation of, and return on, these assets across the remaining grid customers only, and that the AER should have the discretion to decide on the asset valuation principles, and may publish a guideline for stakeholders.

8.3.3 Stakeholder submissions

The South Australian Department for Energy and Mining, the ENA and the AER were generally supportive of the AEMC's recommendations.[249] Energy Queensland considered that recommendations for the transition to third-party SAPS would be premature before the framework for third-party SAPS was finalised.[250]

Spark Infrastructure, AusNet Services, Essential Energy and TasNetworks also agreed that the framework should allow the DNSP's compensation for losses.[251] Spark Infrastructure considered that the NER should provide guidance on the treatment of stranded assets.[252] TasNetworks requested clarification that the compensation covered other DNSP costs related to security, safety and reliability obligations on its remaining network that might arise from the transition.[253]

TasNetworks Endeavour Energy also considered that a cost-reflective price signal should be provided to third-parties electing to transfer customers to a competitively provided SAPS.[254]

EWON, ENA, Ausgrid, Essential Energy and Endeavour Energy supported an AER administered mechanism in relation to asset transfers and stranded assets.[255]

Ausgrid considered that the AEMC should clarify the role of the process.[256] The AER was supportive of providing regulatory oversight on asset disposals and transfers, as they do now in the context of asset disposals.[257] Endeavour Energy, EWON, the South Australian Government supported an AER role in asset transfers and stranded assets.[258]

249 Submissions to the draft report: South Australian Government, p. 7; ENA, p. 6; AER, p. 7.
250 Energy Queensland, submission to the draft report, p. 2.
251 Submissions to the draft report: TasNetworks, p. 2; Essential Energy, p. 7; AusNet Services, p. 3; Spark Infrastructure, p. 5.
252 Spark Infrastructure, submission to the draft report, p. 5.
253 TasNetworks, submission to the draft report, p. 5.
254 Endeavour Energy, submission to the draft report, p. 3.
255 Submissions to the draft report: Endeavour Energy, p. 3; Essential Energy, p. 7; Ausgrid, p. 6, ENA, p. 6; EWON, p. 3.
256 Ausgrid, submission to the draft report, p. 6.
257 AER, submission to the draft report, p. 7.
258 Submissions to the draft report: Endeavour Energy, p. 3; EWON, p. 3, South Australian Government, p. 7.

8.3.4 Commission analysis and final recommendations

Asset transfer

The Commission's position remains as it was in the draft report.

The Commission continues to consider that transfers of assets between the DNSP and a third party would be governed by commercial negotiations between the DNSP and the third party. The value of any assets that are no longer used to supply DNSP customers would be removed from the DNSP's RAB.

In practice, it is expected that the floor for any purchase price would be the compensation payable for stranded assets, plus the value of recoverable assets and land, and the ceiling would be the new build cost. Both parties should be motivated to find a price that avoids the stranding of the assets where those assets would be useful to the SAPS proponent.

The Commission also maintains that asset sales should be dealt with under the asset disposal methodology in the NER[259] so that proceeds in excess of regulatory values contribute additional benefits to the DNSP's remaining customers.

Stranded assets

Customers may transition before the DNSP assets serving them reach the end of their economic lives, which may lead to the stranding of these assets.

The Commission considers that the third party should compensate the DNSP for the loss that results from asset stranding. The DNSP and, through it, consumers who remain connected to the DNSP's network, should not be left to carry the cost of investments where those investments have been made in assets for the benefit of a particular set of consumers, but where those consumers choose to cease using them.

Further, in order to optimise allocative efficiency it is important for different options to compete on a like for like basis, ignoring sunk costs. The DNSP incorporates sunk costs through its return on and of capital. Adding an equivalent cost, albeit through an upfront stranded asset charge, to the third party SAPS option means that both the SAPS option and the DNSP supply option will be compared purely on the basis of additional costs that will be incurred going forward, leading to more economically efficient decisions.

Should the third party SAPS proposal proceed, then the third party can then levy compensation on the transitioned customers through either a one-off or ongoing fee.

The Commission considers that no charge should apply for stranded assets where an individual customer with a basic connection service moves to an IPS, as the provision of a basic connection service "involves minimal or no augmentation of the distribution network".[260]

Accounting for stranded assets

The Commission considers that the existing asset disposal methodology should be used to write off assets from the RAB. However, the strength of incentives for DNSPs to maximise

259 NER schedule 6.2, S6.2.1(6).

260 See the definition of "basic connection service" in rule 5A.A.1 of the NER.

sale price should be considered against maximising the long term interests of both DNSP and third party SAPS consumers. Apparent DNSP cost savings may arise simply because the DNSP has fewer customers and has received sale proceeds, rather than through genuine efficiency improvements. The interaction between revenue, customers no longer served, proceeds received and incentives will need to be considered.

The AER will have an oversight role on how the DNSP accounts for the asset transfers, stranded assets and asset re-allocation through the revenue determination process and through setting capital and operating expenditure incentives. The AER is therefore well placed to examine and adjust revenue allowances and incentives, taking proceeds, changes to the DNSP customer base and network changes into account.

It follows that the AER should also have a role in providing guidance on the valuation of stranded assets for the purpose of compensating the DNSP.

Final recommendations: Asset transfer and stranded assets

The Commission's final recommendations in relation to the asset transfer and stranded assets due to customer transition from a DNSP to a third party SAPS are similar to the Commission's draft recommendations, as follows:

- 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 DNSPs regulated assets that are sold to a third party.

The Commission considers that these recommendations will allow the efficient allocation of the costs of transitioning customers to a third party SAPS between DNSP grid customers and transitioned customers.

9 IMPLEMENTATION

This final report sets out the Commission's recommended regulatory framework to allow stand-alone power systems to be used by DNSPs as an alternative to standard grid supply where it would be economically efficient to do so, while preserving consumer protections comparable to those afforded to customers supplied via the interconnected grid.

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

- to the NEL and NERL in order to recognise the provision of SAPS by distribution businesses as a regulated service and to allow rule changes to be made to implement the recommended framework
- to the NER and NERR in order to introduce rules to apply the recommended framework, and
- to jurisdictional instruments so that they are consistent with, and supportive of, the recommended framework.

In this context, this chapter sets out the Commission's proposed implementation plan for the recommended regulatory framework for SAPS provided by distribution businesses as a regulated service. 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.

Section 9.5 then sets out a summary of the Commission's final recommendations and corresponding actions required for implementation.

9.1 Implementation options — law and rule changes

In light of the high level of stakeholder support for these reforms and the momentum for change amongst industry, 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 C. 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 DNSP SAPS to take effect through the National Electricity Rules and National Energy Retail Rules.[261] 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.

261 Suggested amendments to the NEL and NERL to allow for rule changes in respect of third party SAPS, as discussed in chapter 8 of this report, will be prepared in the course of Priority 2 of this review.

Importantly, the regulatory framework for stand-alone power systems 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, two of which are described below:

- **Option 1:**
  - The COAG Energy Council agrees, and the South Australian Parliament makes, amendments to the NEL and NERL.
  - The COAG Energy Council, or any other person, then submits a rule change request to the AEMC consistent with the policy recommendations made in this final report.
- **Option 2:**
  - The COAG Energy Council endorses the policy recommendations made in this final report and tasks the AEMC with developing the 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.

Under option 1, changes to the energy laws would need to be made prior to the development of the energy rules — that is, these two key actions would be undertaken sequentially. Ideally the COAG Energy Council, and subsequently the South Australian Parliament, would progress the law changes this year to enable the AEMC to progress the associated rule change request in a timely manner. 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.

Under option 2, the Commission could commence work on developing detailed rule changes to implement the recommended framework following endorsement by the COAG Energy Council.[262] If the Commission's recommended framework is endorsed at the next meeting of the COAG Energy Council, 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 be implemented in the second half of 2020. If law changes cannot be made before the end of 2019, option 2 is therefore likely to achieve a timelier implementation of the Commission's recommended framework than option 1.

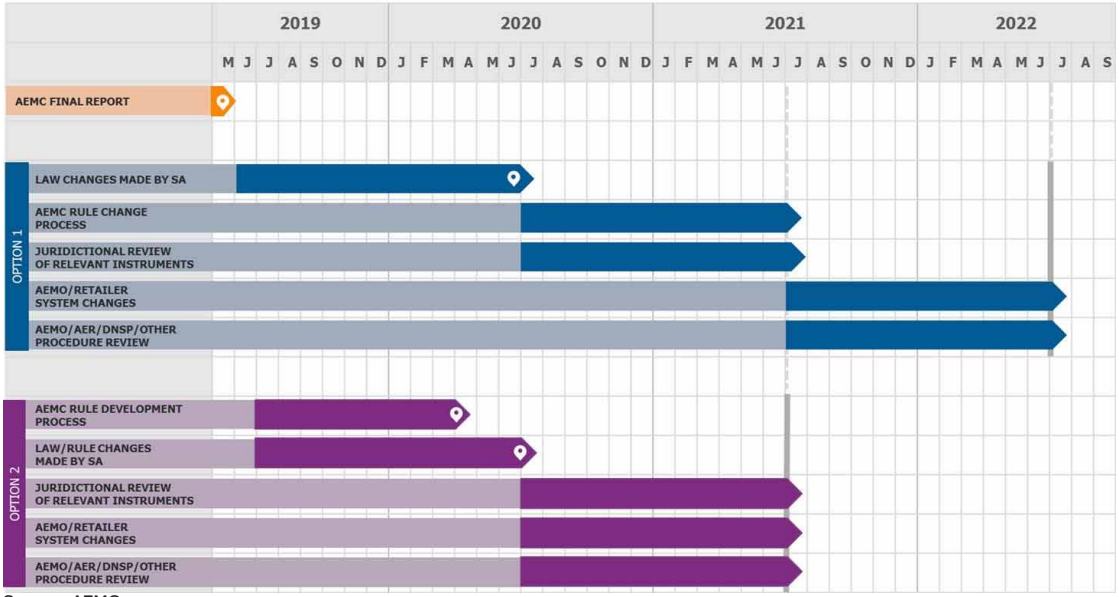
Under either option, the Commission is well-placed to provide detailed advice to the COAG Energy Council on amendments to the electricity and energy retail rules to implement the

262 The COAG Energy Council meets as needed, but at a minimum, twice a year. At the time of publishing this draft report, no meetings have yet been set for 2019.

recommended framework. The Commission would work in conjunction with relevant stakeholders in the development of these initial rules.

An overview of the two approaches to implementation of the recommended regulatory framework for DNSP SAPS is set out in figure 9.1 below (noting that the date for law changes is uncertain under either option). This figure also highlights certain interdependencies later in the reform program.

Figure 9.1: Implementing the recommended regulatory framework for SAPS



Source: AEMC

9.2 Key changes to jurisdictional arrangements to adopt the framework

In conjunction with the enactment of the recommended law and rule changes, and prior to opting in to the new framework, jurisdictions will also need to make amendments to relevant jurisdictional instruments.

9.2.1 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 contain provisions limiting the application of the NERL (in those jurisdictions) to the sale of electricity to customers whose premises are connected, or to be connected, to the interconnected national electricity system within the meaning of the NEL.[263] These restrictions would prevent the consumer protections in the NECF applying to

263 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.

customers of DNSP SAPS even if the law and rule changes described in this report have been made.

If these jurisdictions intend to opt in to allow a DNSP to provide supply by means of regulated SAPS, changes to this restriction will be required to ensure that DNSP SAPS customers receive the protections of the NECF. The Commission considers that one way to address this issue would be to remove the word "interconnected" from the phrase "interconnected national electricity system". This would change the limitation such that the NERL (and NERR) would apply to customers connected to the national electricity system as defined in the NEL. The proposed changes to the NEL outlined in Appendix C would extend the meaning of "national electricity system" to encompass DNSP SAPS (in jurisdictions that have opted in). Together, these changes would allow the NERL and NERR to apply to customers of DNSP SAPS in the relevant jurisdiction.

In addition, the Commission considers that it would be preferable for the reference to "the sale of electricity" to be removed from the relevant provisions of the jurisdictional application Acts, for consistency with the proposed changes to the NERL outlined in Appendix C. As noted in that appendix, it is possible that SAPS retail tariffs that are not based on the per-kWh sale of electricity will be developed. To ensure the NERL applies to DNSP SAPS customers on such tariffs, a provision is proposed to be included in the NERL that deems references to the sale of energy to include the provision of energy to customers of DNSP SAPS, even if there is no charge for the electricity consumed. This deeming would not apply to the application Acts, but the issue could be addressed in the application Acts either by removing the reference to the sale of electricity, or by including a similar deeming provision.

9.2.2 Review of jurisdictional regulations

To provide a complete set of consumer protections and safety regulations, and to allow DNSPs to access land to distribute electricity via DNSP SAPS, the Commission considers it is important the jurisdictional energy regulatory frameworks apply to DNSP-led 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 DNSP-led SAPS prior to opting-in. For example, any restrictions from customers being supplied via a DNSP-led SAPS accessing concessions and rebates which they would otherwise be entitled to should be removed.

