AEMC

REVIEW

Australian Energy Market Commission

FINAL REPORT

UPDATING THE REGULATORY FRAMEWORKS FOR DISTRIBUTOR-LED STAND-ALONE POWER SYSTEMS

28 MAY 2020

INQUIRIES

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ABOUT THE AEMC

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

SUMMARY

1 This report presents the Commission's recommendations for a package of proposed rules to implement a new regulatory framework for stand-alone power systems (SAPS) provided by distributors in the National Electricity Market (NEM).

2 The rule package would give effect to the high-level recommendations made in the Commission's earlier priority 1 report for its *Review of the regulatory frameworks for stand-alone power systems*, which also contained drafting instructions for changes to national energy laws.

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

4 These new arrangements can now be implemented by the COAG Energy Council amending the national energy laws based on the Commission's instructions, and these being passed through the South Australian parliament. The proposed rule changes described in this report can then be made by the South Australian Minister for Energy. Following the enactment of the package of law and rule changes, jurisdictions may also need to make amendments to jurisdictional instruments, and the Australian Energy Market Operator (AEMO) and the Australian Energy Regulator (AER) will require a transitional period to consult on and update relevant procedures and guidelines. Based on current expectations, the full framework could go-live in mid- to late-2021.

Background

5 A 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.

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

7 Some states with significant numbers of stand-alone power systems have relatively well-developed regulatory frameworks. However, other jurisdictions, notably those without SAPS

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.

(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 distributors seek to supply their current network customers on a stand-alone basis.

Increasing viability of stand-alone power systems

8 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.

9 These developments are prompting distributors 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.

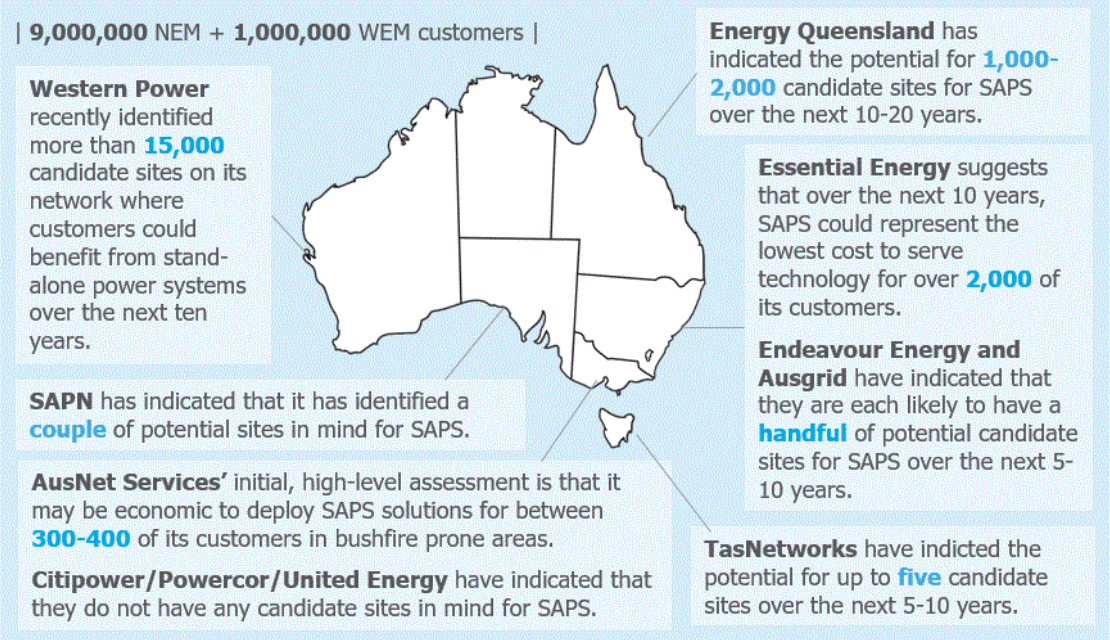
10 The distribution costs associated with supplying customers across the grid vary significantly, and increase as customer density decreases. As such, the costs of providing a grid-connected service are at their highest in remote areas, at the "fringes" of the grid. As the assets providing service to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

11 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.

12 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 distributors are able to reduce costs, the benefits would flow through, over time, to all of a distributor's customers. This would occur through a reduction in the overall amount of revenue that would be required by the distributor, therefore reducing prices for all customers. The customers moving to SAPS supply would also likely experience benefits directly in terms of improved reliability.

13 Information provided to the Commission by distributors suggests that the numbers of customers that distributors 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 distributors in remote areas.

Figure 1: Potential uptake of DNSP SAPS



Source: Numbers regarding the potential uptake of SAPS provided by DNSPs as of May 2020.

14 Despite their likely relatively small numbers, customers that are candidates for SAPS supply account for a disproportionately high share of distributors' costs. Consequently, transitioning these customers to off-grid supply could lead to large benefits, both for individual customers transitioned to SAPS supply, and to the wider customer base in the form of the reduced costs that flow through to them.

Regulatory barriers to DNSP provision of off-grid supply

15 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.

16 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.

17 While it allows any cost savings arising from the use of SAPS to benefit all of a distributor's customers, this "postage stamp" pricing means that individual customers do not have a direct financial incentive to move away from grid 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 grid connection given its lower price to them, even if an off-grid solution would be lower cost to provide.

18 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 distributors under current tariff structures.

19 The provision of distribution services 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*.

20 In 2017, the Commission considered a rule change request made by Western Power that proposed to amend the definition of distribution service in the NER in order to enable the deployment of SAPS by distributors. 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.

21 In addition, in New South Wales, South Australia and Tasmania, the National Energy Retail Law (NERL) and National Energy Retail Rules (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 distributors would not benefit from the fundamental consumer protections contained in those instruments.

22 Given these issues, the Commission determined not to make the rule change proposed by Western Power. It concluded that broader framework changes, beyond amendments to the NER, would be required to properly implement the reforms required to facilitate provision of SAPS by NEM distributors. Consequently, the Commission recommended that the COAG Energy Council ask it to provide advice on the law and rule changes that would be required.

23 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 distributors to develop off-grid supply arrangements where efficient.

24 In light of these recommendations, in August 2018, the COAG Energy Council asked the Commission to undertake a review of the regulatory arrangements for SAPS under the national energy laws and rules. This review - the *Review of the regulatory frameworks for stand-alone power systems* - 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 NEM distributors
- priority 2, focussing on the development of a national framework to support the supply of electricity from SAPS provided by parties other than NEM distributors.

25 A final report for distributor-led SAPS under priority 1 was published on 30 May 2019, and a final report for priority 2 - setting out the recommended regulatory framework to apply to third-party SAPS - was published on 31 October 2019. In both cases, the reports contained drafting instructions for changes to national energy laws but noted that further work would be required to develop detailed rules drafting.

Approach

26 On 19 September 2019, the Commission self-initiated and published terms of reference for a review into *Updating the regulatory frameworks for distributor-led stand-alone power systems.* The purpose of the review has been to provide advice to the COAG Energy Council on the detailed amendments to the regulatory framework required to implement the recommendations made by the Commission in its priority 1 final report on distributor-led SAPS.

27 The package of proposed rule changes presented in this report has been developed on the basis that the NEL and NERL will be amended in accordance with the changes the Commission recommended in the priority 1 final report. The COAG Energy Council's Senior Committee of Officials (SCO) advised the Commission that it supported the Commission commencing this work to advise on detailed revisions to the NER and the NERR to implement the Commission's recommendations.[3]

28 The Commission's priority 1 recommendations were considered and approved by the COAG Energy Council at its meeting on 22 November 2019. In its formal response, the Energy Council noted that the Commission had already started developing advice on a package of rule changes, and would provide a draft report in December 2019.[4]

29 The Commission published its draft report and draft proposed rules on 19 December 2019. A stakeholder workshop was held in Brisbane on 29 January 2020 to discuss the Commission's proposals, and 17 submissions were received in response to the draft report.

30 Reflecting the near-universal support for the introduction of regulatory changes to facilitate the use of SAPS by distributors where economic and consistent with the maintenance of existing consumer protections, submissions to the draft report were generally positive. However, a number of distributors expressed concerns with aspects of the detailed arrangements, in particular the proposed approach to service classification, which means that distributors would not ordinarily be able to provide generation services in a SAPS under the AER's current ring-fencing guideline.

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3 On 10 September 2019, the Chair of SCO's Stand-Alone and Embedded Networks Working Group wrote to the AEMC requesting the development of advice on detailed revisions to the NER and NERR required for the recommendations on SAPS to take effect.

4 COAG Energy Council, *Australian Energy Market Commission Review of the Regulatory Frameworks for Distributor-led Stand-Alone Power Systems - Priority 1 Final Report*, Response, p. 4.

31 The Commission notes that the restrictions in the ring-fencing guideline would be triggered as a result of the generating system in a SAPS providing two services:

- the generation of electricity, a service provided to AEMO and, ultimately, the customer's retailer
- an input to the distribution service provided by the distributor, in that the SAPS generator would be assisting the distributor to convey electricity to the customer's premises by virtue of its location.

32 This model formed a key recommendation of the priority 1 final report on distributor-led SAPS, as it will facilitate the retention by SAPS customers of their relationship with their existing retailer at the time of transition to SAPS supply and, in the longer-term, their access to retail competition more generally.

33 The Commission notes that it will be open to the AER to apply or modify its ring-fencing guideline as it sees fit, which may potentially include the granting of waivers or establishment of standing exemptions. Such an arrangement - which is consistent with the wider approach taken to ring-fencing - will provide an appropriate level of flexibility as the market for stand-alone power systems develops, and the Commission has seen no compelling reason to limit the AER's discretion in the rules.

This report

34 The rules drafting described in this report is consistent with, and builds on, the Commission's earlier recommendations. The report focusses on four key areas:

- Service delivery model - the arrangements needed to support the financial settlement of SAPS load and generation through AEMO's systems, and thereby support retail competition. The Commission is recommending a simplified settlement model, where SAPS customers would not be charged most non-energy charges (such as those for ancillary services) or for distribution or transmission losses. To the extent there were losses or unaccounted for energy in a stand-alone system, these would be allocated to SAPS generators through adjustment of their metering data prior to settlement. Most SAPS generators would be expected to hold contracts with distributors to supplement the revenues earned from energy market settlement and, to the extent they were material, allowance for the loss adjustments could be made in these contracts.[5]
- SAPS settlement price - the design of an administered price to be paid by retailers to AEMO, and then by AEMO to SAPS generators, in energy market settlement. The design recommended by the Commission is intended to allow retailers to adequately manage risks associated with serving SAPS customers and to avoid exposing SAPS customers to irrelevant price signals from the wholesale market.
- Service classification - the approach to the classification of services provided by means of a SAPS distribution system for regulatory purposes. This section of the report considers issues related to the provision of generation services by distributors given the ring-

5 This represents a change to the arrangements proposed in the draft report, in which most non-energy charges would have been levied and losses/unaccounted for energy would have been allocated to SAPS customers in settlement.

fencing issues noted above. In particular, it contains additional details as compared to the draft report regarding the economic regulation of SAPS generation assets where the AER grants a ring-fencing waiver or exemption and permits a distributor to own and operate such assets. In such circumstances, distributors would be able to include the generation assets in their regulatory asset bases, with arrangements established to allow the unregulated revenue earned in the wholesale market to contribute to the funding of these assets.

- Technical standards - the application of technical regulation and performance standards contained in schedules 5.1a to 5.3a of the NER. A number of these technical requirements are not relevant for SAPS, or could lead to unnecessary costs being incurred by distributors. As such, the Commission has concluded that more fundamental changes are required than were proposed in the draft report. The Commission is now recommending that distributors be required to develop their own technical standards for SAPS to address these issues, while ensuring that SAPS customers are not disadvantaged as compared to the quality of supply they would have expected to receive had they remained grid-connected.

35 The report also contains a number of appendices, covering issues which have required less additional work to develop rules drafting. For example, the Commission has very largely maintained its approach to network planning and customer engagement, where the recommendations were specified in some detail in the priority 1 final report.

36 The final appendix contains draft rule descriptions which provide additional detail on each proposed change to the rules. It should be noted that the rule drafting is based on a version of the rules incorporating other changes for which determinations have been made by the Commission but which have not yet been implemented.

Implementation

37 In developing the package of proposed draft rule changes, the Commission has given further consideration to the appropriate pathway for implementation of the changes. A comprehensive implementation plan is included in chapter 7 of this report.

38 Implementation of the recommended framework will require the implementation of changes to both the national energy laws and rules, and also to some jurisdictional legislative instruments.

39 The Commission understands that changes to the national electricity and energy retail laws are currently being developed by SCO's Stand-Alone and Embedded Networks Working Group. It is expected that these will be agreed by the COAG Energy Council and put to the South Australian parliament later this year. Following the passage of this legislation, the South Australian Minister for Energy will then be able to make the rule changes described in this report.[6]

40 To support and ensure consistency with these national changes, jurisdictional governments

6 To the extent there is any material inconsistency between the law drafting agreed by the COAG Energy Council and the rules drafting that accompanies this report, the Commission will provide additional advice to the Energy Council.

and regulators will need to review and amend relevant jurisdictional legislative instruments. This report provides a high-level overview to jurisdictions on the key issues they will need to consider in areas such as technical regulation and network reliability standards.

41 Jurisdictions will then have the ability to opt-in to the national regulatory framework. Once a jurisdiction has made appropriate changes to any relevant jurisdictional instruments (for instance the coverage of their NERL application acts), the opt-in could be triggered and the national arrangements to support the deployment of SAPS by distributors in that jurisdiction would then be enabled.

42 A final step before full implementation will give AEMO and the AER a transitional period of one year to consult on and update relevant procedures and guidelines. As with all its work, the Commission has worked collaboratively with AEMO and the AER to identify and consider the issues that will impact upon them. Based on current expectations, the full framework for the deployment of stand-alone systems could therefore take effect in mid- to late-2021.

43 However, the Commission notes that a number of adjustments may be required in response to the impacts of COVID-19. As such, the Commission recommends that the COAG Energy Council and the South Australian Minister for Energy coordinate with the Commission, AER and AEMO to ensure the commencement date, effective date and proposed law and rule changes proposed to implement the framework take into account the prioritisation of other major legislative and rule changes under the joint market body prioritisation framework.[7] This review was identified as a reform suitable to progress on its existing timeframe.

44 In this context, the Commission notes that the implementation of this reform comes at a time when the deployment of SAPS may provide an appropriate response to recent bushfire events that occurred during the 2019-2020 summer period. The Commission recognises the opportunities presented by the deployment of SAPS in supporting the bushfire recovery and providing future quality, safety and reliability benefits to bushfire-prone communities. As such, the Commission is strongly supportive of the expeditious implementation of these reforms.[8]

7 Letter from AEMC, AER, and AEMO, *Prioritising implementation timeframes: a more detailed view*, 9 April 2020.

8 The proposed rules also make allowance for temporary stand-alone systems being used a response to recent bushfires to be transitioned into the enduring framework, without the need for a network connection to first be re-established.

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1 INTRODUCTION

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

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 power systems (SAPS) provided by Distribution Network Service Providers (DNSPs)
- priority 2, focussing on the development of a national framework to support the supply of electricity from SAPS provided by parties other than DNSPs.

A final report for priority 1 was published on 30 May 2019. In addition to the key recommendations to facilitate use of SAPS by DNSPs, this also contained recommendations for amendments to the National Electricity Law (NEL) and National Energy Retail Law (NERL) to allow the rules to appropriately regulate the provision of SAPS by DNSPs.

The Commission published a final report on priority 2 of the review on 31 October 2019, which sets out the Commission's recommendations for the regulatory framework that should apply to third-party SAPS. The report also contained detailed information on the changes required to the national energy laws to implement the recommendations.

Subsequent to these reports, the Commission was asked by the COAG Energy Council to develop a package of rule changes to implement the regulatory framework outlined in the final report for the priority 1 review.[9] In this report, the Commission presents its final advice on the proposed rule changes.

This chapter outlines the following:

- the purpose of this review
- the context for the review and terminology used in the report
- the terms of reference for the review
- ongoing and recently completed work in relation to stand-alone power systems (SAPS).

1.1 Purpose of review

Essential to the Commission's recommended framework in the priority 1 final report is that changes to energy laws and rules should support the efficient delivery of SAPS by distributors while preserving consumer protections comparable to those afforded to customers supplied via the interconnected grid.[10]

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

10 AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1*, final report, 30 May 2019. See p. viii- xii for a more detailed overview of the Commission's rationale.

In particular, the Commission's recommendations in the priority 1 final report aimed to support efficient and transparent investment decisions to allow DNSPs to supply their existing customers via SAPS, where these offer a lower cost substitute to investing in, and maintaining, traditional network solutions.

The proposed framework also aimed to ensure that customers who receive SAPS will retain all of their existing consumer protections, including access to retail competition and existing reliability standards. As such, individual customers would not be disadvantaged where a DNSP determined that it would be more efficient to supply them on a stand-alone basis. Further, cost savings arising from the use of lower cost stand-alone systems would flow through to all distribution network users, through lower network prices.

In developing advice for governments on a package of changes to the National Electricity Rules (NER) and the National Energy Retail Rules (NERR) to implement the proposed framework for the regulation of SAPS, the Commission has given consideration to how best to implement the recommendations made in the priority 1 final review. These recommendations included:

- removing existing barriers to enable DNSPs to provide SAPS using regulated distribution services
- amending planning processes to establish customer engagement obligations in relation to transition to SAPS, principally to support efficient planning and investment outcomes
- extending existing energy market arrangements, including the Australian Energy Market Operator's (AEMO's) settlement system, to accommodate DNSP SAPS, and charging retailers an administered SAPS settlement price (rather than the spot price) for energy. 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
- extending the full suite of energy-specific consumer protections in the NERL and NERR, to SAPS customers (noting that the ability to do this depends in part on changes to jurisdictional instruments)
- allowing participation by jurisdictions in the national arrangements for DNSP SAPS on an opt-in basis.