High level analysis of the jurisdictional consumer protections and safety regulations is provided in Section 7.3 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 connected grids or connected networks or similar.

The Commission has particularly focused on reliability in this review, due to reliability being a key consideration in deciding to recommend to allow DNSPs to transition customers to DNSP-led SAPS where it is more economically efficient than standard supply. Consequently, the Commission has undertaken a more detailed analysis of the jurisdictional reliability standards

and GSLs in Appendix B of this report. From the analysis it appears that jurisdictions will need to make some amendments to at least one of their regulatory instruments to apply either reliability standards, GSLs or both to DNSP-led SAPS.

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 DNSP-led 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 rulemaking 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 opt in to the national framework for the regulation of DNSP SAPS if it considers it would be helpful to apply that framework for new stand-alone systems (which may be quite different in size and scope from the local electricity systems currently operating), while retaining its current approach to the regulation of local electricity systems.

However, the Northern Territory may at some stage wish to consider whether to apply the new DNSP SAPS framework in place of its current provisions that amend the NEL and NER (as they apply in the Northern Territory) in respect of local electricity systems. This would allow for a more consistent national approach to be taken as compared to the current arrangements.

As the NERL and NERR do not apply in the Northern Territory, if it opts in under the NEL the Northern Territory may also wish to consider whether jurisdictional consumer protections would apply appropriately to customers of DNSP SAPS.

9.3 Jurisdictional opt in provision

The terms of reference for this review noted that the potential for, and the development of, SAPS is unlikely to be consistent across all jurisdictions in the NEM.[264] In addition, the existing regimes and regulation of SAPS across jurisdictions differ significantly in terms of their completeness. Given these differences, the terms of reference asked the Commission to consider arrangements which would allow jurisdictions to choose how SAPS would be regulated within their jurisdiction. Specifically, the Commission was asked to consider how to provide for jurisdictions to opt in to one (or more) of the following:[265]

- a national framework for the regulation of SAPS led by a DNSP
- the relevant jurisdictional framework for the regulation of SAPS led by a party other than a DNSP, and/or

264 The speed at which SAPS may emerge in a jurisdiction is likely to be influenced by jurisdiction-specific factors such as bushfire risk, the age and nature of existing network infrastructure and the prevalence of remote customers and communities.

265 Terms of reference, pp. 5-6, 16.

- a national framework for the regulation of some or all SAPS.

In the draft report for this review, the Commission set out its view that the national framework for DNSP-led SAPS should ideally take effect consistently across all relevant jurisdictions at the same time. To that end, the Commission noted its intention to encourage jurisdictions to review their laws and regulations applicable to SAPS customers and to make the necessary changes to ensure customer protections relating to state and territory functions equivalent to those for interconnected grid customers would be in place for the commencement of the national framework for SAPS.

However, recognising that jurisdictions may need to follow different timeframes in adopting the national SAPS framework, the Commission proposed a restriction on DNSP participation in SAPS under the national arrangements until the Minister in the relevant jurisdiction gave notice (to the public and the AEMC) that the national arrangements for SAPS are applicable in that jurisdiction.

The majority of respondents who provided a view on this matter in their submissions to the draft report expressed support for the AEMC's proposed approach.[266] Tesla considered that, if the opt in process was pursued, consideration should be given to the inclusion of a back-stop date by which all jurisdictions would have to have adapted the relevant instruments.[267] AusNet Services considered priority could be applied to this task by seeking advice from jurisdictions on the process and timing for making changes, and recommending that the framework for implementation be established in advance of completion of priority 2 of this review.[268]

Erne Energy, in contrast, was concerned that the jurisdictional opt in provisions would mean that the benefits of SAPS would be subject to political whim. It considered that access to SAPS should not be withheld where DNSPs can demonstrate the benefits of SAPS.[269]

Having considered stakeholder views and its own analysis, the Commission recommends a restriction on DNSP participation in the national arrangements until the relevant jurisdiction has opted in by making a regulation under that jurisdiction's NEL application Act.

This recommendation is given effect in the Commission's proposed changes to the national laws that:

- limit stand-alone power systems to systems located in adoptive SAPS jurisdictions (in both the NEL and NERL), and
- provide that an adoptive SAPS jurisdiction is a participating jurisdiction that has declared itself to be an adoptive SAPS jurisdiction, for example, by regulation made under its NEL application Act (notice of which would be published in the South Australian Government Gazette).

266 Submissions to the draft report: AGL, p. 4; Energy Queensland, p. 5; ENA, p. 3; CEC, p. 1; TasNetworks, p. 1; Essential Energy, p. 2.

267 Tesla, submission to the draft report, p. 3.

268 AusNet Services, submission to the draft report, p. 3.

269 Erne Energy, submission to the draft report, p. 3.

A jurisdiction may opt in at any time after the changes to the NEL and NERL outlined in Appendix C have been made, and the Commission's recommendation is for all relevant jurisdictions to opt in promptly after this time, to provide a consistent national framework for DNSP SAPS.[270] However, the Commission expects that a jurisdiction will not opt in until it has reviewed the application of its jurisdictional instruments to SAPS and made any necessary changes, and if applicable has revised its NERL application Act, as discussed above.

9.4 Implementation roles - AEMO and the AER

The recommended regulatory framework for DNSP SAPS has been designed to maintain consistency with as many aspects of the existing national energy market arrangements as possible.

The various powers, functions and accountabilities allocated to AEMO and the AER to support the efficient operation and use of SAPS are largely unchanged under the Commission's recommended framework. DNSP SAPS will, in effect, be brought within the scope of existing roles and responsibilities.

A key change, however, relates to the implementation and notification of the administered settlement price (recommended as part of the SAPS service delivery model described in Chapter 5). This component of the recommended framework will require an ongoing, albeit minor, role for AEMO.

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.

AEMO

The Commission's recommended SAPS service delivery model will require AEMO to amend its settlement systems to accommodate a SAPS specific administered settlement price. While the Commission understands from AEMO that the current and future design of its market systems will be capable of managing the requirements for SAPS, implementation of an administered settlement price will nevertheless require a program of work to update systems and processes, including updating relevant AEMO guides and procedures.

In addition, subject to detailed rule drafting to apply the Commission's recommended framework, AEMO may be required to notify the market in advance of the price to be applied to SAPS customer loads for the upcoming period. Precisely how this will be achieved is intended to be considered and consulted upon during the rule drafting stage.

AEMO should also consider whether its Guide to generator exemptions and classification of generating units requires amendments to appropriately address generators in SAPS.

AER

The Commission's recommended regulatory framework for SAPS does not include a new enforcement role for the AER. Consistent with its existing powers and functions, the AER will

270 With the exception of Western Australia, which is not part of the regulatory framework established by the NEL and NERL.

be responsible for monitoring, investigating and enforcing compliance with the energy rules related to SAPS, having regard to its own compliance and enforcement priorities.

However, following development of the rules to implement the national arrangements for DNSP SAPS, the AER may wish to review and, where appropriate, amend a number of its guidelines to ensure they are consistent with the national arrangements for SAPS. This includes the AER's RIT-D and RIT-D application guideline, the AER's service classification guideline and the AER's connection charge guideline.

9.5 Final recommendations and implementation plan

The Commission's final recommendations in each of the key areas considered by the review are set out in Table 9.1. For each recommendation, we have outlined the action required for implementation.

As explained above, changes to the National Electricity Law would be required to implement the majority of recommendations through rule changes. Note that these NEL changes are not referred to separately throughout the table but are explained in Appendix C.

Table 9.1: Final recommendations and implementation plan

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
SAPS planning and engagement	Amend and clarify the DAPR reporting requirements in schedule 5.8 of the NER to include a number of items specific to SAPS. These items would include SAPS opportunities over the forward planning period, SAPS projects committed for implementation over the forward planning period and SAPS options considered in the past year. DNSPs will also be required to report on total numbers of SAPS implemented, and numbers of customer premises transitioned to SAPS in their areas.	COAG Energy Council to submit NEL amendments to the South Australian Parliament COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework
	Amend the RIT-D principles in Chapter 5 of the NER to clarify that DNSPs must (rather than may) quantify all classes of market benefits applicable to a credible option, where these may be material or likely to alter the selection of the preferred option.	
	Introduce a new set of SAPS customer engagement obligations in chapter 5 of the NER requiring DNSPs to develop a SAPS customer engagement strategy which must be documented and published on their websites. The new obligations will also require DNSP to undertake a formal consultation process whereby formal, public notice must be provided to affected parties in respect of a DNSP's	

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	intention to proceed with a SAPS solution.	
New connections and reconnection	Prohibit DNSPs from fulfilling their connection obligations by providing a connection offer for a new connection to a new SAPS, in Chapter 5A of the NER.	COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework
	DNSPs will be able to fulfil their connection obligations by providing a connection offer for a new connection to a pre-existing SAPS.	
	To capture matters relevant to the augmentation of DNSP SAPS, DNSPs' connection policies, including capital contribution thresholds, should be extended to apply to SAPS customers in the same way they apply to grid customers.	DNSPs to review and amend relevant connection policies to ensure they are consistent with any changes to national arrangements
	Customers transitioned to a SAPS by a DNSP will have no special right of reconnection to the interconnected grid.	No rule change required
SAPS service delivery model	Implement arrangements which provide for the delivery of the SAPS service to customers using the existing wholesale energy market arrangements, including AEMO's settlement system. Retailers will be charged an administered settlement price (rather than the spot price) for that energy.	COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER and NERR rule changes to apply the recommended framework AEMO to make any required system changes to allow for payment of the administered settlement price, and notification of that price
SAPS service classification	Remove existing barriers in the NEL and NER to enable DNSPs to use SAPS to provide regulated distribution services where it is economically efficient to do so.	COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework AER to review relevant guidelines for consistency
	Amend Chapter 6 of the NER to clarify that the appropriate classification of the distribution service provided by means of a	

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	SAPS is as a standard control service.	
Consumer protections	Extend the application of the full suite of energy-specific consumer protections in the NERL and NERR to SAPS customers (in addition to grid customers).	COAG Energy Council to submit NERL amendments to the South Australian Parliament COAG Energy Council to either submit a NERL rule change request to the AEMC or to task the AEMC to develop the NERL rule changes to apply the recommended framework NSW, QLD and TAS to review and amend their NERL Application Acts to extend their application to SAPS Victoria to review its Retail Code and Distribution Code to ensure they extend consumer protections to SAPS customers
	Extend the application of jurisdictional protections, including safety and technical regulation, as well as DNSP land access rights, to DNSP SAPS and SAPS customers.	Jurisdictions to review and amend relevant jurisdictional legislative instruments to extend their application to SAPS
	Extend the application of jurisdictional reliability standards, GSL payments and STPIS to DNSP SAPS and SAPS customers. The amendments should aim to treat SAPS consistently with the grid.	AER to review and where necessary amend STPIS to extend its application to SAPS
Transition to third-party SAPS	A third party should obtain written consent of each customer, based on a set of explicit consent requirements, before transitioning them to a third party SAPS Explicit 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	Commission to develop proposed changes to NERL to allow rules to be made regarding consent requirements, in the course of Priority 2 of this review COAG Energy Council to submit NERL amendments to the South Australian Parliament COAG Energy Council to either submit a NERR rule change request to the AEMC or to task the AEMC to develop the

AREA	FINAL RECOMMENDATION	IMPLEMENTATION
	outcomes such as prices, service standards and consumer protection safeguards.	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	Commission to develop proposed changes to NEL to allow rules to be made regarding compensation requirements, in the course of Priority 2 of this review COAG Energy Council to either submit a NER rule change request to the AEMC or to task the AEMC to develop the NER rule changes to apply the recommended framework
Jurisdictional opt in	A restriction be placed on DNSP participation in the national arrangements for DNSP SAPS until the relevant jurisdiction has opted in, for example by making a regulation under that jurisdiction's NEL application Act.	COAG Energy Council to submit NEL amendments to the South Australian Parliament Jurisdictions may make a decision to become an adoptive SAPS jurisdiction, for example by making a regulation under their NEL application Act for that purpose

Source: AEMC

ABBREVIATIONS

ACCC	Australian Competition and Consumer Commission
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
CAIDI	Customer Average Interruption Duration Index
CALD	Culturally and linguistically diverse
CEC	Clean Energy Council
CESS	Capital expenditure sharing scheme
COAG	Council of Australian Governments
Commission	See AEMC
DAPR	Distribution annual planning report
DER	Distributed energy resources
DNSP	Distribution network service provider
DUOS	Distribution use of service
EBSS	Efficiency benefit sharing scheme
EIC	Explicit informed consent
EMTPT	Energy Market Transformation Project Team
ENA	Energy Networks Australia
ESC	Essential Services Commission
ESCOSA	Essential Services Commission of South Australia
EWON	Energy and Water Ombudsman NSW
EWOQ	Energy and Water Ombudsman Queensland
GSL	Guaranteed Service Level
ICRC	Independent Consumer and Regulatory Commission
IPART	Independent Pricing and Regulatory Commission
IPS	Independent power system
LNSP	Local network service provider
MAIFI	Momentary Average Interruption Frequency Index
MCE	Ministerial Council on Energy
MSS	Minimum service standards
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
NSLP	Net system load profile
NSW	New South Wales
NT	Northern Territory
NZ	New Zealand
OTTER	Office of the Tasmanian Economic Regulator
PIAC	Public Interest Advocacy Centre
PV	Photovoltaic
QCA	Queensland Competition Authority
RIT-D	Regulatory investment test for distribution
SAIDI	System average interruption duration index
SAIFI	System average interruption frequency index
SAPN	SA Power Networks
SAPS	Stand-alone power system
STPIS	Service target performance incentive scheme
SWER	Single wire earth return
TEC	Total Environment Centre
WA	Western Australia
WEM	Wholesale Electric Market (WA)

A ASSESSMENT OF ALTERNATIVE SAPS SERVICE DELIVERY OPTIONS

This appendix considers the SAPS service delivery options that were considered as alternatives to the model recommended by the Commission in Chapter 5. These options include the two illustrative SAPS service delivery options that were set out in the draft report, as well as a number of other approaches to SAPS service delivery suggested by stakeholders over the course of this review.