Purpose of this final report

This report presents the Commission's proposed final package of changes to the national rules to implement the new approach for SAPS previously recommended by the Commission. The Commission published terms of reference for a review into *Updating the regulatory frameworks for distributor-led stand-alone power systems* on 19 September 2019. This was followed by publication of the Commission's initial advice and a package of draft proposed rule changes on 19 December 2019.[11]

The package of proposed final rule changes presented in this report has been developed on the assumption that the NEL and NERL will be amended in accordance with the changes the

11 AEMC, *Updating the regulatory frameworks for distributor-led stand-alone power systems*, Draft report, 19 December 2019.

Commission recommended in the priority 1 final report. The intention is that this package of rule changes will be considered by the COAG Energy Council and, if agreed to, would be made by the South Australian Minister of Energy to commence at the same time as the recommended NEL and NERL changes.

The COAG Energy Council Senior Committee of Officials (SCO) advised in August 2019 that it supported the Commission commencing this work to advise on detailed revisions to the NER and the NERR to implement the Commission's recommendations.[12] The Commission's priority 1 recommendations were considered and approved by the COAG Energy Council in principle at its meeting on 22 November 2019. In its formal response,[13] the Energy Council noted it would commence drafting of the necessary legislative amendments to implement the Commission's framework, with an aim to have the legislative amendments made in 2020.

Consistent with the priority 1 final report, in developing the detailed advice on rules to apply the recommended framework for DNSP-led SAPS, the Commission has considered a number of areas where further clarification was required. These areas are dealt with in the body of this report and include the SAPS service delivery model, the approach to determining and implementing the SAPS settlement price (SSP), the appropriate classification of SAPS distribution and generation services, the application of technical and performance standards and the proposed implementation plan.

1.2 Context

1.2.1 Definitions and concepts

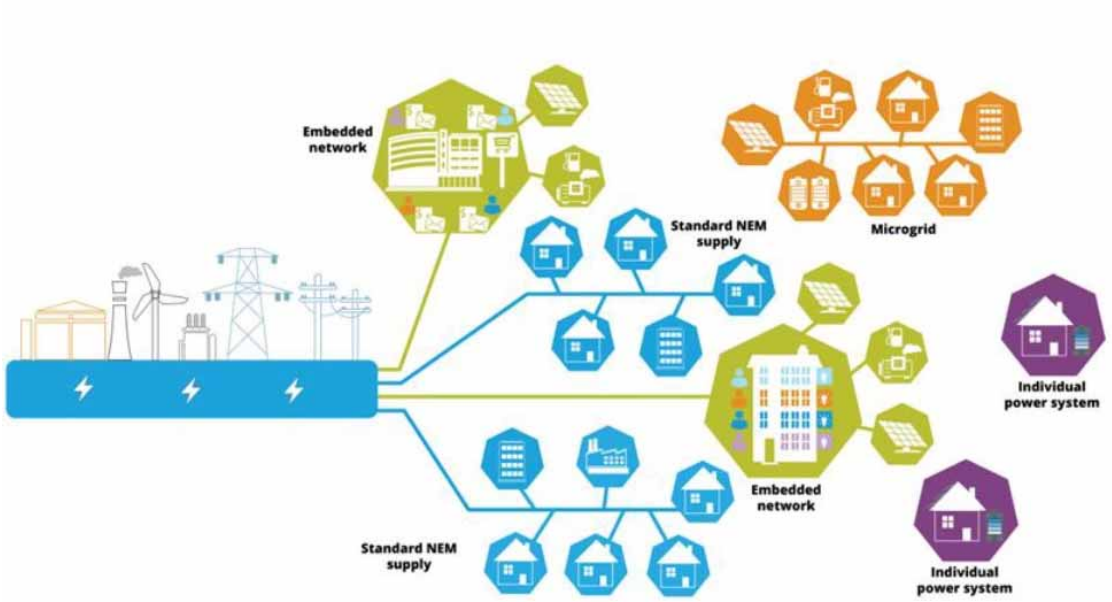
For the purposes of the review, we consider there to be four possible models of electricity supply for customers:

- 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.

12 On 10 September 2019 the Chair of SCO's Stand-Alone and Embedded Networks Working Group wrote to the Commission requesting the development of advice on detailed revisions to the NER and NERR required for the recommendations on SAPS to take effect. See: https://www.aemc.gov.au/market-reviews-advice/updating-regulatory-frameworks-distributor-led-stand-alone-power-systems

13 COAG Energy Council, *Australian Energy Market Commission Review of the Regulatory Frameworks for Distributor-led Stand-Alone Power Systems - Priority 1 Final Report*, Response, December 2019, p. 4.

Figure 1.1: Four models of electricity supply



Source: AEMC

This review has 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). 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. The Commission self-initiated the *Updating the regulatory frameworks for embedded networks review* on 30 August 2018, and published a final report on 20 June 2019. The report describes and explains an accompanying package of drafting changes to the national energy laws and rules to implement the recommendations from the Commission's earlier *Review of the regulatory arrangements for embedded networks*.[14]

Box 1 explains key definitions used in this report.

BOX 1: KEY DEFINITIONS USED IN THIS REPORT

DNSP

A DNSP is the distribution network service provider, being 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.

DNSP-led SAPS

A DNSP-led SAPS is a stand-alone power system (which may be a microgrid or an individual power system) operated by a DNSP. These types of SAPS were the primary focus for priority 1 of the previous review, and this report.

Third party SAPS

These are SAPS that are managed by a party other than a DNSP. These types of SAPS were considered under priority 2 of the previous review. A final report which sets out the Commission's recommendations for the regulatory framework that should apply to third-party SAPS was published on 31 October 2019.

This report does not address third party SAPS.

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.

14 AEMC, *Review of the regulatory arrangements for embedded networks*, final report, 28 November 2017.

1.2.2 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[15] 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,[16] 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.[17] 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 NEL[18] and the NERL,[19] 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.[20]

The NERL regulates the supply and sale of energy to retail customers in the jurisdictions that have adopted it.[21] 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. Customer connections, retail competition, energy-specific consumer protections and basic standard and market agreement terms and conditions are included in the rules.[22]

As the NEL and the NER are currently only applicable to interconnected systems, they do not apply to SAPS.[23] 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.[24]

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

16 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.

17 Some elements of the national frameworks relating to retailers have not been adopted in Victoria.

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

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

20 The NER are published on the AEMC website, at https://www.aemc.gov.au/regulation/energy-rules/national-electricity-rules

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

22 The NERR are published on the AEMC website, at https://www.aemc.gov.au/regulation/energy-rules/national-electricity-rules

23 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.

24 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.

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).[25] 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).

1.2.3 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 may not.

While the Commission is, in this report, recommending changes to the NER and NERR to bring DNSP-led SAPS into a national framework, there will remain regulatory functions for which jurisdictions, under the AEMA, have responsibility.[26] 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 priority 1 review, the Commission identified that certain changes to the jurisdictional functions are required to allow customers transitioned to a SAPS model of supply to receive protections equivalent to those of grid-connected customers.[27]

The terms of reference for the previous review noted 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.[28] However, there may be the potential for jurisdictions to bring existing SAPS systems under the Commission's proposed framework. Individual jurisdictions may consider if this is suitable to their needs.

1.2.4 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. The distribution costs associated with supplying customers across the grid vary significantly, and increase as customer density

25 The Acts adopting the NERL in Queensland and the ACT do not limit the application 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.

26 See AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1*, final report, 30 May 2019, p. 90.

27 See AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1*, final report, 30 May 2019, p. 90 for detail on those areas that may require change.

28 COAG Energy Council, Terms of reference: Review of changes required to the national electricity framework for SAPS, July 2018.

decreases. As such, the costs of providing a grid-connected service are at their highest in remote areas, at the "fringes" of the grid. SAPS solutions may increasingly represent a more economic alternative to replacing existing network assets in areas that are costly to serve.

There are a range of reasons that justify the need for effective regulation of SAPS:[29]

- 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 (for example, in bushfire or flood prone 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 if they go off-grid.
- 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.[30]

As discussed in section 1.2.3, 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.

1.3 Terms of reference

The Commission self-initiated and published terms of reference for a review into *Updating the regulatory frameworks for distributor-led stand-alone power systems* on 19 September 2019. The purpose of the review has been to advise on the detailed amendments to the regulatory framework that are required to implement the recommendations made by the Commission in the *Review of the regulatory frameworks for stand-alone power systems - priority 1*.

In that review, the Commission set out a number of recommendations for changes to the regulatory framework specifically to facilitate the provision of SAPS by distribution businesses. The Commission also prepared recommended drafting instructions for changes to the NEL and the NERL, noting that the next stage of work would involve development of detailed revisions to the rules to apply the final recommendations.

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29 This section only provides an overview of the key reasons that justify the need for effective regulation of SAPS. For a more detailed discussion of these factors see the AEMC's *Review of regulatory frameworks for stand-alone power systems - priority 1*, final report, 30 May 2019, pp. 14-26.

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

This review was initiated to develop these detailed revisions to the NER and NERR required to implement the new regulatory approach for distributor-led SAPS recommended by the Commission.

Under the terms of reference, the review has considered how best to implement the Commission's proposed regulatory framework for distributor-led SAPS. The focus of the work has been on changes to:

- support efficient planning and investment outcomes in relation to SAPS
- extend existing market arrangements to accommodate distributor-led SAPS, including allowing for retail competition to continue to apply
- allow participation by the jurisdictions in the national arrangements in distributor-led SAPS on an opt-in basis.

The changes recommended by the Commission will apply to the provision of SAPS by distribution businesses. In respect of third-party SAPS, the final report which sets out the AEMC's recommendations for the regulatory framework that should apply to third-party SAPS was published on 31 October 2019.

1.4 Related work

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

1.4.1 SAPS Priority 2

The Commission has developed recommendations for a national framework for third-party SAPS which jurisdictions could then use for new or existing SAPS provided by entities other than DNSPs. The Commission published a final report on 31 October 2019, following a draft report published on 27 June 2019 and a consultation paper published on 1 March 2019. The final report presents a recommended three-tiered framework for the regulation of third party SAPS.

The framework includes three broad categories for third-party SAPS. Category 1 would comprise very large microgrids, in particular those large enough to warrant regulatory determinations by the AER. Category 2 microgrids will range from those supplying smaller towns to those connecting more than a handful of customers. Category 3 would encompass very small microgrids with a handful of customers, microgrids which only supply large customers and IPSs where there is a sale of energy.[31]

The final report also detailed the Commission's recommendations in relation to the regulatory obligations that should apply to each category for each of the following seven dimensions:

- Registration and licensing
- Access and connections

31 See the AEMC's *Review of regulatory frameworks for stand-alone power systems - priority 2*, final report, 31 October 2019, pp. vi-vii for further detail on how boundaries are drawn between categories and what type and level of regulation would be required for each category.

- Economic regulation
- Consumer protections
- Reliability
- Network operations
- Safety

Under the review, the Commission prepared recommended drafting instructions for amendments to the NEL and NERL to facilitate the recommended regulatory framework for third-party SAPS, as well as to facilitate the transition of customers from grid-connection to third-party SAPS. If the COAG Energy Council approves the approach described in the report, the next stage of work would involve the development of detailed revisions to the NER and NERR to apply the final recommendations.

1.4.2 Embedded networks review

The Commission self-initiated the *Updating the regulatory frameworks for embedded networks* review on 20 August 2018, publishing a draft report on 31 January 2019 and a final report on 20 June 2019.[32]

The purpose of this review was to advise on the detailed amendment to the regulatory frameworks required to implement the recommendations from the Commission's 2017 *Review of the regulatory arrangements for embedded networks.* The review proposed a new regulatory approach to improve consumer protections and access to retail competition for embedded network customers by extending many of the arrangements for grid supplied customers to embedded networks. This would be achieved by elevating new embedded electricity networks into the national regime.

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

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

1.4.3 Stand-alone and embedded networks working group

A time limited inter-jurisdictional working group, under the COAG Energy Council's Senior Committee of Officials (SCO), has been established to consider the recommendations to progress the accompanying legislative changes in line with the Commission's recommendations in the *Review of the regulatory frameworks for stand-alone power systems - priority 1* and the *Updating the regulatory frameworks for embedded networks* review.

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

On 10 September 2019, the chair of the working group wrote to the Commission requesting the development of an initial set of rules for distributor-led SAPS in parallel with the working group's consideration of the recommendations made in the final reports.

The working group has commenced drafting National Energy Law amendments with reference to recommendations from the SAPS priority 1 review.[33] The Commission is liaising closely with the working group to help deliver the reform packages for both SAPS and embedded networks.

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

2 ASSESSMENT FRAMEWORK AND APPROACH

This chapter sets out the Commission's approach to undertaking the review and the assessment framework used to guide and assess the proposed rule changes to meet the review's objective.

2.1 Assessment framework

The objective of the review was to develop detailed advice on revisions to the NER and NERR required to implement the new regulatory approach for DNSP-led SAPS previously recommended by the Commission.

As such, the review was also guided by the overarching objective 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 used to guide it in developing and assessing the proposed rule changes to achieve this outcome.

2.1.1 National energy objectives

The review considered potential changes under the NER and the NERR. 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:[34]

> 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:[35]

> 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:[36]

> 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.

34 NERL, s. 13.
35 NERL, s. 236(2)(b).
36 NEL, s. 7.

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

For example, any regulatory arrangements for 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 is also important given the strong focus of the review on the protections that consumers should receive when supplied by stand-alone power systems.

For a detailed discussion on the Commission's approach to applying these overarching objectives to rule making processes and reviews refer to Applying the energy objectives: A guide for stakeholders.[37]

2.1.2 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. 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

37 AEMC, *Applying the energy objectives: A guide to stakeholders,* 8 July 2019, available on the AEMC's website www.aemc.gov.au.

costs?

The key driver for the review was 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. 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.

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

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.[38] In the final determination for the 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 considered 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 those the relevant customers currently receive for their existing grid connection.[39]

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.

Consumers should have access to sufficient information on the consumer protections which apply when being supplied by a SAPS. This would assist consumers in transitioning from a standard grid connection to a SAPS model of supply.

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

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

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

impose unnecessary risks, they are less likely to achieve their intended ends, or will do so at higher cost.

2.2 Structure of the report

This report presents the Commission's detailed amendments to the regulatory framework that are required to implement the recommendations made by the Commission in the SAPS priority 1 final report.[40]

In this final report we have focussed on detailed revisions to the NER and the NERR required to implement the new regulatory approach for DNSP-led SAPS previously recommended by the Commission. However, given that there are a number of areas where policy issues have required further development or clarification, we present a more detailed analysis of these key issues in the body of this report. The remainder of the key areas for regulation recommended by the Commission are detailed in the appendices.

The report is structured as follows:

- Chapter 3 presents the Commission's recommended approach to the provision and arrangement of SAPS services under the proposed SAPS service delivery model.
- Chapter 4 sets out the recommendations for the development and implementation of the SAPS settlement price.
- Chapter 5 explains the approach to the classification of SAPS distribution and generation services, and how this relates to ring-fencing of contestable services.
- Chapter 6 details the recommendations for the application and establishment of technical and performance standards for SAPS systems.
- Chapter 7 covers the process for implementing the Commission's recommendations for a new regulatory approach to DNSP-led SAPS, and includes consideration of how changes to the NER and NERR will be made, along with corresponding jurisdictional actions required for implementation.
- Appendices A to C set out the Commission's detailed analysis and views in relation to SAPS planning and engagement, new connections and reconnection, and the application of consumer protections.
- Appendix D summarises the proposed changes to the NER and NERR required to implement the recommended framework. The proposed changes to the rules themselves are set out in a separate document published with this final report.

40 AEMC, R*eview of the regulatory frameworks for stand-alone power systems - priority 1*, 30 May 2019.

3 SAPS SERVICE DELIVERY MODEL

This chapter sets out the Commission's final proposed approach to the service delivery model for regulated stand-alone power systems, focussing on a number of key matters:

- registration requirements for market participants in stand-alone power systems, and the appointment of financially responsible market participants to SAPS connection points
- the calculation and apportionment of losses and unaccounted for energy, and the impacts of this on metering arrangements
- the arrangements for the settlement of SAPS load and generation in AEMO's systems, and the calculation of SAPS trading amounts
- the recovery of non-energy costs from market participants at SAPS connection points.

The Commission's recommendations have changed from those in the draft report, and these changes have impacted the above features. The revised proposals have been developed taking into account stakeholder views, and in close collaboration with AEMO. The chapter explains the reasons for the changes, and also sets out the proposed approach to implementing the recommended arrangements in the NER.

3.1 Background

The SAPS service provided to a customer (or group of customers) will incorporate a suite of 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 NEM arrangements.

In particular, for an individual power system (IPS), there may be no readily identifiable network element. Rather, the IPS 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 with an IPS is that it is providing a total, as opposed to a partial, substitute for the network activity.

There are a myriad of possible models for SAPS service delivery, and a key question for the SAPS priority 1 review was 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 or the number of customers served by a particular SAPS).

In respect of the provision of retail services, a key issue was 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, the Commission’s preference has been to utilise the existing retail market arrangements to support the supply of energy to SAPS customers.

In developing and then assessing the various possible models of SAPS service provision, the Commission 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 aim has been to ensure that the SAPS service delivery arrangements enable customers who are transitioned to SAPS by a DNSP to continue to face distribution charges equivalent to the cross-subsidised price they currently pay.