A.1 NEM consistency option (wholesale spot price)

A.1.1 Overview

The essential element of the NEM consistency option is that the customer-facing party would be charged the grid wholesale energy spot price for the energy delivered to the customer using existing wholesale energy market arrangements, including the settlement system.[271]

This essential element makes it feasible for the SAPS retail service to be provided by competing grid retailers, thus preserving access to retail competition for SAPS customers. This was not, however, the key driver of this essential element. Rather, preserving SAPS retail customers' access to the competitive retail market would allow these customers to maintain their relationships with existing retailers, and to retain their existing retail offers, thereby providing for the seamless transition of existing grid-connected customers to SAPS.

DNSPs would not be required to seek, and SAPS customers would not be required to provide, explicit consent to be transitioned from the grid to SAPS, on the basis that all existing consumer protections would be preserved[272] and SAPS customers would be 'no-worse-off', including in respect of price, following the transition to SAPS supply.

The distinct elements of the NEM consistency option are as follows:

- SAPS generators would be chosen by DNSPs through a tender (or equivalent) process.
- SAPS generator(s) would receive the relevant wholesale energy spot price plus a payment similar to a network support payment consistent with the agreed competitive tender price for providing network support services to the relevant DNSP.
- DNSPs would continue to provide network services over the SAPS grid, with network assets included in the RAB.
- DNSPs would receive funding for the payment made to the SAPS generator and any expenditure required for the SAPS network service through existing regulatory mechanisms.
- Existing metering roles, responsibilities and process would be utilised, potentially with minor changes.

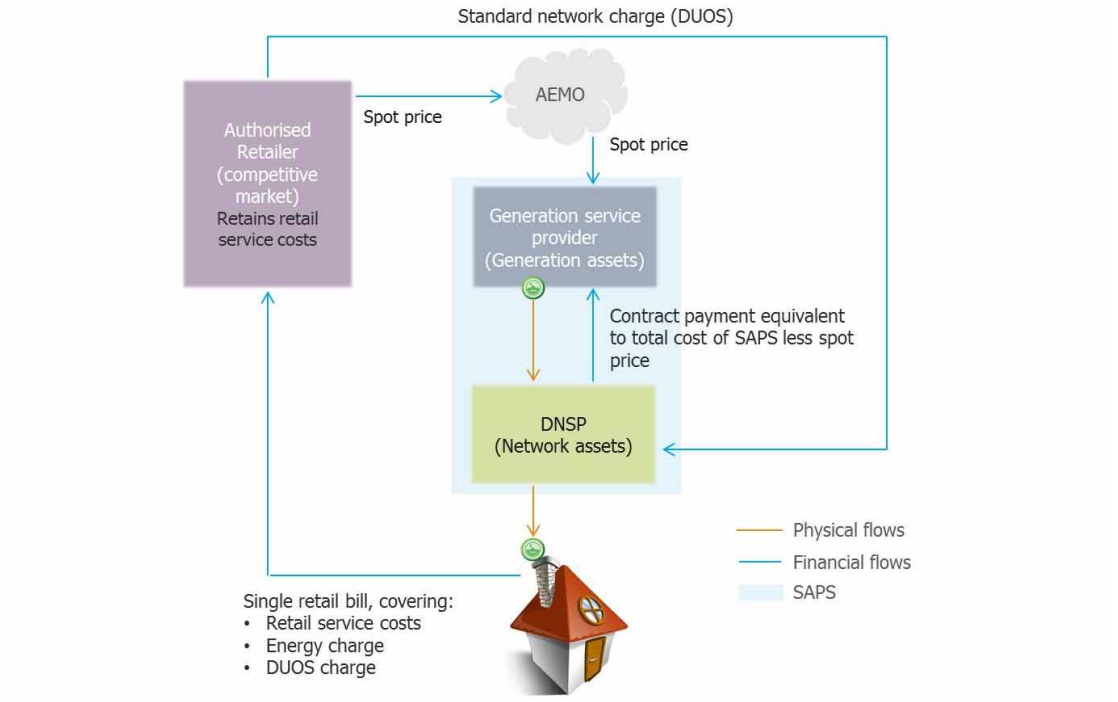
271 Note that the SAPS generation party is also paid the grid wholesale energy spot price for energy sold to the retailer, using the same wholesale market arrangements.

272 Note that, regardless of the service delivery model, some states' NERL application Acts will need to change to enable NECF consumer protections to be applied to customers with SAPS. This is further discussed in sections 7.1.4 and 9.2.1.

Consistent with the integrated service delivery model, DNSP savings associated with the provision of SAPS would be socialised over all DNSP customers, consistent with the EBSS and CESS.

The financial flows associated with the NEM consistency option to SAPS service delivery are illustrated in the figure below.

Figure A.1: NEM consistency option (wholesale spot price)



Source: AEMC

Under this model, retailers would continue to be exposed to be wholesale spot price risk and would therefore be expected to continue to hedge price risk with NEM-based generators.

Further, based on the flow of payments to the SAPS generators, the existing ring-fencing requirements would be expected to apply (noting that the AER may, and does, grant exemptions for reasons such as geographic remoteness).[273]

A.1.2 Stakeholder views

Broadly half of the stakeholders who responded to the draft report expressed either a preference or in-principle support for the NEM consistency service delivery option.[274] In many

273 Under the ring-fencing guidelines, the activities and services associated with the generation of electricity are "other services" (that is, non-distribution services) and therefore, in the absence of an exemption, would be provided by competitive independent service providers.

274 Submissions to the draft report: SA Government, p. 5; AGL, pp. 3-4; TasNetworks, pp. 2, 5; Red and Lumo, p. 1; ENGIE, pp. 3-4; AEC, p. 4; AEMO, p. 2.

cases, this was driven by a desire to implement arrangements which were customer focussed and as least disruptive as possible to both the market and to customers being transitioned to SAPS supply.

AGL, for example, provided in-principle support for a service delivery model which would facilitate competition (to the extent this is workable in the context of SAPS) and be as least disruptive to current market arrangements as possible.[275]

The SA Government considered that the starting point for consideration of the service delivery model should be the retention of existing arrangements, with as little change as possible and at lowest cost. It considered that the NEM consistency model was likely to be more appropriate in achieving this goal than the alternative.[276]

TasNetworks favoured the NEM consistency model on the basis that the standards and consumer protections currently enjoyed by grid-connected customers would continue to be enjoyed by SAPS customers.[277]

ENGIE considered that, as a matter of principle, customers should have a choice of retailer in order to benefit from competition and innovation using market-based mechanisms. It considered that the NEM consistency model was an elegant way to achieve this goal.[278]

The AER did not formally endorse a particular model but considered that a framework based on NEM consistency would provide a good basis for further work.[279]

In contrast to these views, Spark Infrastructure was of the view that the NEM consistency model would impose additional and unnecessary costs on all other customers in an effort to retain retail competition for SAPS customers.[280] Erne Energy was also concerned about the focus on delivering retail competition, particularly where penetration is low and SAPS are remote. It considered the need to have a separate retailer would create an unnecessary cost, particularly where that retailer must be authorised.[281]

Energy Queensland was also concerned that the NEM consistency model may encourage SAPS customers to alter consumption behaviour in response to NEM price signals which are irrelevant in the context of SAPS.[282]

In terms of implementation of a NEM consistent approach to SAPS service delivery, AEMO confirmed the current and future design of market systems will be capable of managing requirements for SAPS, including energy settlement, loss allocation (if any), connection point discovery and role change.[283]

275 AGL, submission to the draft report, pp. 3-4.
276 SA Government, submission to the draft report, p. 5.
277 TasNetworks, submission to the draft report, pp. 2,5.
278 ENGIE, submission to the draft report, pp. 3-4.
279 AER, submission to the draft report, p. 6.
280 Spark Infrastructure, submission to the draft report, p. 4.
281 Erne Energy, submission to the draft report, p. 3.
282 Energy Queensland, submission to the draft report, pp. 8-9.
283 AEMO, submission to draft report, p. 2.

A.1.3 Analysis

Benefits of the NEM consistency option (wholesale spot price)

The NEM consistency option emulates the conditions under which a customer would be supplied if they were connected to the grid. Retailers would continue to be charged the same network and wholesale energy prices for their SAPS customers as for their grid customers. This means that retailers would have no incentive to alter the retail tariffs currently being provided to customers earmarked for transition to SAPS supply.

Maintaining consistency with the NEM therefore provides a simple and straightforward means of ensuring that grid-customers being transitioned to SAPS will be no-worse-off in respect of the price they pay for energy.[284] It also facilitates a seamless transition to SAPS and, in doing so, negates the need for DNSPs to seek, and relevant customers to provide, explicit consent for the transition to SAPS.

In addition, to the extent that SAPS customers look, to a retailer, no different to grid customers, the transition of relevant customers from the grid to SAPS supply should have no impact on the level or effectiveness of competition in the retail market.

Further, a key benefit of the NEM consistency option is that it does not necessitate any additional price regulations, beyond those that already exist in regions where competition is not yet effective.[285] In areas where competition has been determined to be effective, retail prices would continue to be determined through the competitive retail market.

Issues with the NEM consistency option (wholesale spot price)

Contract market liquidity

The fundamental issue with the NEM consistency option arises from the inherent expectation that retailers would continue to manage price risk by hedging their overall customer load - including SAPS customer load - through contracts with NEM generators.

This has the potential to become problematic if the penetration of SAPS customers increases substantially and generation from the NEM is replaced by generation from SAPS. In this case, it would become increasingly difficult for NEM generators to provide sufficient hedging contracts to match total demand (that is, demand for hedges to cover grid and SAPS customer load). A mismatch between the demand for hedging contracts and supply of those hedges would therefore be expected to increase the costs of hedging and reduce overall contract market liquidity.[286]

In response, retailers who find it more difficult or costly to hedge their overall load may attempt to pass price risk through to customers (that is, both grid and SAPS customers) by adjusting their retail prices. While this may address the issue for retailers, the potential price impact on customers may be inconsistent with the "no worse off" objective.

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284 Other consumer protections are facilitated by requiring that the entity providing retail services in a SAPS be an authorised retailer, a common element of the models.

285 There is currently limited retail competition in regional Queensland and Tasmania.

286 This issue would affect all retailers whether they have SAPS customers or otherwise, and the consequences would affect all customers, not just SAPS customers.

Alternatively, retailers may seek to manage their customer portfolios in ways that lower the need for hedging products. This could be done by reducing exposure to customers with peaky profiles (including SAPS customers), where these customers can be identified. This could have adverse implications on the level of competition by retailers for certain grid and SAPS customers.

Wholesale market distortions

Another key issue arising from the expectation that retailers would continue to hedge their SAPS customer load with NEM generators is the potential de-linking of the financial incentives on NEM generators and the grid's physical needs.

Hedging contracts give generators an incentive to supply electricity when it is needed by the power system. Under the NEM consistency option, NEM generators would be receiving a signal to generate energy to cover the volume of the hedge contract (equivalent to SAPS customer load). However, this generation is not needed in the grid. Inefficiencies in the wholesale market – both on a day-to-day basis and over the longer term – may therefore arise where more than the required amount of power is being signalled for delivery by NEM generation.

Price signals

Finally, as noted above, the NEM consistency option emulates the conditions under which a customer would be supplied if they were connected to the grid. This ensures there is no incentive for retailers to alter the retail tariffs being provided to customers earmarked for transition to SAPS.

However, in designing retail tariffs, retailers can seek to pass through a number of different price signals to encourage certain customer behaviour at times of wholesale and network peak times. Therefore, arrangements which support the retention of existing retail tariffs may – depending on the design of the particular retail tariff and specific SAPS technology in situ – encourage SAPS customers to behave in a way that is not consistent with the optimal design and use of the SAPS.