3.2 Commission's recommended position in SAPS priority 1 final report

Over the course of the SAPS priority 1 review, the Commission considered a number of possible SAPS service delivery options, including several put forward by stakeholders.[41] Having considered each in detail, the Commission concluded that the best approach to the delivery of the SAPS service would be through a NEM consistent approach which utilises an administered settlement price charged to retailers for the delivery of energy to SAPS customers. The key features of this approach are outlined below.

3.2.1 NEM consistent approach with an administered settlement price

The key feature 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, would be used, amended as necessary, to provide for the SAPS specific settlement price.

The Commission considered that utilising the existing wholesale energy market arrangements would make 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 would support the seamless transition of existing grid-connected customers to SAPS and ensure that SAPS customers were 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 would also remove the incentive for retailers to provide price signals to SAPS customers that relate to spot market prices (which may not be consistent with the optimal use of SAPS). The other features of the Commission's recommended option were 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 be incentivised to hedge price risk with NEM-based generators.
- SAPS generators would be chosen by DNSPs through a tender (or equivalent) process.

41 AEMC, *Review of the regulatory frameworks for stand-alone power systems – priority 1*, Final report, May 2019, Appendix A, pp. 129-144.

- 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.
- 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 (unless a DNSP was granted a waiver allowing it to provide the SAPS generation service directly).
- 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 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.
- 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.

3.2.2 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. SAPS customers would therefore 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 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 a SAPS. Under the Commission's recommended option, if existing ring-fencing restrictions were to apply, DNSPs would outsource the provision of the SAPS generation functions and sub-functions to third-party providers (which may include a ring-fenced affiliate of the DNPS). However, DNSPs would remain responsible for ensuring compliance with all relevant distribution obligations, including jurisdictional reliability standards.[42]

Provision of SAPS distribution functions

42 Reliability standards in the context of SAPS are discussed in appendix C.

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. Where multiple properties are provided with a SAPS service via a microgrid, this distribution network role is substantive and meaningful. In an IPS, there may be no (or minimal) 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

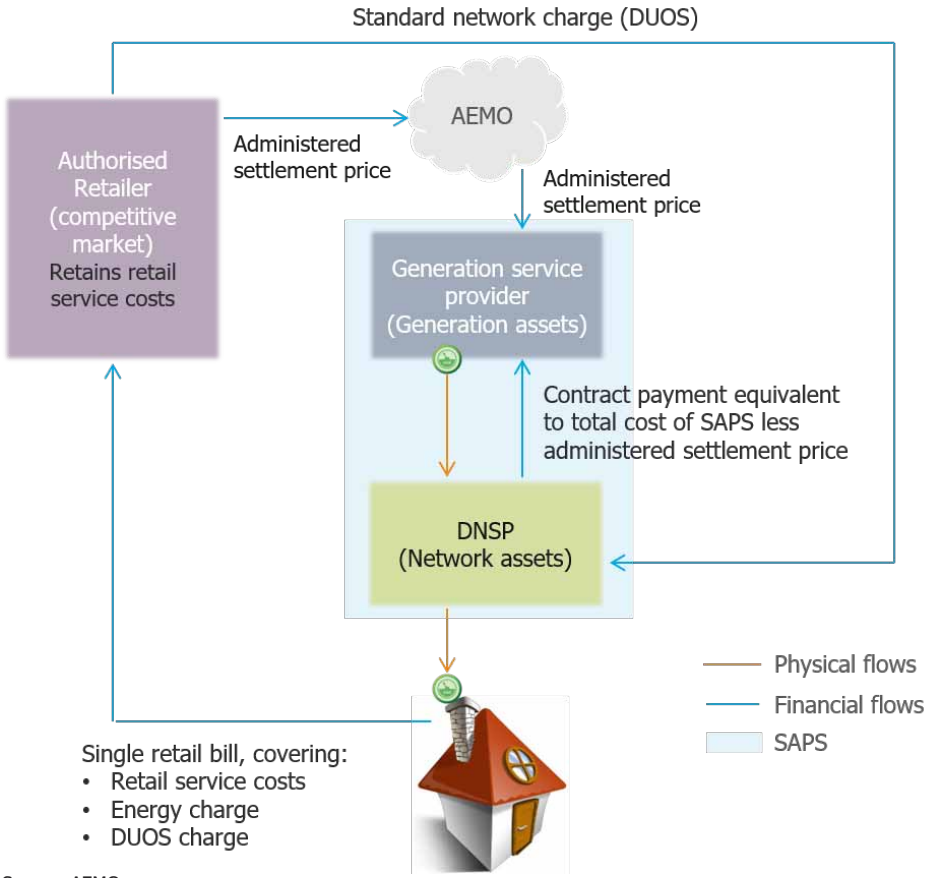
Under the Commission's recommended SAPS service delivery option, it is assumed that the provision of metering services to SAPS customers would continue to be provided by a metering coordinator appointed by the SAPS customer's retailer, consistent with existing arrangements in the NER.

In order for a DNSP to be able to appropriately design and size a SAPS however, the Commission considers that 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.

Financial flows

The figure below highlights the financial flows of the Commission's recommended SAPS service delivery model.

Figure 3.1: SAPS service delivery 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 pay AEMO for the energy delivered to SAPS customers at the administered settlement price.

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

The above figure also includes a separate element highlighting the 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.

3.3 Commission's draft report

In the draft report, the Commission considered a number of key matters relevant to the recommended SAPS service delivery model, in particular those related to the financial settlement of SAPS load and generation by AEMO.

AEMO is responsible for the settlement of all electricity that is bought and sold through the NEM wholesale electricity pool. Retailers and wholesale customers pay AEMO on a weekly basis, and AEMO subsequently pays generators.

Under the Commission's recommended SAPS service delivery model, AEMO will also be responsible for settlement of retailers and generators operating within a SAPS. Similar to the wider NEM, the settlement arrangements applicable within a SAPS must ensure that retailers (and any large customers) pay AEMO for the energy consumed or supplied to SAPS customers, and that SAPS generators are paid for the energy they generate.

An overview of the approach to SAPS settlement proposed in the draft report, highlighting its key features, is provided in the table below. The following sections then discuss each element of the draft proposed approach in greater detail.

Table 3.1: Draft recommendations for SAPS settlement

FEATURE	PROPOSED DESIGN CHOICE
Registration requirements	• The owner/ operator/ controller of generating units connected to a SAPS will be exempt from registering as a generator
Financially responsible market participants	• All SAPS customer NMIs will have a market customer (in most cases, a retailer) as the financially responsible market participant (FRMP) • SAPS generation NMIs will have a market small generation aggregator (MSGA) or a market customer as the FRMP
Treatment of losses	• Transmission loss factors (TLFs) and distribution loss factors (DLFs) will both be set to 1 • Any losses in a SAPS system would be included in the calculation of Unaccounted for Energy (UFE) (under global settlement)
Calculation of SAPS trading amounts	• Each customer NMI (connection point) transitioned to a SAPS by a DNSP would be flagged as belonging to a SAPS in AEMO's systems • Automated settlement would run as normal, including for all SAPS NMIs. This would include spot market transactions and all non-energy charges • For each SAPS NMI, AEMO would then calculate and settle a trading amount adjustment to reflect the difference between

FEATURE	PROPOSED DESIGN CHOICE
	the spot price and the SSP
Treatment of prudentials	• Prudentials for retailers would continue to be calculated as normal from non-adjusted trading amounts
Treatment of non-energy costs	• As part of the automated settlement run, all non-energy charges (excluding provider of last resort (PoLR) costs) would be levied on relevant SAPS NMIs

Source: AEMC

3.3.1 Registration requirements and financially responsible market participants

The key trading relationship from a settlement point of view is the financially responsible market participant (FRMP). In relation to any connection point to be settled by AEMO in the market, the FRMP is the market participant which has either:[43]

- classified the connection point as one of its market loads
- classified the generating unit connected at that connection point as a market generating unit, or
- classified the network services at that connection point as a market network service.

Generally, the FRMP at a customer connection point will be a market customer (most likely a retailer). For generation connection points, the financially responsible market participant may be the generator itself or, for small generating systems, either a small generator aggregator (SGA) or a market customer.[44] An intermediary may also provide this function, where appointed directly by a generator.[45]

In the draft report, the Commission proposed arrangements in respect of SAPS that did not deviate significantly from existing arrangements.[46] Specifically:

- SAPS customer connection points would have a market customer (in most cases, a retailer) as the FRMP. The FRMP would be responsible for making payments to AEMO for the energy delivered to SAPS customers, at the SAPS settlement price.
- SAPS generation connection points would have either a market small generator aggregator (MSGA) or a market customer as the FRMP. The FRMP would be responsible for receiving payments from AEMO for the energy sold to the market at the SAPS settlement price.