Options to address the issues with the NEM consistency option

Box 9 below sets out two variations of the NEM consistency option which could be implemented separately or together. Each variant was developed to address one or more of the key issues inherent in the primary model. Importantly, these options would not alter the essential design element – that is, wholesale prices. Instead, they vary one or more of the distinct design features of the NEM consistency option.[287]

BOX 9: **VARIATIONS TO NEM CONSISTENCY OPTION**

NEM consistency + net system load profile (NSLP)

287 In this sense, the options presented in Box 9 are variations of, rather than alternatives to, the NEM consistency option.

Addressing inconsistent price signals

Under the NEM consistency option, retailers may wish to pass through price signals to SAPS customers via their retail tariff as they would for grid customers. While this maintains NEM consistency in the way customers are treated, it may not result in efficient outcomes in the context of SAPS.

This issue could be addressed by establishing arrangements which remove the incentive on retailers to pass through wholesale price signals to SAPS customers by settling SAPS customers on either their net system load profile (NSLP)[a] or a SAPS specific load profile.

By fixing the load profile against which customers are settled, customers' consumption behaviour will not influence the price the retailer pays in any given settlement period, and so there is no incentive for the retailer to pass through wholesale cost signals which may not be consistent with the optimal use of SAPS.

Further, the use of a NSLP would be unlikely to introduce additional complexity or costs given that the NSLP already exists within the settlement systems of AEMO and the retailers.

However, using the NSLP would not address the fundamental issue with the NEM consistency option related to the expectation that retailers would continue to seek hedges for SAPS customer load (in addition to other customer load) with generators in the NEM.

NEM consistency + regulated hedge

Mitigating the impact on contract market liquidity and potential wholesale market distortions

Under the NEM consistency option, there is a risk that contract market liquidity may reduce under a high SAPS penetration scenario. There is also a risk that arrangements which encourage or support retailers entering into hedges with NEM generators for SAPS customers could create distortions in the wholesale market by de-linking the financial market from the physical power system.

These issues could be addressed by requiring that SAPS generators provide retailers with a hedge for their SAPS customers at a regulated price (and under a regulated hedge contract). This would provide a supplemental source of hedges to NEM participants, addressing issues associated with contract market liquidity and wholesale market efficiency. It would also avoid any changes to AEMO's settlement systems to accommodate a change to the wholesale settlement price.

However, this option would not address the problem of SAPS customers being sent wholesale and/or network price signals that are not consistent with the optimal design and use of SAPS. This option would also require regulatory oversight of contracts which would increase regulatory, administrative and transaction costs. Further, this option could create a barrier to small SAPS providers who may not have the benefit of economies of scale to afford any additional costs associated with managing and complying with a regulated contract.

Note: [a] To estimate accumulation metering energy volumes for settlement, AEMO calculates and applies the net system load profile (NSLP) for each trading interval and on a distribution area basis. The NSLP is established by removing all interval metered loads, or other loads as agreed in the settlement procedure for the relevant NEM region, including controlled loads and deemed unmetered loads.

A.2 Integrated service delivery option

In the draft report, the Commission presented an integrated service delivery model for consideration by stakeholders. There are a number of ways this model could operate, and details in the draft report were necessarily high level to enable stakeholders to consider the range of possible approaches to the delivery of an integrated model.

Since the draft report, the AEMC has developed a more detailed approach for this option, as set out in this section. The discussion below uses a conceptual framework where the SAPS retail and generation functions are described separately from those of the DNSP. However, as discussed, within this framework there could be the option to allocate to the DNSP responsibility for all the SAPS functions: generation, distribution and retail.

A.2.1 Overview

Under this model, a regulated retail price would be established for SAPS customers and the customer-facing party would charge this price to the SAPS customer. The essential element is then that the customer-facing party would be charged a wholesale energy price calculated as the regulated retail price less the standard network charge less the SAPS retailer's margin, agreed in advance in its contract with the DNSP.

This essential element makes it feasible for SAPS customers to be, on average, no-worse-off in respect of the price each pays (or at least is offered) for energy relative to equivalent grid-connected customers, where it is not possible or appropriate to preserve SAPS customers' access to the competitive retail market. Importantly, these arrangements would operate completely outside the existing wholesale energy market arrangements.

The distinct elements of the integrated service delivery option are as follows:

- The SAPS generation and retail functions (and sub-functions) would be allocated by the DNSP through a competitive tender (or equivalent) process. These functions could be provided by the same party or separate parties.
- The DNSP would contract directly with the SAPS generator and the contractual payment structure would directly reflect the SAPS generator's costs (this will minimise basis risk for the SAPS generator).
- The SAPS retailer would be obligated to offer a conventional retail tariff structure (this would help to achieve the no-worse-off objective)[288] and could be encouraged to also offer a SAPS specific tariff structure that reflects SAPS delivery costs.

To help achieve the no-worse-objective, the arrangements could provide for the gradual transition of SAPS customers from their existing grid retail tariff to the regulated retail tariff.

288 Despite the range of structures in the market, the most common one taken up by grid customers is a 'flat tariff' consisting of a fixed price plus a flat variable price. SAPS customers should at least be offered such a structure.

Consistent with the NEM consistency option, retail-related consumer protections would be enforced through a requirement on SAPS retailers to be authorised. This would also apply to any DNSP seeking to provide the retail function itself.

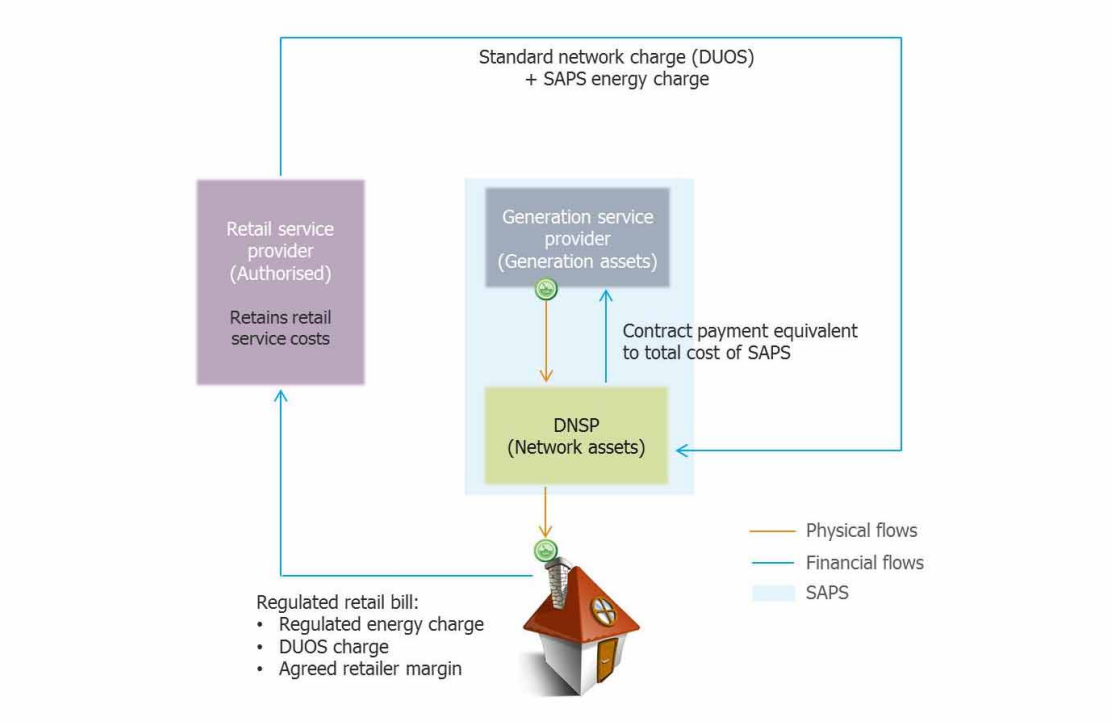
In addition, consistent with the NEM consistency option, DNSP savings associated with the provision of SAPS would be socialised over all DNSP customers, consistent with the EBSS and CESS.

As noted, while the three SAPS functions (generation, distribution and retail) have been described separately above, a fully integrated approach could be taken where the DNSP would have responsibility for all these activities. The DNSP would then be free to outsource any or all of these functions and sub-functions – including the retail function (which would need to be performed by a party with a retail authorisation) – but would remain responsible for ensuring compliance with all SAPS regulations.

Such an approach would remove the complexities associated with the contractual architecture where the SAPS retailer and generation functions would be provided by a party, or parties, separate from the DNSP. Under an integrated service delivery model, the definition of a "distribution service" provided by the DNSP could be expanded to include generation and retail services for SAPS, so existing ring-fencing restrictions would not apply (as the SAPS would only be providing a distribution service). The appropriateness – or otherwise – of permitting a fully integrated approach would need to be considered.

An illustration of an integrated approach to SAPS service delivery where the SAPS generation and retail functions are provided by the same party, including a summary of the financial flows associated with this option, is set out in the figure below.

Figure A.2: Integrated service delivery option



Source: AEMC

A.2.2 Stakeholder views

Around half of the stakeholders who provided submissions to the draft report expressed a preference for an integrated approach to SAPS service delivery.[289] A number of these stakeholders appeared to be driven by a general desire to see arrangements implemented which would more easily support the optimal design and use of SAPS.

Endeavour Energy, for example, considered the integrated service delivery model would provide the best means of facilitating the efficient use and management of SAPS over the long term, and maximising potential reductions in overall network investment costs.[290] Ausgrid also supported a SAPS specific tariff as a means to encourage the efficient use of SAPS.[291]

Spark Infrastructure considered that an integrated service delivery model would be more reflective of the supply and cost arrangements for the SAPS customer, recognising that an appropriate regulated price would need to be developed.[292]

289 Submissions to the draft report: Energy Queensland, pp. 8-9; Endeavour Energy, pp. 1-3; Erne Energy, p. 3; Spark Infrastructure, p. 4; Ausgrid, pp. 4-5; Horizon Power, p. 1; TEC, p. 2.

290 Endeavour Energy, submission to the draft report, pp. 1-3.

291 Ausgrid, submission to the draft report, pp. 4-5.

292 Spark Infrastructure, submission to the draft report, p. 3.

Erne Energy considered that a degree of vertical integration in small systems may deliver more efficient outcomes.[293]

Ausgrid expressed a similar view, noting that the NT and WA had achieved efficient outcomes through a vertically integrated approach to SAPS service delivery, specifically for remote SAPS customers. However, Ausgrid also recognised that consideration would need to be given to price protections and tariff design under such an approach, agreeing that SAPS customers should be no-worse-off.[294]

The TEC considered that the integrated service delivery option, by being based around a single proponent, recognised the uniqueness of the off-grid supply delivery scenario. However, among other issues, the TEC was concerned that this option would support DNSPs to provide SAPS themselves. It saw no reason why third parties could not provide SAPS via regulated opex payments from DNSPs.[295]

Horizon Power considered that the AEMC's key objective should be to design a framework that adequately values and guarantees consistent and economically efficient provision of a utility-grade electricity service over the multi-decade operational life of all SAPS assets. It considered that the integrated service delivery model was the better starting point for achieving this objective.[296]

Energy Queensland also expressed support for the integrated service delivery model on the basis it would provide DNSPs with flexibility in delivering a SAPS solution.[297]

In contrast to these views, Red-Lumo noted that it did not support SAPS being developed under an integrated service delivery model on the basis that consumers would no longer have access to the competitive retail market and its benefits in the long term.[298]

A.2.3 Analysis

Benefits of integrated service delivery option

Retail costs

The retail function and sub-functions, and the subsequent costs incurred in carrying out these functions, would be considerably different to those under the NEM consistency model. For example, the retail element would no longer include activities and costs associated with managing wholesale market risk exposure or customer acquisition and retention costs. While the SAPS retailer's costs would still include those associated with consumer protections and billing and credit management, its total costs might be lower than under the NEM consistency model.

293 Erne Energy, submission to the draft report, p. 3.
294 Ausgrid, submission to the draft report, pp. 4-5.
295 TEC, submission to the draft report, p. 2.
296 Horizon Power, submission to the draft report, p. 1.
297 Energy Queensland, submission to the draft report, pp. 8-9.
298 Red and Lumo, submission to the draft report, p. 1.

The benefits of competition in respect of SAPS retail services might be achieved through a tender process (or equivalent) carried out by each DNSP – that is, through 'competition for the market'. Retail tender offers would specify, among other things, the proposed retail margin. DNSPs would be expected to allocate the provision of the retail function on a periodic basis, consistent with the terms of the contract with the retailer, and most likely consistent with the life of the SAPS. The cost savings from competition between potential service providers would feed through to all customers of the relevant DNSP, through reduced network tariffs.

Arrangements outside the NEM

A key benefit of the integrated service delivery model is that SAPS service delivery sits outside the NEM and associated contract market. Therefore, the risk of any reductions in contract market liquidity as well as any unintended distortions in the wholesale market (that is, a de-linking of financial incentives from the physical needs of the system) will not occur under this option.

Opportunities for optimal use of SAPS

Under this model, a SAPS specific tariff that reflects the underlying costs of SAPS has the potential to create efficiency gains, especially if it is in place from the beginning thereby allowing for the efficient sizing of SAPS in anticipation of a SAPS customer's rational response to the tariff.