The Commission considered that a key benefit of using the SGA framework was that it would provide for a party to be financially responsible for the participation of SAPS generating systems in the market, without requiring each individual unit to have to register as a market generating unit. This would avoid potentially significant and unnecessary costs being imposed

43 NER Chapter 10 definition of "financially responsible".

44 See AEMO, *Guide to generator exemptions and classification of generating units*, 20 November 2018, p. 8.

45 See NER clause 2.9.3.

46 AEMC, *Updating the regulatory frameworks for distributor-led stand-alone power systems*, Draft report, December 2019, pp. 23-24.

on SAPS generators. The framework is also flexible as the person who registers as the SGA need not be the owner, operator or controller of the generating unit.

An overview of the existing SGA framework is provided in Box 2.

BOX 2: SMALL GENERATOR AGGREGATOR FRAMEWORK

In 2012, the AEMC made a rule on the Small Generation Aggregator Framework rule change request proposed by AEMO. This rule change sought to reduce the barriers to entry faced by the owners of small generators in actively participating in the NEM. The rule created a new category of Market Participant which is able to sell the output of multiple small generating units without the expense of individually registering every generating unit.

This change was made to enable small generating units to have a more direct exposure to market prices, and therefore to create a more efficient wholesale market. This in turn was expected to lead to long term benefits to consumers through lower prices paid for electricity, especially in peak times.

The rule as made established two additional participant categories in the NER:

- an SGA, which was the new category of Registered Participant, and
- a Market Small Generation Aggregator (MSGA), which was the new category of Market Participant.

The distinction between an SGA and an MSGA was made to bring the SGA framework into line with the existing rules for other participants in the NEM. Any party registered as an SGA must also be an MSGA in order to participate in the market.

Under the rule, each MSGA is able to add small generating units to its portfolio through MSATS in the same method as Market Customers currently add end customers.

Source: AEMC, *Small generation aggregator framework*, Final determination, 29 November 2012.

3.3.2 Treatment of losses

As electricity flows through transmission and distribution networks, energy is lost in the form of heat due to electrical resistance and the heating of conductors. In the NEM, the losses are equivalent to approximately 10 percent of the total electricity transported between power stations and market customers.[47]

Under the settlement arrangements in the NER, the costs of such technical losses are recovered by applying transmission loss factors (TLFs) and distribution loss factors (DLFs) to metered energy volumes in settlement. TLFs are calculated and applied by AEMO at each transmission network connection point. Within AEMO's systems, transmission network connection points are given transmission node identifiers (TNIs).

47 See AEMO website, *Loss factors and regional boundaries*, at www.aemo.com.

Similarly, at the distribution level, every electricity network connection point within a distribution network has its own National Metering Identifier (NMI). Every small and large customer NMI in a distribution network must then be referenced to the correct TNI. In settlement, DLFs are applied to metered energy volumes at the NMI level, with the TLF at the relevant TNI also applied.

For the settlement of load and generation within a SAPS, each existing grid-connected customer's NMI will, as part of the process of being transitioned to a SAPS by a DNSP, need to be delinked from its existing TNI. In addition, each generating system within a SAPS will need to be assigned a new NMI within MSATS.[48] These NMIs would also need to be flagged within MSATS as belonging to a SAPS.

In the draft report, the Commission proposed that the DLF for SAPS connection points should be set to one. That is to say that metered energy volumes would not be adjusted by the usual factor used to allocate a proportion of the electrical losses across the DNSP's network. Similarly, the TLF would in effect be set to one, since SAPS connection points would no longer be linked to a TNI (and there would, therefore, be no provision for energy volumes to be adjusted by a TLF).

Losses and unaccounted for energy within the SAPS

In the context of an IPS, the distance between generation and load is likely to be negligible, meaning that energy losses within a SAPS are also likely to be negligible. However, in the context of a microgrid, depending on the distance between the generating systems and customer load, losses are likely to be relevant and may need to be accounted for in settlement.

In the draft report, the Commission proposed to treat any such losses in the same manner as unaccounted for energy (UFE). UFE includes unaccounted for technical losses (the difference between the estimated losses calculated through DLFs and the actual losses in the distribution network), commercial losses (including theft and meter errors) and errors in estimating the half-hourly (soon to be five minute) consumption of basic metering installations that do not keep track of how electricity usage varies throughout the day.

UFE is currently allocated to the local retailer,[49] but will soon be allocated to all market customers in a distribution network under the Commission's rule changes introducing global settlement. An overview of global settlement is outlined in Box 3.

BOX 3: **'SETTLEMENT BY DIFFERENCE' AND 'GLOBAL SETTLEMENT'**

Under the current market settlement framework, known as 'settlement by difference', electricity supplied to a distribution area is billed by AEMO to the incumbent retailer, known as

48 MSATS is an IT system operated by AEMO to fulfil its obligations under the NER. MSATS refers to "Market Settlement and Transfer Solutions".

49 Under sections 11 and 12 of the NERL, governments in participating jurisdictions are responsible for allocating 'local areas' to a DNSP, and appointing a 'local area retailer' for each local area.

the local retailer, except for the loss-adjusted metered electricity that is consumed by the customers of independent retailers within the area. This means that the local retailer for an area bears the risk of all residual electricity losses in that area—known as unaccounted for energy (UFE). UFE includes unaccounted for technical losses, commercial losses and errors in estimating the half-hourly — soon to be five minute — consumption of basic metering installations that do not keep track of how electricity usage varies throughout the day.

Under a global settlement framework, every retailer is billed for the loss-adjusted metered electricity that is consumed by their customers within the area. UFE is then allocated to market customers (mostly retailers) on the basis of a pre-determined methodology.[a] Under the Commission's methodology, UFE is allocated to all market customers in a distribution network (local area), pro-rated based on their 'accounted-for' energy.

Source: AEMC, *Global Settlement and Market Reconciliation*, Final determination, 6 December 2018.
Note: a Remaining market customers tend to be large industrial electricity users such as smelters. See current market registration lists at www.aemo.com.au.

In the draft report, the Commission considered that capturing losses through the calculation of unaccounted for energy would be relatively simple and straightforward, and would avoid the need to have to determine the loss factor to apply within each individual SAPS system operated by the DNSP. The Commission also noted that, in all but the largest DNSP-provided SAPS network, the signals for efficient dispatch and future investment usually provided by loss factors would be of negligible value.

The Commission highlighted that the proposed treatment of losses was based on the global settlement framework having commenced in the NEM (on 6 February 2022),[50] and noted that interim arrangements would need to be considered prior to publication of this final report.

3.3.3 Calculation of SAPS trading amounts

In the draft report, the Commission provided an overview of how the proposed settlement arrangements would be implemented by AEMO, including how settlement would be run for load and generation within a SAPS.

In the first instance, settlement would be run as normal and would include all the SAPS NMIs allocated to a DNSP. The settlement run would include spot market transactions and all non-energy charges. Similarly, prudentials would be calculated as normal. Any losses in a SAPS system would be included in the calculation of UFE.

However, under global settlement, UFE will be allocated to importing market customers on a pro-rated basis across a DNSP's local area. The implication of this would be that any losses and UFE incurred within a SAPS would be intermingled with UFE from the interconnected grid. To address the issues that would arise when the SAPS settlement price is applied (see below), the Commission proposed that a separate UFE calculation be undertaken for all SAPS

50 On 9 April 2020 the AEMC received a rule change request from AEMO to amend the start date for global settlement. The AEMC has not yet initiated this rule change request.

networks within a DNSP's local area. This would have the effect of quarantining losses/UFE in the DNSP's SAPS systems from the UFE on its grid-connected system.

This modification having been made, AEMO would finally need to calculate and settle a trading amount adjustment for each SAPS NMI. This adjustment would be the difference between the spot market transaction for each trading interval using the regional reference price and an adjusted transaction for the same interval using the (administered) SAPS settlement price for that region. This would have the effect of applying the SAPS settlement price to both load and generation in all SAPS systems, and removing exposure to the spot market price.

3.3.4 Treatment of non-energy costs

As part of the settlement process, AEMO recovers a number of non-energy costs from certain market participants, subject to the rules. These non-energy costs include costs associated with ancillary services, participant fees and compensation related to the interventions framework (that is, in relation to AEMO issuing directions and activating the RERT).

Box 4 provides a general overview of the current non-energy cost recovery arrangements in the NEM, provided by AEMO.

Table 4 Current NEM non-energy settlement recovery

	Cost recovery from	NER Reference
Market ancillary services		
Frequency Control Ancillary Services (FCAS) – contingency raise	Market Generator including Market Small Generation Aggregator (MSGA)	3.15.6A (f)(3)
FCAS – contingency lower	Market Customers	3.15.6A (g)(3)
FCAS – regulation	Market Generator and Market Customers on causer pays basis	3.15.6A (i)
Non-market ancillary services		
Network support control ancillary services (NSCAS)	Market Customers	3.15.6A(c2)(1)
System restart ancillary services (SRAS)	Market Customers, Market Generators including MSGAs	3.15.6A(c2)(2)
Interventions		
Direction – energy	Market Customers	3.15.8(b)
Direction – FCAS	Market Customers, Market Generators on a causer pays basis	3.15.8(e)
Direction – other	Market Customers, Market Generators and MSGAs	3.15.8(g)
Mandatory Restriction	Market Customers	3.12A.7(e)
Reliability and Emergency Reserve Trader (RERT)	Market Customers	3.15.9(f)
Other events		
Market shortfall and surplus	Market Generators including MSGAs	3.15.23
Administered price cap or administered floor price compensation Payments	Market Customers	3.15.10(a)

Source: AEMO

In the draft report, the Commission did not propose to significantly amend the existing allocation of non-energy costs incurred in the NEM to market participants. Therefore, to the extent that these costs would be recoverable from market participants financially responsible for connection points within a SAPS — that is, market customers and market small generator aggregators — it was proposed that these charges would apply to those parties and the connection points within their portfolios.