Issues with integrated service delivery

Providing a seamless transition to SAPS

This option could be designed to provide for the smooth transition of SAPS customers from their existing retail tariffs to the regulated retail tariff over time, thereby lessening the bill shock for SAPS customers who may be on a current retail tariff that is lower than the new SASP regulated retail tariff.

However, a key issue with this option is that SAPS customers would need to provide consent to move from their existing grid-retailer to the SAPS retailer at the time of transition.[299] This gives rise to the risk that, if the NERL is not changed and a customer is not willing to provide consent, the ability of the DNSP to transition this customer from the grid to a SAPS will be impacted and the potential efficiency gains from doing so lost.

In addition, whether a specific customer is worse-off following the transition to SAPS will depend on the level of their existing retail tariff and the level at which the regulated retail tariff is set. While some proportion of customers may be better off once transitioned to SAPS, those customers who happen to be transitioned to SAPS during the benefit period of a

299 See section 38(a) of the NERL. This section requires a customer's explicit informed consent for the transfer of that customer to a new retailer. However, consent is not required in certain circumstances, including when the customer's retailer fails and the customer is transferred to the retailer of last resort, or the customer's retailer surrenders its retailer authorisation.

particularly low market offer may find themselves facing a higher retail charge following the transition to SAPS.[300]

Price regulation

Under an integrated approach to SAPS service delivery, SAPS customers are unable to access the competitive retail market. Although some competitive pressure would be provided through competition for the market for the retail function, a tendering process (or equivalent) would not be sufficient to ensure that SAPS customers are no-worse-off under this option. Some form of retail price control would therefore be required.

Under this option, the retailer would be charged an energy price by the DNSP. This price would be set based on the regulated retail price, less the standard network charge and the retailer's own retail margin. The no-worse-off objective could be met, on average, by deriving the regulated retail price using a benchmark of grid retail prices. Precisely how this benchmark price would be set, and by whom, would require further detailed analysis.

In any case, delivering effective price regulation would likely require the establishment of new systems, processes and methodologies which will be a complex, and potentially costly, task, the benefits of which would need to be carefully considered in the context of a low SAPS penetration scenario.

Administrative complexity

In addition to the complexity and cost associated with retail price regulation, pursuit of this option would require detailed arrangements to be developed and implemented in respect of the transfer of SAPS customers from the competitive retail market (and their existing retail offer) to the SAPS retail arrangements (including arrangements for consent, or changes to the NERL to remove the requirement for consent in these circumstances), settlement and potentially also changes to the service classification and ring-fencing arrangements. To the extent they are material, economies of scale in retail activities (for example billing systems) will also be foregone.

A.3 Other options

Throughout the course of this review, a number of stakeholders proposed variations of, and alternatives to, the two SAPS service delivery options put forward by the Commission in the draft report. These options are described and assessed below.

A.3.1 AusNet Services – NEM consistency with DNSP ownership of SAPS option

The model suggested by AusNet Services was used as the basis for the development of the Commission's NEM consistency option.[301] As noted previously, the essential element of this option is that the customer-facing party would be charged the standard spot price for the

300 While this could also occur under the NEM consistency option when the terms of a market offer expire, the difference is that under the integrated service delivery model, SAPS customers would not have the option of switching to a new retailer and/or better retail offer.

301 AusNet Services, submission to the issues paper, pp. 6-8.

energy delivered to SAPS customers using existing wholesale market arrangements. Customers would retain access to the competitive retail market and the role of the retailer would remain the same as in the NEM.

The key feature distinguishing the AusNet Services option from the NEM consistency option outlined in the draft report is that DNSPs would engage an independent party to sell electricity into the market. This would be similar to the existing role of 'intermediary' in the NEM and would have the effect of isolating DNSPs from the activity of generation. As such, DNSPs would be able to own SAPS assets where it is efficient to do so (subject to the existing incentive-based regulatory framework in the NER). Importantly, no changes would be made to existing frameworks to distinguish the functions of a DNSP in respect of the provision of the SAPS service.

The advantages and disadvantages of this option in terms of the essential element would mirror those set out in respect of the Commission's NEM consistency option in section A.1.3.

A.3.2 SA Government – NEM consistency with average monthly spot price

The SA Government suggested an alternative to the NEM consistency option whereby retailers would be charged the average spot price for the particular month (rather than the actual spot price) for the energy delivered to SAPS customers.[302] This option is similar to the model recommended by the Commission and set out in Chapter 5.

The use of an administered market-based price would reduce spot price volatility and so to the need for retailers to hedge SAPS customer load. This approach would therefore reduce the risk of possible distortions to the wholesale electricity market associated with the NEM consistency option. However, the success of this approach in completely eliminating the need for retailers to hedge SAPS customer load would depend on the level of the outturn price compared to retailers' existing wholesale costs (including hedging costs) plus the level of uncertainty that retailers perceive with this price.[303]

In addition, the SA Government approach envisaged DNSPs would be responsible for procuring SAPS generation from the competitive market. This is consistent with the SA Government's view that there should be no need for DNSPs to provide non-network services such as generation, other than through a ring-fenced affiliate.

A.3.3 PIAC – NEM consistency model with zero wholesale price

The Public Interest Advocacy Centre (PIAC) also suggested an alternative to the NEM consistency option.[304] The essential element of the PIAC model was that it featured a wholesale price set to zero. All of the costs associated with the provision of energy by a remote SAPS generator would be funded by the DNSP, and recovered from all the DNSP's customers. The network component of the SAPS customer's bill would continue to be the standard network charge only.

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302 SA Government, submission to the draft report, p. 5.

303 The outturn price would need to be, for the majority of the time, lower than the retail price recovered from SAPS customers. The outturn price would also need to never significantly exceed that retail price.

304 PIAC, submission to the draft report, pp. 3-5.

Under the PIAC model, the implementation of a zero wholesale price would result, at least initially, in retailers receiving a windfall gain from the absence of an energy charge for SAPS customers, and therefore a very significant increase in retailer margins for these customers. Over time, this windfall gain might be competed away by retailers introducing lower-priced SAPS-specific retail tariffs. However, to realise a level of competition to justify the development of new retail tariffs such that the windfall would flow to SAPS customers rather than be retained by retailers would likely require a relatively high level of SAPS penetration.

While a zero wholesale price would avoid the administrative costs associated with determining a non-zero wholesale price (as suggested by the SA Government), it would result in increased cross-subsidies compared with other SAPS supply models. These increased cross-subsidies would arise because DNSPs would need to fund the full SAPS network and generation cost, but would only be able to recover those costs through the standard network tariff charged to all customers. While the Commission recognises that the level of this subsidy would be less than if the customer remained connected to the grid, the subsidy would be higher than under other SAPS supply models where the payment of a non-zero wholesale price reduces the subsidy amount.

As the penetration of SAPS increases, the administrative cost savings would become less material, and the increased cross-subsidies would become more concerning – particularly in light of SAPS customers typically already benefiting from very substantial cross-subsidies. Therefore, by the time a level of penetration is reached such that retail competition is effective enough to reduce retailer margins, the increased cross-subsidies may become unsustainable.

A.3.4 Essential Energy – NEM consistency with SAPS costs reflected in DUOS charges

Similar to the PIAC model, Essential Energy also proposed an alternative to the NEM consistency option featuring a wholesale price set to zero. However, under this model, DNSPs would develop 'SAPS-specific' network tariffs.[305] These tariffs could be structured to send time of use pricing signals more closely aligned to the cost drivers of stand-alone systems, and might also be targeted to recover a greater level of revenue than standard network tariffs (noting that retailers of SAPS customers would see a wholesale price of zero).

To achieve the latter objective would require the establishment of a new tariff class applicable to SAPS customers, and the reassignment of SAPS customers to this new class. However, while there would be cross-subsidisation within the new tariff class (i.e. between SAPS customers), the cross-subsidy from grid-connected customers in the existing tariff class would be lost. Tariffs applicable to SAPS customers in the new tariff class would need to be developed consistent with the pricing principles in the NER, which would require them to be cost reflective and therefore likely much higher than the customer's previous network tariff.

Therefore, without some other mechanism to subsidise the costs to SAPS customers, the development of a new SAPS-specific tariff class and tariff would not meet the objective of SAPS customers being no-worse-off. In addition, consent would be required from customers

305 Essential Energy, submission to the draft report, pp. 4-5.

to move to the new tariff (under NERL s. 38, unless this provision were amended), and this would not logically be given.

While Essential Energy appears to contemplate that some level of cross-subsidisation might be retained, it isn't clear from its submission how this might occur. The Commission is concerned that any new mechanism to explicitly use one tariff class to cross-subsidise another could potentially represent a regulatory intervention into network pricing which is inconsistent with current frameworks. Designing and calibrating such a mechanism would also be very challenging.

A.3.5 Essential Energy – NZ approach to SAPS

The second model suggested by Essential Energy was based on the Base Power product provided by the New Zealand DNSP, PowerCo.[306] Under this model, there would be no separate retail function. The customer would pay the DNSP a maintenance fee and would be responsible for buying diesel and refuelling the back-up generator itself. The DNSP would supply the customer with all the relevant SAPS services (including generation and storage services) and would own, operate and undertake regular maintenance on the equipment.

In the absence of an authorised retailer, a mechanism to preserve consumer protections for SAPS customers would need to be developed. In addition, retail price protections would be required to ensure that customers transitioned to SAPS supply were not financially disadvantaged as a result of that transition.[307]

The Base Power product and associated arrangements were primarily designed for customers in remote, hard-to-access or heavily-vegetated areas, with limited customer numbers. These arrangements are unlikely to be appropriate in circumstances where the penetration of SAPS is high, where multiple customers are connected to a single SAPS and where other factors begin to drive the deployment of SAPS (for example, asset age and other cost pressures).

More generally, these arrangements are fundamentally generation source-specific and may not be appropriate for the range of possible future off-grid systems that could be expected as technology develops and costs fall.[308]

A.3.6 PIAC – Payment from DNSPs to cede grid-connection

PIAC also suggested an option whereby customers identified by a DNSP for transition to SAPS supply could be offered the opportunity to cede their entitlement to grid-supply in exchange for a payment or incentive from the DNSP.[309] If accepted, the customer would then be supplied via a SAPS that it either owns itself or is provided by a third-party.

306 Essential Energy, submission to the draft report, pp. 5-6. For more information see: www.powerco.nz/get-connected/base-power/.

307 Essential Energy suggested that the AER or a jurisdictional regulator could determine a SAPS reference price which would be the maximum amount a DNSP could charge a customer and would be based on the cost to supply a SAPS customer. Essential Energy, submission to the draft report, p. 6.

308 See the discussion in Chapter 2 of this report on the potential for the deployment of SAPS in remote areas.

309 PIAC, submission to draft report, pp. 5-6.

PIAC envisaged that this option would effectively be treated as any other non-network option (including a DNSP SAPS option) for the purposes of the existing planning and incentive regulation frameworks in the NER, including the RIT-D.

The payment provided to cede grid connection would need to be set at a level to ensure the customer was able to obtain and operate a SAPS over a specified future period. It may also need to include a premium to allow for risk, inconvenience and potentially other cost impacts that may arise from the absence of a grid connection. However, the payment should not provide an inefficient, windfall gain to the customer. Identifying the efficient payment level would be a difficult task and one of the key challenges associated with this suggestion.

As recognised by PIAC, customers provided with the option to cede their grid-connection would require additional consumer protections to those currently afforded to existing off-grid customers. These additional protections (which would include explicit informed consent provisions) may need to reflect the complexity of the decision being made by the customer and potentially also the greater risk to these customers should the SAPS fail to operate as expected.

In addition, significant regulatory oversight would likely be required to support this option. At a minimum, the AER would likely need to ensure that DNSPs have met all relevant requirements, and that customers fully understand the implications of their decisions, before a customer is disconnected. Further, a jurisdictional oversight role may also be appropriate where customers' wider interests are impacted by a decision to cede grid-connection – for example, where customers need to understand any unintended consequences in related, but non-energy specific areas, such as potential impacts on property values.

B APPLICATION OF RELIABILITY MEASURES TO DNSP-LED SAPS

Reliability of supply is a key factor in this review, with Section 7.3 detailing the Commission's recommendations in this area. This Appendix details the components of the STPIS and jurisdictional reliability standards and reliability guaranteed service levels (GSLs) which the Commission considers to be pertinent for determining the changes required to apply the schemes to DNSP-led SAPS. Analysis and recommendations for each jurisdictional scheme in New South Wales, Queensland, South Australia, Tasmania, Victoria and the ACT are provided.[310] The key components examined include:

- the instrument(s) the reliability measures are contained in
- the entity(s) responsible for the development, monitoring and amendment of each reliability measure
- details of the reliability measures contained in the instrument(s)
- the categories under which the reliability targets are measured e.g. feeder type or geographic area
- any exclusions from the reliability measures
- any current or recent reviews of reliability measures, and
- the changes required to apply the reliability measures to DNSP-led SAPS.

B.1 National framework — STPIS

The service target performance incentive scheme (STPIS) operates to provide financial incentives to maintain and improve service performance (to the extent that consumers are willing to pay for such improvements) by assigning rewards or penalties to a DNSP where performance is better or worse than the target performance level. Under Chapter 6 of the NER, the AER is required to develop and publish the STPIS. The AER undertakes consultation with stakeholders on any proposed amendments to the STPIS.

The STPIS comprises four components, which relate to reliability of supply, quality of supply, customer service and GSLs, with reliability of supply and GSLs relevant to this Appendix. However, the GSL component only applies where a distributor is not subject to a jurisdictional GSL scheme. As all jurisdictions currently have GSL schemes, the AER's GSLs have not been examined further in this review.

The reliability of supply parameters are unplanned SAIDI, unplanned SAIFI and Momentary Average Interruption Frequency Index (MAIFI/MAIFIe). These parameters are divided into segments by network type, that is, CBD, urban, short rural or long rural feeders. Interruptions are excluded from calculations where they are due to load shedding, failures of the shared transmission network, a direction from state or federal emergency services, the

310 The Northern Territory has not been included in the scope of this analysis.

exercise of any obligation, right or discretion applying to a DNSP, or where a major event day boundary has been exceeded.[311]

The current STPIS was released by the AER on 14 November 2018, with the AER changing the weighting ratio for the STPIS incentive rates from the previous 50% SAIFI / 50% SAIDI to the current weighting ratio of 40% SAIFI / 60% SAIDI after consultation.

To apply STPIS to DNSP-led SAPS, changes will be required to the segments of the reliability of supply parameters, as the network types or feeder categories do not currently encompass off-grid supply. The AER is able to segment the network area by a method other than network type if the alternative method better meets the AER's STPIS objectives.[312]

B.2 New South Wales

B.2.1 Reliability standards

In New South Wales the reliability standards are set by the Minister, and are contained in licence conditions. Ausgrid, Endeavour Energy and Essential Energy each have SAIDI and SAIFI targets in their licence conditions.

There are different targets for SAIDI and SAIFI for each DNSP which are further categorised by feeder type. In addition to the minimum average reliability performance by feeder type that DNSPs are required to achieve, there are individual feeder standards which specify minimum reliability for individual feeders, again categorised by feeder type.[313] The feeder categories are urban, short-rural and long-rural for Endeavour Energy and Essential Energy. Ausgrid has these three categories, and an additional CBD feeder category.

On 5 February 2019 the Minister for Energy and Utilities signed an instrument of variation of conditions of the distributors' licences which imposes reliability standards for individual customers. DNSPs are required to investigate and report on any connection points where the individual customer standards have been exceeded. There are different standards for metropolitan and non-metropolitan areas.[314]

The Independent Pricing and Regulatory Tribunal (IPART) is responsible for monitoring and enforcement of compliance with the reliability standards, and DNSPs are required to report on their reliability and performance quarterly, with an audit report provided annually.

The NSW Government has requested for IPART to carry out a review of reliability standards for DNSPs. The final terms of reference for this review have been published, with an issues paper due to be published in February 2020. The terms of reference require IPART to consider changes in technology, such as stand-alone power systems, which may offer more cost effective solutions.[315]

311 AER, *Electricity distribution network service providers service target performance incentive scheme*, cl. 3.

312 AER, *Electricity distribution network service providers service target performance incentive scheme*, cl. 3.1(d).

313 NSW Government, *Reliability and performance licence conditions for electricity distributors*, 1 July 2014.

314 New condition 5A.4 inserted into distributor licence conditions under Schedule 1 of the NSW Government Instrument of variation of conditions of distributor's licence, 5 February 2019.

315 NSW Government, Terms of reference for IPART to review electricity distribution reliability standards, 26 February 2019, p. 2.

B.2.2 Guaranteed service level scheme

The GSL scheme in NSW has supply interruption thresholds for duration of outages and frequency of outages. The GSL thresholds, or Customer Service Standards, are contained in the DNSP licence conditions.

There are both duration and frequency of interruption standards, which are categorised by metropolitan and non- metropolitan areas for the three DNSPs. A list of metropolitan areas is provided in the licence conditions. Feeder types are not considered. Customers can apply to the DNSP for a payment if the interruption duration or interruption frequency standards are exceeded, and they are supplied via a metered connection point.

Interruptions that are currently excluded from calculations that may be relevant for SAPS include interruptions resulting from a request from an emergency service organisation, a planned interruption, or interruptions within a region in which a natural disaster has occurred.[316]

B.2.3 Application to DNSP-led SAPS

The reliability standards, customer service standards, and individual customer standards all apply in respect to the DNSP's distribution system. In the *Electricity Supply Act 1995* (NSW), under which the licence conditions are made, "distribution system" is defined (relevantly) as "the electricity power lines and associated equipment and electricity structures that are used to convey and control the conveyance of electricity: (a) to the premises of wholesale and retail customers, up to the connection point in relation to the premises (which may or may not be situated on the building or land comprising the premises)". This definition would not appear to exclude SAPS. Other words and meanings are the same as in the *National Energy Retail Law* (NSW).[317] If the NSW application Act for the NERL is revised as outlined in section 9.2.1 of this report to include DNSP SAPS customers, the customer service standards and individual customer standards in the DNSP licence conditions should apply to SAPS, as they are categorised by metropolitan and non-metropolitan areas.

The overall reliability standards, however, are categorised by feeder type. There is currently no feeder type which would encompass off-grid supply. Therefore, in addition to the changes outlined in the paragraph above, further amendments will be required to provide a feeder category for overall reliability standards for SAPS. This would require an instrument of variation of conditions of the distributors' licences.

B.3 Queensland

B.3.1 Reliability standards

In Queensland, the reliability standards are contained in clause 9 of the Queensland distribution authorities for Energex and Ergon Energy. The reliability standards measuring SAIDI and SAIFI are referred to as Minimum Service Standards (MSS), and apply to the

316 NSW Government, Reliability and performance licence conditions for electricity distributors schedule 5 - customer service standards, p. 15.

317 *Electricity Supply Act* 1995 (NSW) section 4(3).

DNSP's supply network. If the DNSP exceeds the same MSS limit three years in a row it is considered to be a breach of the distribution authority.

The MSS are categorised by feeder type. Energex's network is split into CBD, urban and short rural feeder types, while Ergon Energy's network is split into urban, short rural and long rural feeder types. SAIDI and SAIFI targets differ by DNSP, and for each of these categories. There are no categories under which SAPS would be included.

Energex and Ergon are required to report on average SAIDI and SAIFI and on worst preforming feeders. Energex is currently required to report on the 10 percent worst performing feeders, and Ergon Energy reports on its 50 worst feeders. Programs must be implemented to improve reliability on these feeders.

The Queensland distribution authorities also include a safety net clause designed to reduce the risk of low probability, high consequence network outages.

Reliability standards are reviewed at the request of the Minister. The Queensland Competition Authority (QCA) is currently carrying out a review of Queensland's reliability standards, and published a draft report on 30 April 2019. A final report to the Minister is required by 30 June 2019. The application of Queensland reliability standards to SAPS is not in the terms of reference for the review.

B.3.2 Guaranteed service level scheme

The Electricity Distribution Network Code sets GSLs which apply to Energex and Ergon Energy. To be eligible for a GSL payment the premises must have a meter.

There are GSLs relating to duration of supply interruptions and frequency of supply interruptions. Duration of interruption thresholds do not differ by DNSP, but differ by feeder category. Frequency of interruption thresholds differ both by DNSP and feeder category. There is feeder category for long rural or isolated feeders for both duration and frequency of interruption thresholds.[318]

There are a number of types of supply interruptions that are excluded when determining if thresholds have been breached. A number of these would be relevant for SAPS, for example exclusion of interruptions of one minute or less, planned interruptions or where a natural disaster has occurred.

The Code requires the QCA to review GSL arrangements that will apply for each 5 year regulatory period. The QCA recently undertook a review of the GSLs that apply to Energex and Ergon Energy from 2020, with a final report published on 29 March 2019. In the review the QCA considered the application of GSLs to microgrids and off-grid supply.

The QCA decided to reserve any changes to the GSL scheme to account for off-grid supply until the Australian Energy Market Commission's final report for this review was completed. However, in its report the QCA noted that equivalent principles should apply to setting GSL

318 An isolated feeder is defined as a feeder which is not connected to the national grid (excluding the Mt Isa-Cloncurry supply network). Queensland Electricity Distribution Network Code v3, section 6.1.1.

payments for customers in DNSP-led SAPS, and that reliability standards would have to be set for microgrids before GSL thresholds could be determined.[319]

B.3.3 Application to DNSP-led SAPS

The MSS are included in the distribution authorities for Energex and Ergon Energy. The distribution authorities were granted by the Regulator (the Director-General of the Department of Natural Resources, Mines and Energy) under the *Electricity Act 1994* (Qld). The reliability standards that apply in Queensland apply to the DNSPs' supply network. A 'supply network' is 'a system, or part of a system, of electric lines, substations and associated equipment...'.[320] A connection to the grid or another distribution system is not included in the definition, therefore, it is likely that DNSP-led SAPS would be included in the DNSP's supply network. However, the reliability standards are categorised by feeder type. Currently the feeder type categories do not include a category which would be applicable to off-grid supply, so DNSP-led SAPS would not be covered by the current reliability standards. Therefore, the reliability standards in the distribution authorities would require some amendments to include a feeder category (such as an isolated feeder) which would be applicable to DNSP-led SAPS.

The GSL scheme already has an isolated feeder category, which should apply to DNSP-led SAPS. The QCA should confirm that DNSP-led SAPS, including DNSP-led microgrids, would be included in the isolated feeder category of the current GSL scheme.

B.4 South Australia

B.4.1 Reliability standards

In South Australia, the Essential Services Commission of South Australia (ESCOSA) sets, reviews and reports on the reliability standards for SA Power Networks, the DNSP for South Australia, under powers conferred in the *Electricity Act 1996* (SA). The reliability framework is established in the Electricity Distribution Code, compliance with which is a condition of SA Power Networks' electricity distribution licence.

Under clause 2 of the Electricity Distribution Code, there are supply restoration and reliability standards. These are the unplanned SAIDI and SAIFI targets (USAIDI and USAIFI), which are further categorised by the feeder types of CBD, urban, short rural and long rural. Different thresholds are applicable for each feeder type.

SA Power Networks is required to report on its performance against the reliability standards and satisfy ESCOSA that it has used its best endeavours to meet the standards should it fall short of any of them.

Exclusions from the calculation of USAIDI and USAIFI are any planned supply interruptions and supply interruptions of a duration less than one minute, as well as planned interruptions on Major Event Days.

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319 Queensland Competition Authority, Review of Guaranteed Service Levels to apply to Energex and Ergon Energy from July 2020, 29 March 2019, p. 49.

320 *Electricity Act* 1994 (Qld), section 8.

The reliability standards are reviewed every five years, with ESCOSA's final decision on the reliability standards to apply to SA Power Networks for the five-year period from 1 July 2020 released on 7 January 2019. ESCOSA considered the application of reliability standards to off-grid supply in the review, and investigated a region based approach. However, in the final decision ESCOSA maintained the feeder-type categories. ESCOSA noted if off-grid supply is allowed as an alternative to grid-supplied services it would adjust jurisdictional standards if required.[321]

B.4.2 Guaranteed service level scheme

Under clause 2.3 of the Electricity Distribution Code there are Guaranteed Service Standards, which are a GSL scheme. The two reliability GSLs are the timeliness of restoration of electricity supply after an interruption, and the frequency of supply interruptions.

There are currently tiered thresholds for both duration of interruption and frequency of interruption, with payments increasing if greater thresholds are exceeded. Until 2020, there are three thresholds for frequency of interruption, and five thresholds for duration of interruption. The reliability GSLs are not categorised by feeder type or geographical location.

Excluded from the calculation of the duration and frequency of interruption GSLs which may be relevant for DNSP-led SAPS, are interruptions caused by disconnection required in an emergency situation, faults caused by the customer, interruptions of a duration less than one minute, planned interruptions and interruptions outside control of the DNSP where restoration of supply could result in a serious risk to the heath and safety of any person.

The Guaranteed Service Standards were also reviewed in ESCOSA's review of reliability standards. From 2020, a change is being made to the supply interruption duration GSLs, with the current duration GSL which relates to the duration of a single outage, changing to a total duration GSL, with thresholds calculated on the duration of all outages in the financial year. In addition, the frequency of interruption GSL will change to have only one threshold.

B.4.3 Application to DNSP-led SAPS

The Electricity Distribution Code uses the definition of distribution network given in the *Electricity Act 1996* (SA). The distribution network is defined in the *Electricity Act 1996* (SA) as the whole or part of a system for the distribution of electricity, but does not include anything declared by regulation not to be a distribution network or part of a distribution network. This definition does not appear to preclude DNSP-led SAPS being included in the definition of a distribution network.

Supply interruptions under the GSL scheme are not categorised by feeder categories, and should encompass DNSP-led SAPS. Unless the definition of "feeder" is interpreted to cover distribution lines in SAPS, the reliability standards in the Electricity Distribution Code would require some amendments to include a feeder category (such as an isolated feeder) which would be applicable to DNSP-led SAPS.