In coming to this view, the Commission considered a number of factors, including consistency of approach with the overall rationale for the NEM consistency approach to SAPS service delivery, the (very low) materiality of these charges and the costs associated with separating SAPS NMIs out of the existing non-energy charge calculation.

Notwithstanding the above, the Commission did propose one change to non-energy costs: the allocation of costs associated with Provider of Last Resort (PoLR) to market customers in

respect of their SAPS customers. Currently, liability for PoLR costs is determined by whether or not retailers have met their obligations under the Retailer Reliability Obligation (RRO) — that is, whether retailers have entered into sufficient contracts to meet their share of expected system peak demand.[51]

Given that its approach throughout the SAPS priority 1 review had been to develop arrangements which avoided the need for retailers to contract with generators in the NEM in respect of their SAPS customers, the Commission took the view that market customers should be exempt from liability for PoLR costs — and from the RRO more generally — in respect of their SAPS customer load.

3.4 Stakeholder views

Stakeholder responses to the draft report were broadly supportive of the proposed service delivery arrangements, with a number of stakeholders considering that the proposed service delivery model would be important in maintaining appropriate consumer protections and access to retail choice for customers being transitioned to SAPS.

In its submission, Red/Lumo noted that under the alternative integrated service delivery model considered in the SAPS priority 1 review, consumers would no longer have access to the competitive retail market and equivalent consumer protections under the NECF, ultimately putting them at a disadvantage.[52]

In contrast, a number of DNSPs expressed a preference for an integrated approach to service delivery. For example, Endeavour Energy questioned the ongoing value a retailer would provide a SAPS customer. It also suggested that the Commission's proposed model would not provide cost-reflective signals and that DNSP-led SAPS would be better suited to site-specific pricing arrangements. Regarding the supply model's financial flows, Endeavour sought clarity regarding who would receive the AEMO energy payment and any contracted 'top-up' payment in instances where DNSPs may receive a ring-fencing waiver for the provision of generation services.[53]

Energy Queensland considered that SAPS systems would be best supported by arrangements with a simplified approach to energy billing which is able to operate outside of the NEM settlement process. Energy Queensland also expressed concerns that the potential economic efficiencies gained by deploying SAPS solutions could be lost under the proposed model, suggesting that the introduction of a third-party generation service provider is expected to reduce the potential benefits that DNSPs pass onto customers.[54]

SAPN considered that the complexity of the proposed framework may not be commensurate with the simple and limited form of SAPS solutions likely to prevail initially. SAPN suggested

51 See *Retailer Reliability Obligation factsheet* available at www.energy.gov.au.
52 Red/Lumo, submission to draft report, pp. 2-3.
53 Endeavour Energy, submission to draft report, pp. 6-7.
54 Energy Queensland, submission to draft report, pp. 9-10.

an alternative and interim model could involve distributors paying all costs of SAPS service provision and subsuming these into regulated DUoS charges.[55]

With regards to the proposed settlement arrangements more specifically, AEMO noted its general support but suggested a number of changes for the Commission's consideration. AEMO considered that such changes could result in a clearer application of the proposed reforms within the rules framework, and would decrease implementation and operational complexity. AEMO's proposed changes included:[56]

- establishing a SAPS specific registration category to avoid unnecessary complexities and inconsistencies associated with the use of MSGAs, and so as not to prejudice any future development of the MSGA role in the wider market
- a simpler settlement approach, which would avoid the need for AEMO to settle losses, to be based on the use of 'virtual' metering arrangements
- more clearly separating SAPS requirements into stand-alone, discrete processes and sections of the rules
- not levying non-energy charges for SAPS connection points. In AEMO's view, such charges (e.g. for ancillary services) would be irrelevant in the context of SAPS.

3.5 Commission's analysis and final position

The Commission's final approach in respect of the service delivery model for SAPS has changed in a number of ways as compared to the position in the draft report. In developing this revised approach, the Commission has taken stakeholder feedback into account and, in particular, has worked closely with AEMO to refine the settlement arrangements. This section explains the key changes, as follows:

- amended registration requirements, including the creation of a new registration category of "SAPS resource provider" for market generating units in stand-alone systems
- a revised approach to the calculation and apportionment of losses and unaccounted for energy, supported by new metering data arrangements
- the establishment of a simpler settlement mechanism in AEMO's systems, more clearly separate to the existing rules for calculating trading amounts
- no longer seeking to recover non-energy costs from market participants at SAPS connection points.

3.5.1 Registration requirements and financially responsible market participants

Rather than extend the existing MSGA role into SAPS, the Commission's final proposed rules would establish a new registration category, the 'SAPS Resource Provider'.[57] Any party registered as a SAPS resource provider would be classed as a Market SAPS Resource Provider (MSRP) in order to participate in the market.

55 SAPN, submission to draft report, p. 8.
56 AEMO, submission to draft report, pp. 2-7.
57 Proposed NER rule 2.3B.

The term 'resource provider' has been selected in recognition of the role that energy storage systems are likely to play in many stand-alone systems. However, the MSRP would be financially responsible for 'generating units' and the classification of 'market generating units', in line with existing defined terms in the rules.

The creation of the new registration category will limit any unnecessary complexities and inconsistencies of accommodating SAPS within the MSGA role, such as needing to accommodate large SAPS generating units within the MSGA role structure. It will also avoid complicating any future development of the MSGA role.[58]

However, the proposed arrangements for the MSRP carry over the same registration and classification obligations as for an MSGA. Given these similarities, the Commission considers that AEMO's registration guidelines might allow for parties registered or registering as MSGA to obtain MSRP status via a simplified application process (e.g the extension of registration into the new category might be a minor administrative process).

The Commission's proposed arrangements for SAPS customer NMIs remain unchanged from the draft report, that is they will have a market customer (typically a retailer) as the FRMP.

Typically, market customers will be responsible for making payments to AEMO for the energy delivered to SAPS customers. However, on occasion, market customers might receive payments, for example where a customer has its own solar PV system which results in net generation.

Equally, MSRPs will typically be responsible for receiving payments from AEMO for the energy sold to the market but, on occasion, might be required to make a payment (if a battery forming part of a generating unit is consuming energy provided by other generators within the SAPS, for instance).

3.5.2 Treatment of losses

As discussed in section 3.3.1, energy losses within SAPS networks are likely to be small, if not negligible. However, it is important that settlement balances - that is, payments from market participants for consumption match payments to market participants for generation.

To achieve this outcome, and taking into account stakeholder feedback, the Commission has developed a simpler approach to settlement which avoids the need to make adjustments to account for losses and unaccounted for energy in the settlement process itself. Rather, any required adjustments would be made to metering data before it was used to calculate trading amounts by AEMO, through the use of 'virtual' or 'logical' metering techniques.

Metering and data arrangements

As noted in section 3.2.2, under the Commission's recommended SAPS service delivery model, 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. Similarly, for generating units, a metering coordinator would be appointed by the relevant FRMP.

58 AEMO, submission to the draft determination, p. 7.

In turn, the metering coordinator would then be responsible for the provision of metering services and all issues related to the metering installations for which it has been appointed. This would include the appointment of metering data providers (MDPs), responsible for collecting, processing, storing and delivering metering data.

While the role of MDPs normally involves the provision of data from physical metering installations, provisions exist in the rules to allow for situations where AEMO determines that special arrangements are required to support the integrity of the collection and processing of metering data from certain metering installations. Where AEMO determines that such special site or technology related conditions exist, it must publish a document describing those conditions.[59] These special arrangements can include the use of logical metering installations.

A logical metering installation is one where a calculation must be performed in order to derive metering data for use in settlement. An example would be where metering installation 1 meters generator A and metering installation 2 meters generators A and B, but generator B is not separately metered. Metering data for generator B could be calculated by subtracting metering data for meter 1 from that for meter 2.

Calculated metering data in SAPS

The Commission has made use of logical metering in its final recommendations, and extended the use of the existing defined term 'calculated metering data' to reflect this. These arrangements will provide a mechanism to allocate electrical losses and unaccounted for energy to generators, and thereby ensure that settlement balances.