321 ESCOSA, *SA Power Networks reliability standards review*, Final decision, 7 January 2019, p. iii.

B.5 Tasmania

B.5.1 Reliability standards

In Tasmania, the Office of Technical and Economic Regulator (OTTER) sets and reviews reliability standards. Reliability standards were last amended in 2008.

For mainland Tasmania, distribution supply reliability standards are included under clause 8.6.11 of the Tasmanian Electricity Code (the Code). The Code is issued and maintained by OTTER under the *Electricity Supply Industry Act* (Tas) 1995. Under the Code, there are reliability standards relating to the number of supply interruptions, and the duration of supply interruptions. These reliability standards apply to interruptions on the DNSP's distribution system. A distribution system is defined in the Code as a 'distribution network, together with the connection assets associated with the distribution network, which is connected to another transmission or distribution system'.[322]

There are five supply reliability categories, with different standards for each category. These categories are critical infrastructure, high density commercial, urban and regional centres, high density rural, and lower density rural. Additionally, under the Code the reliability of the distribution network is based on the performance of 101 geographical communities which are grouped into the five supply reliability categories. The DNSP must use reasonable endeavours to ensure that it meets the relevant reliability standard for each supply reliability area within the relevant supply reliability category.

The Code also contains separate reliability standards for the Bass Strait Islands microgrids. These standards group all the feeders on Flinders and Kind Islands into either high density rural, or low density rural by feeder number. There are reliability targets for both frequency and duration of interruptions of supply.[323]

B.5.2 Guaranteed service level scheme

TasNetworks, the DNSP on mainland Tasmania, has a GSL scheme, or power supply guarantee, which includes timely restoration payments and reliable supply payments. Both of these GSLs are split into the categories of urban, semi-rural and rural areas. These correspond to OTTER's 101 communities, with OTTER's critical infrastructure, high density commercial, urban and regional centre categories mapping to TasNetworks' urban category, OTTER's high density rural mapping to TasNetworks' semi-rural category, and OTTER's lower density rural mapping to TasNetworks' rural area category.

For the timely restoration payment there are different outage duration thresholds for each area, as well as tiers within each threshold, with a larger payment available once the second threshold is exceeded. For the reliable supply payment there is only one payment amount.

322 Code chapter 14. This definition follows the definition of the same term in the NER.

323 Under the terms of reference existing microgrids are outside of the scope of the review; the Bass Strait Islands microgrid section of the Code is included here for completeness.

B.5.3 Application to DNSP-led SAPS

As distribution system is defined in the Code as a distribution network which is connected to another transmission or distribution system, the reliability standards would not apply to customers in DNSP-led SAPS unless this definition was amended.

Both the reliability standards in the Code, and TasNetworks' power supply guarantee categorise customers based on their geographical area, not the type of feeder they are supplied by. Therefore, the reliability standards in the Code and power supply guarantee should apply to any of TasNetworks DNSP-led SAPS, if the definition of distribution system is amended to include DNSP-led SAPS.

B.6 Victoria

B.6.1 Reliability standards

In Victoria, reliability of supply obligations are in clause 5 of the Victorian Electricity Distribution Code. The Essential Services Commission of Victoria (ESC) administers the Victorian Electricity Distribution Code and may amend the Code under certain conditions.[324]

Under clause 5.1 of the Code, DNSPs are required to set SAIDI and SAIFI based targets before 31 December each year. The targets must include SAIDI due planned interruptions, SAIDI and SAIFI due to unplanned interruptions, Customer Average Interruption Duration Index (CAIDI), and MAIFI. The targets are divided into four categories by feeder type. The categories are CBD feeders, urban feeders, short rural feeders and long rural feeders.[325] DNSPs must also use best endeavours to meet the targets.

The 2019 Electricity Distribution Code review is in process. Reliability standards are not an initial focus area for the 2019 review.

B.6.2 Guaranteed service level scheme

The Victorian GSL scheme is in clause 6 of the Victorian Electricity Distribution Code. Under clause 6.3 there are supply restoration and low reliability payment GSLs. DNSPs are required to make payments to customers if supply restoration thresholds or low reliability thresholds are exceeded.

The supply restoration GSLs provides payments to customers in three tiers for total unplanned sustained interruptions exceeding different thresholds, and for single interruptions exceeded a threshold. The single interruption thresholds are differentiated between feeder type.

The low reliability GSLs are tiered, with three tiers for the number of unplanned sustained interruptions threshold, and two tiers for the number of momentary interruptions threshold. Once a higher threshold is exceeded, the customer is entitled to a higher payment. There is no differentiation by feeder type or geographic location.

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324 Cl. 1.7 Electricity Distribution Code.

325 A feeder is defined as an electric line and associated equipment at a normal voltage level between 6.6kV and 22kV which a distributor uses to distribute electricity, using its licensed distribution system. Code section 19.

The 2019 Electricity Distribution Code review is looking at GSLs, including low reliability of supply, in the initial focus areas.[326]

B.6.3 Application to DNSP-led SAPS

The Victorian Electricity Distribution Code's definition of distribution system does not require the system to be connected to another distribution system or the interconnected grid. It is a system of electric lines and associated equipment which the DNSP is licensed to use to distribute electricity. Amendments may be required to consider DNSP-led IPS to be part of a distribution system under this definition, however, it is likely that microgrids within the DNSP's licensed distribution area would be included under this definition.

The reliability standards in clause 5.1 of the Victorian Electricity Distribution Code would require amendments to include a category applicable to off-grid supply as none of the current feeder categories would encompass DNSP-led SAPS.

While the total unplanned sustained interruptions thresholds and the low reliability GSLs would not require additional amendments, the single interruption duration GSLs are differentiated by feeder type and would therefore require amendment to include DNSP-led SAPS.

B.7 The Australian Capital Territory

B.7.1 Reliability standards

In the ACT, section 6 of the Electricity Distribution (Supply Standards) Code details supply reliability obligations for the DNSP. The Electricity Distribution (Supply Standards) Code was made under the *Utilities Act 2000*.

Under clause 6.1 an electricity distributor is required to publish reliability of supply targets before 31 December each year, with reliability targets required to be better than or equal to reliability targets specified in Schedule 2 of the Code. The DNSP is able to set separate targets where groups of customers are expected to receive substantially different levels of service.

Targets for CAIDI, SAIFI and SAIDI are required to be set. Schedule 2 sets one target for each of the three indices. There is no further breakdown by category such as feeder type. Outages of less than one minute and extended outages due to storms (where 10% or more of customers in an area are affected) are excluded from the indices.

Evoenergy, the DNSP in the ACT, has set its current targets to be the same as the reliability targets specified in Schedule 2, with no separate targets.[327]

326 ESC, Electricity Distribution Code review, Approach paper, 17 April 2019, p. 8.

327 https://www.evoenergy.com.au/about-us/about-our-network/electricity-supply-reliability accessed on 5 May 2019.

B.7.2 Guaranteed service level scheme

The GSL scheme in the ACT is the minimum service standards, which are included in Schedule 1 of the Consumer Protection Code. The Consumer Protection Code is administered by the Independent Consumer and Regulatory Commission (ICRC).

The minimum service standard that relates to reliability is the unplanned interruptions to utility service measure. This is a standard that requires the electricity distributor to take all reasonable and practicable steps to restore supply as soon as possible, and with any event within 12 hours. If supply is not restored within 12 hours, the customer may apply for a rebate. There are no categories within this standard.

The ICRC has commenced a review of the Consumer Protection Code, releasing an issues paper on 29 November 2018. One of the areas the review is focusing on is the minimum service standards. The ICRC has stated that it will compare the ACT's scheme against the AER's GSL scheme and other jurisdictions' GSL schemes as part of the review, and where appropriate, may seek to align the Code with them.[328]

B.7.3 Application to DNSP-led SAPS

The Electricity Distribution (Supply Standards) Code uses the definitions under the *Utilities Act 2000.* Under the *Utilities Act 2000*, an electricity distributor is a utility licensed to distribute electricity through an electricity network and an electricity network is the infrastructure used to distribute electricity by a person for supply to the premises of another person. There is no requirement for the electricity network to be connected to another distribution network. In addition, there are no categories such as feeder type that would appear to restrict the reliability standards to the connected network. Therefore, it appears that the reliability standards within the Electricity Distribution (Supply Standards) Code would apply to DNSP-led SAPS.

The minimum services standard equally do not appear to currently be restricted to grid connected customers. The current standards should apply to DNSP-led SAPS.

328 ICRC, Consumer Protection Code Review, Issues paper, 29 November 2019, p. 14.

C PROPOSED CHANGES TO NEL AND NERL

C.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, and a review of jurisdictional regulations, as discussed in chapter 9). This appendix outlines the changes to the NEL and NERL that the Commission considers would be necessary to allow for DNSP SAPS to be implemented and regulated under the those laws and their rules in the manner outlined in the body of this report.

C.2 Proposed changes to NEL

- An overriding principle is that each jurisdiction retain control over the application of the stand-alone power system arrangements in its jurisdiction. An opt-in mechanism in the NEL will give effect to this principle. Subject to the jurisdictional opt-in, the NEL will define stand-alone power systems and will allow the NER to specify (or include the mechanism for specifying) which types or parts of stand-alone power systems are regulated SAPS. However, under the NEL only SAPS owned, operated or controlled by a regulated distribution system operator may be regulated SAPS.
- The NEL will allow the NER to specify only part of a stand-alone power system as a regulated SAPS. This will allow generation to be treated as part of the regulated network of the regulated distribution system provider or as a service provided to the regulated distribution system provider similar to a network support service. It will also allow flexibility when determining the regulatory treatment of an extension to a regulated SAPS.
- At present, much of the scope of operation of the NEL is defined by reference to the national electricity system – for example, the functions of the AEMC, the Reliability Panel, the AER and AEMO, the national electricity objective 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 regulated SAPS under the NEL and NER, the term 'national electricity system' should be extended to encompass regulated SAPS and generation facilities and other facilities connected to them.
- Amending 'national electricity system' 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 regulated SAPS;
  - the national electricity objective will extend to matters relating to regulated SAPS; and
  - the rule-making powers of the AEMC and the functions of the Reliability Panel will extend to regulated SAPS.

- An exception is AEMO's functions with respect to power system security which should not automatically extend to all regulated SAPS. 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.
- To ensure that the AER's economic regulatory functions and powers extend to regulated SAPS, the terms "distribution system", "electricity network service" and "network service user" should have an extended meaning when used in relation to a regulated distribution system operator who has a regulated SAPS.
- The obligations to register under the NER, or be exempt from registration, should be extended to generation connected to a regulated SAPS. The registration obligation should also be extended to networks connected to a regulated SAPS so as to allow for the connection of unregulated (embedded) networks to regulated SAPS.
- A provision should be included to allow initial rules for regulated SAPS to be made as Minister-made rules.
- The proposed changes are not intended to extend to other (non-regulated) SAPS, such as those operated by parties other than DNSPs. These will be considered as part of the SAPS Priority 2 final report.

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 C.1: **Proposed changes to National Electricity Law**

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
Section 2(1)	Insert a definition of ***adoptive SAPS jurisdiction*** to apply to a jurisdiction that has declared itself an adoptive SAPS jurisdiction by regulation made under section 6B.	Each participating jurisdiction will be able to determine whether to allow regulated SAPS in its jurisdiction. Section 6B will enable a jurisdiction to opt in; the proposed process is to make a regulation under the jurisdiction's application Act.
Section 2(1)	Amend the definition of ***augmentation*** to include, for a stand-alone power system, work to increase the capacity of the system to supply electricity.	This is a technical change to clarify that in a regulated stand-alone power system, work to increase generating capacity that forms part of the regulated SAPS but that does not also require augmentation of the network will be treated as 'augmentation' under the NEL and NER.
Section 2(1)	Amend the definition of ***national electricity system*** to include: - the generating systems, transmission systems or distribution	This change brings regulated SAPS within the scope of the NEL and NER by treating them as part of the national electricity system. The reference to

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	systems and other facilities owned, controlled or operated in the participating jurisdictions connected to regulated stand-alone power systems; and - regulated stand-alone power systems.	distribution systems connected to regulated SAPS is intended to allow embedded networks to exist within SAPS.
Section 2(1)	Remove the word "interconnected" from the term "interconnected national electricity system" in the definition of ***network service provider***.	This change extends the term to include a network service provider in relation to a regulated SAPS, since the term 'national electricity system' will be extended to include a regulated SAPS.
Section 2(1)	Insert a new definition of ***regulated stand-alone power system*** that refers to section 2AB.	It is proposed to include the definition of regulated SAPS in a stand-alone section of the NEL, together with the provisions giving an extended meaning to related terms.
Section 2(1)	Insert a new definition of ***stand-alone distribution system*** to mean a distribution system: - any part of which is in an adoptive SAPS jurisdiction; and - that does not form part of the interconnected national electricity system.	The first limb of the definition gives effect to the opt-in arrangements under which participating jurisdictions decide when to allow regulated SAPS in their jurisdictions. The second limb limits it to those distribution systems not connected to the interconnected national electricity system.
Section 2(1)	Insert new definition of ***stand-alone power system*** to mean a stand-alone distribution system and the generating systems and other facilities connected to the stand-alone distribution system.	This term includes the network and generation components of a stand-alone power system and other connected facilities.
New section 2AB - heading	Insert a new section following section 2AA, with the heading **Meaning of regulated stand-alone power system**.	A new section is proposed to define a regulated SAPS and contain deeming provisions related to regulated SAPS.
New section 2AB	Insert a definition of "regulated stand-alone power system". This should be a stand-alone power	The definition of a regulated SAPS is intended to: - be limited to stand-alone power

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	system (or any part of it) that: - is owned, operated or controlled by a regulated distribution system operator who also owns, operates or controls a distribution system forming part of the interconnected national electricity system; and - the NER specify as a regulated stand-alone power system.	systems owned, operated or controlled by a regulated distribution system operator who also owns, operates or controls a distribution system forming part of the interconnected national electricity system; and - allow all (network and generation) or part (network only) of a stand-alone power system to be regulated as if it formed part of a regulated distribution network, as determined under the NER.
New section 2AB	Insert provisions deeming: - a regulated stand-alone power system to be a part of the distribution system of the relevant regulated distribution system operator for the purposes of the NEL, NER and NERL; - a service provided by means of a regulated stand-alone power system to be an electricity network service for the purposes of the NEL, NER and NERL; - a network service user to include a user who is provided with an electricity network service by means of a regulated stand-alone power system. In section 2, notes cross referencing these deeming provisions could be added to the definitions of distribution system, electricity network service and network service user. Similarly, a cross-referencing note could be added to paragraph (a) of the definition of distribution system in section 2(1) of the NERL.	These changes extend the economic regulation framework for distribution networks in the NEL, the NER and the NERL to regulated SAPS.

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
New section 6B	Insert a power for regulations under the application Act of a participating jurisdiction to declare that the participating jurisdiction is an adoptive SAPS jurisdiction for the purposes of the NEL. Require notice of the regulation to be included in the SA Government Gazette, consistent with section 6A.	This section is to establish the mechanism for jurisdictions to opt in to the regulated SAPS arrangements. The suggested method is for regulations stating that a jurisdiction is opting in to be made under that jurisdiction's application Act. This approach is consistent with the nomination arrangements in section 6A.
Sections 11(1) and (2)	Replace "interconnected national electricity system" with "national electricity system."	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 regulated SAPS.
Section 15(1)(e)	Replace "interconnected transmission and distribution system" with "national electricity system."	This change ensures that the AER's powers to exempt persons from being Registered participants extend to regulated SAPS.
New section 90EB	Insert a power for the South Australian Minister to make the initial rules for or with respect to regulated stand-alone power systems. This should extend to: - transition to a regulated stand-alone power system; - the price, quality, safety, reliability and security of the supply of electricity in a regulated stand-alone power system; - electricity services provided by means of, or in connection with, a regulated stand-alone power system; - the activities of persons providing electricity services by means of, or	This allows the initial rules for regulated SAPS to be Minister-made rules and allows those rules to deal with the wide range of matters that may need to be addressed.

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	in connection with, a regulated stand-alone power system; - the provision of connection services to retail customers in a regulated stand-alone power system; - wholesale settlement arrangements for electricity supplied by means of a regulated stand-alone power system; - retail customer transfer, metering and retail competition in respect of electricity supplied by means of a regulated stand-alone power system; - any other subject contemplated by, or consequential on, amendments to the NEL and NERL made for regulated stand-alone power systems; and - Rules that revoke or amend a Rule as a consequence of the enactment of those amendments.	
New section 109A	Insert a provision 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 regulated stand-alone power system or a sensitive load supplied by means of a regulated stand-alone power system 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 regulated SAPS in all cases. The section allows the NER to address the extension of those functions on a case-by-case basis.
Schedule 1,	Amend to include "prices relating to	This change clarifies that the wholesale

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
item 7	regulated stand-alone power systems."	exchange mechanisms in the NER may set prices relating to regulated SAPS. Different price setting mechanisms may be used for supply through regulated SAPS and supply through the interconnected system.

Source: AEMC

C.3 Proposed changes to NERL

- As with the proposed changes to the NEL, the proposed NERL changes will only have practical impacts in jurisdictions that have opted in. The opt-in process will take place through regulations made under jurisdictions' NEL application Acts, as described above. A jurisdiction will only need to opt in once and the opt-in will automatically take effect for the NERL through the import of key definitions from the NEL (as noted below).
- The SAPS regulated under the NERL and NERR will be the same as those regulated under the NEL and NER, as the definition of "regulated stand-alone power system" in the NERL will refer to the definition of that term in the NEL. The inclusion of such systems as part of an electricity distributor's distribution system will also be imported into the NERL from the NEL, as the NERL refers to the NEL definition of "distribution system".[329]
  - The inclusion of regulated SAPS in an electricity distribution system in the NERL will automatically include regulated SAPS 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 regulated SAPS. Thus supply via a regulated SAPS would constitute a customer connection service.[330]
- 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).[331] This would include premises served by a regulated SAPS. Thus, no changes to these provisions are needed to ensure that entities selling electricity to customers in regulated SAPS are required to be authorised.[332]
  - To allow for the possibility that, in future, retail tariffs for SAPS may be developed that are not based on a per-kWh sale of electricity, the "sale of energy" to SAPS

329 NERL section 2(1), paragraph (a) of the definition of "distribution system".

330 If necessary, this could be clarified by means of rules made pursuant to paragraph (d) of the definition of "customer connection service".

331 NERL section 88.

332 However, as discussed in chapter 9, some jurisdictions currently restrict the coverage of the NERL to customers connected to the interconnected grid, in their NERL application Acts. These provisions would need to be amended.

customers is 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 SAPS customers in these circumstances.

- The operation of the retailer authorisation provisions and the inclusion of regulated SAPS in a distribution system will extend the consumer protections of the NECF to customers of regulated SAPS. SAPS customers, and service providers to SAPS 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 regulated SAPS.
- The initial package of NERR amendments relating to regulated SAPS may be made by the South Australian Minister, pursuant to a new proposed Ministerial rule making provision. Any further rules relating to SAPS customers may be made by the AEMC pursuant to its rule-making powers under existing sections 237 and 239 and a proposed new provision allowing rules to be made in respect of regulated SAPS.
  - To provide flexibility to ensure that the detailed provisions in the NERL will apply appropriately to regulated SAPS, 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 regulated SAPS, as well as the ability to make rules regarding the transition from grid connection to supply via a regulated SAPS.
- The proposed changes are not intended to extend to other (non-regulated) SAPS, such as those operated by parties other than DNSPs. These will be considered as part of the SAPS Priority 2 final report.

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 C.2: **Proposed changes to National Energy Retail Law**

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
Section 2(1)	Insert a new definition of ***regulated stand-alone power system*** to have the same meaning that term has in the NEL.	"Regulated stand-alone power system" is to be defined in NEL s. 2AB(1) - see table above - and is to be further defined in the NER. Importing this definition into the NERL ensures that the same types of SAPS are permitted and regulated under the NEL and NERL. This includes the limitation to SAPS owned, operated or controlled by DNSPs, in jurisdictions that have decided to allow DNSP SAPS by opting in to the SAPS provisions under the NEL. Only electricity SAPS are contemplated.
Section 2(1)	Insert a new definition of ***SAPS customer*** to mean a	The term "SAPS customer" is used in proposed new sections 7A and 238AA (see below). The

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	person: - to whom energy is sold for SAPS premises, or - who proposes to purchase energy for SAPS premises, or - to whom energy is sold for premises which are proposed to become SAPS premises.	first two limbs of the proposed definition are modelled on the definition of "customer" in section 5(1), and cover consumers who receive energy by means of a regulated SAPS, and consumers who wish to connect to a regulated SAPS. (For example, a consumer who builds a house in a town served by a DNSP-led microgrid, and seeks a connection offer from the DNSP.) The third limb of the proposed definition is intended to cover customers who currently receive electricity from the interconnected grid, but whom a DNSP proposes to transition to supply via a regulated SAPS. (For instance, the DNSP is commencing the formal SAPS consultation process outlined in section 3.4.2 of this report in respect of the customer's premises.) The extension to future customers of SAPS is consistent with the approach taken to the definition of "customer", and allows the rules to specify protections for customers during the transition to a regulated SAPS.
Section 2(1)	Insert a new definition of ***SAPS premises*** to mean premises connected to a regulated stand-alone power system.	The term "SAPS premises" is used in the definition of the proposed new term "SAPS customer" (above) and in the proposed new section 7A (below).
New section 7A - heading	Insert a new section following section 7, with the heading **SAPS customers**.	A new section is proposed to address matters relating to SAPS customers under the NERL and NERR.
New section 7A	Insert a new subsection that provides that the NERL, the National Regulations and the NERR apply in respect of SAPS customers, and entities providing services to those customers, in the same way as those instruments apply to other customers and their service providers. This subsection is to be subject to	This proposed provision is intended primarily to clarify the position of SAPS customers and SAPS service providers under the NERL and NERR, rather than being an operative provision in its own right.

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	the two subsections described below.	
New section 7A	Insert a new subsection that provides that: - references in the NERL, NERR and 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 SAPS premises even if there is no charge for the electricity consumed; and - references in the NERL, NERR and 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 SAPS premises even if there is no charge for the electricity consumed. This section is to be subject to the subsection below.	In several key provisions the scope of the NERL is defined with 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 SAPS supply model provides for customers moved to regulated SAPS to maintain their current retailer and retail tariff, the model does not prevent SAPS-specific retail tariffs being developed and offered to customers in future. Given the nature of SAPS, it would be possible for such tariffs to be based on charges other than a per-kWh charge for electricity. To avoid the risk of this potential tariff design removing SAPS customers on such tariffs 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 SAPS premises even if there is no consumption-based charge for the electricity the SAPS customer uses.
New section 7A	Insert a new subsection that provides for the NERR to make provision for or with respect to the provision of energy services to SAPS customers, including, for example: - the manner in which provisions of the NERL and National Regulations apply to SAPS customers or persons providing energy services to	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 SAPS 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.

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	SAPS customers; and - the transition from a connection to the interconnected national electricity system within the meaning of the NEL to a connection to a regulated stand-alone power system.	Two examples of subject matters for rules relating to regulated SAPS are proposed, on a non-exhaustive basis. The first allows for rules to modify the way in which provisions of the NERL and National Regulations apply to SAPS customers and their service providers. The recommended SAPS supply model provides for a high degree of consistency between the regulation of SAPS 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 SAPS customers. The second example allows for rules on the transition process, in which a DNSP transfers a customer from the interconnected part of its distribution system to a regulated SAPS. Chapter 3 - planning & engagement of this paper provides recommendations regarding public consultation processes during this transition, for example. In addition, if thought necessary, the NERR could clarify that the transition does not constitute a connection alteration, de-energisation or energisation.
New section 238AA - heading	Insert a new section following section 238A with the heading **South Australian Minister may make initial rules related to SAPS customers**.	To allow the SAPS-related 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, as discussed in chapter 9. 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.
New section 238AA	Insert a new subsection allowing the South Australian Minister to make rules in the NERR: - for or with respect to regulated stand-alone power	The power for the Minister to make rules in connection with regulated SAPS is intended to be broad, and to cover all aspects associated with SAPS customers and service providers to SAPS customers. The power is intended to include rules related to or consequential on the

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	systems, including - • transition to a regulated stand-alone power system • energy services provided by means of, or in connection with, a regulated stand-alone power system • the activities of persons providing energy services by means of, or in connection with, a regulated stand-alone power system - for or with respect to any other subject contemplated by, or consequential on, the SAPS amendments (defined as the Acts amending the NEL and NERL in respect of regulated SAPS), and - that revoke or amend a rule as a consequence of the SAPS amendments.	amendments to the NEL and NERL outlined in this appendix, and changes to existing rules resulting from these amendments.
New section 238AA	Insert new subsections in relation to the Minister-made rules on regulated SAPS that are equivalent to sections 238A(2)-(6): - providing for notice of the rules, and notice of the commencement date of the rules - providing that rules made under this section 238AA may only be made on the recommendation of the MCE - providing that section	These proposed provisions would mirror those that relate to existing Ministerial rule-making powers in sections 238A(2)-(6). The package of Ministerial rules on regulated SAPS is intended to be a one-off, initial set of rules. Any subsequent rules or amendments relating to regulated SAPS may be made by the AEMC under its existing rule-making powers in sections 237 and 239. The general rule-making power under section 237(1)(a) would extend to rules relating to regulated SAPS once the changes to the NEL and NERL proposed in this appendix have been made.

SECTION	PROPOSED AMENDMENT	PURPOSE OF PROPOSED AMENDMENT
	237(3) applies to rules made under this section 238AA in the same way it applies to rules made by the AEMC - providing that once the first rules have been made under this section 238AA, no further rules can be made under this section.	

Source: AEMC