The Commission considers that, in this instance, it is more appropriate to allocate losses and unaccounted for energy to generators as opposed to customers, on the basis that most SAPS generators would be expected to hold contracts with distributors to supplement the revenues earned from energy market settlement. Therefore, to the extent they were material, allowance for the loss adjustments could be made in these contracts. In microgrids, generators would also be expected to be fewer in number than customers, and so the amount of adjustments being made to metering data would be minimised through the use of logical metering for generators instead of customers.

In order for a generator's MDP to derive calculated metering data, it will need access to metering data relating to other connection points in the SAPS, and the Commission has made provision for this in the proposed rule drafting.[60] MDPs wishing to use other MDPs' data to determine calculated metering data for market generating units at SAPS connection points will need to be accredited to do so.[61]

The final proposed rules provide AEMO with flexibility to determine the exact methods to be used by MDPs to determine calculated metering data for SAPS connection points through its metrology procedure.[62] The Commission considers that, while they are likely to be relatively low, the numbers of SAPS will still be sufficient so as to make it more appropriate for this to

59 NER clause 7.8.12(c)(1).
60 Proposed NER clause 7.15.5(c)(4a).
61 Proposed NER clause 7.10.2(b1).
62 Proposed NER clause 7.16.3(c)(6)(iv).

be covered in the general metrology procedure rather than being considered on a case-by-case basis as special sites.

While AEMO will have flexibility in determining the methods to be used by MDPs, some illustrative examples of the type of approaches that could be adopted to allocate electrical losses and unaccounted for energy in SAPS are outlined in Box 5.

BOX 5: APPORTIONMENT OF UFE BY LOGICAL METERING

While the detailed processes for the use of logical metering in SAPS to derive calculated metering data are not prescribed in the proposed rules, the following are two examples of how the Commission anticipates that these techniques may be used.

Individual power system example

In an individual power system there will be a single customer NMI and a single generator NMI. In this example, the customer's meter records a consumption of 5kWh in a given period. Logical metering could be used to derive calculated metering data, in order to ensure that settlement balances. In this case, the metering data for the generator would be calculated as being 5kWh, irrespective of the generator's actual meter reading. In practice, the meter might read 5.1kWh (if there were electrical losses) or even 4.9kWh (in the event, say, of a meter error), but this would not be relevant or used for settlement purposes.

Microgrid example

In a more complex system, there might be, for example, two customers and two generators. Customer A consumes 5kWh and customer B consumes 6kWh. Generator X generates 9kWh and generator Y generates 3kWh. There is, therefore, 1kWh of electrical losses.

In this example, logical metering might be used to apportion the losses between the generators on a pro-rated basis. Three-quarters of the losses would be allocated to generator X and one-quarter to generator Y, so that the calculated metering data for generator X would be 8.25kWh and for generator Y would be 2.75kWh. Note that in this example, unlike for the IPS example, actual metering data from the generators' meters would be required to perform the calculation.

Source: AEMC.

One issue that AEMO will need to consider in updating the metrology procedure to provide for the methods to be followed by appropriately accredited MDPs, is the allocation of losses to MSRPs when they are consuming energy. Even in an IPS, it is possible that a generating unit could be consuming energy (i.e. charging a battery). In an IPS this could be because the customer was exporting from rooftop solar PV. In this instance, the Commission still considers it more appropriate that the losses are allocated to the MSRP, in order to minimise the numbers of parties being allocated losses and the numbers of MDPs having to derive calculated metering data (and having to obtain accreditation to do so).

3.5.3 Calculation of SAPS trading amounts

The revised treatment of losses described in the preceding sub-section has provided the Commission with the opportunity to considerably simplify the proposed settlement arrangements for SAPS.

The final proposed rules include a new, stand-alone rule for the calculation of trading amounts for SAPS.[63] This rule specifies that only a very limited number of other provisions in Chapter 3 of the NER would apply to SAPS, as follows:[64]

- rule 3.3 governing prudentials
- the arrangements in clauses 3.15.12 to 3.15.25 providing for the settlement of trading amounts once calculated
- rule 3.19 concerning access to the market management systems used for settlement.

Notably, this approach would mean that energy metered at SAPS connection points would be automatically disregarded in settlement calculations for the interconnected system. Combined with the new approach for the allocation of losses and unaccounted for energy in SAPS, there will therefore be no need to adjust the calculations of UFE once global settlement is introduced (or any dependency on its introduction).

The new rule contains only two further substantive clauses. The first of these provides for the determination of the SAPS settlement price,[65] and is discussed in the next chapter.

The final clause sets out how SAPS trading amounts should be calculated.[66] This would now simply be the amount of energy for the SAPS connection point, as recorded in metering data, multiplied by the SAPS settlement price. As previously noted, for a market generating unit, the metering data used in the trading amount calculation would be calculated metering data subject to prior adjustment by its metering data provider to allocate it a share of any losses/unaccounted for energy in the stand-alone system.[67]

The output of this trading amount calculation would then feed in to the normal settlement process set out in clauses 3.15.12 to 3.15.25 of the NER.[68]

3.5.4 Treatment of non-energy costs

As explained in the previous sub-section, the Commission's final recommendation is for a simplified, stand-alone approach to calculating trading amounts for SAPS connection points. This is unlike the approach described in the draft report, where trading amounts would have been calculated as for the wider system, before being subjected to an adjustment to reflect the difference between the spot price and SAPS settlement price.

An implication of the above is that, under the approach set out in the draft report, non-energy charges would have been automatically levied on SAPS connection points (with the

63 Proposed NER rule 3.21.
64 Proposed NER clause 3.21.1(b).
65 Proposed NER clause 3.21.2.
66 Proposed NER clause 3.21.3.
67 Proposed NER clause 3.21.3(b).
68 Proposed NER clause 3.21.3(c).

exception of PoLR costs, which would have had to have been excluded from any calculations). Under the new, simplified approach to calculating trading amounts for SAPS connection points, non-energy charges would not be automatically calculated in this manner.

The Commission has therefore considered whether it would be necessary to introduce additional mechanisms to calculate and levy non-energy charges for SAPS connection points, and has concluded that it would not. The Commission agrees with stakeholders that it is not clearly appropriate or necessary to levy non-energy charges on parties connected to SAPS in order to recover a contribution to the costs associated with activities such as the provision of frequency control ancillary services and system restart services to the interconnected system, from which they would not benefit.

The Commission further notes the likely very low materiality of these charges - which would be expected to be in the order of a few dollars per year for a SAPS customer, or a generator supplying a SAPS customer, with an average load of 10MWh pa.[69] As such, the transaction costs associated with establishing a new mechanism would likely account for a significant proportion of the revenue recovery, if not offset it entirely.

However, it should be noted that NER clause 3.15.12(a) - which would apply for the settlement of SAPS connection points and market participants - provides for AEMO to include participant fees determined in accordance with rule 2.11 as part of each market participant's settlement amounts. Rule 2.11 is not prescriptive as to how participant fees should be calculated, so it would be for AEMO to determine the appropriateness of levying participant fees at SAPS connection points and how this might best be achieved.

Finally, given the Commission's approach throughout the SAPS priority 1 review to develop arrangements which would avoid the need for retailers to contract with generators in the NEM in respect of their SAPS customers, the Commission continues to hold the view that market customers should be exempt from liability for PoLR costs specifically — and from the RRO more generally — in respect of their SAPS customer load. While PoLR costs would not be charged under the Commission's updated settlement approach, it should also be noted that changes are proposed to Chapter 4A of the NER to exclude SAPS connection points from the calculation of retailers' liabilities under the RRO.[70]

69 AEMC, *Updating the regulatory frameworks for distributor-led stand-alone power systems, Draft report*, 19 December 2019, p. 30.

70 Proposed NER clause 4A.D.1(b).

4 SAPS SETTLEMENT PRICE

This chapter outlines the Commission's final approach to the design of an administered price to settle the delivery of energy to SAPS customers, which it has termed the SAPS settlement price (SSP).

The Commission's recommendations remain the same as those made in the draft report, including in respect of:

- the design of the SSP to ensure that SAPS customers continue to receive the full benefits of retail competition and that retailers are able to adequately manage risk associated with serving SAPS customers
- the design of the arrangements to support the determination and administration of the SSP, for example, the timing and frequency of price adjustments.

4.1 Background on wholesale market price risks

The wholesale component of electricity supply costs include a number of elements including wholesale spot market costs, ancillary services fees, NEM participant fees and transmission and distribution network losses. To manage their financial risks and have more certainty over wholesale energy costs, retailers generally 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 set their retail prices to customers to allow for the recovery of their total costs to serve, including their hedging costs.

The options available to retailers to manage their financial risk under the proposed SAPS service delivery model present a number of practical challenges and trade-offs between simplicity and complexity in the design of a price setting mechanism.[71] The purpose of settling SAPS customers at a more certain price (rather than spot prices) is to minimise the retailer's exposure to wholesale spot price volatility and, in doing so, remove the need for retailers to seek hedges with NEM generators for their SAPS customer load. This, in turn, will reduce the risk of potential distortions in the contract market.

The settlement of SAPS customers using a more certain price will minimise the level of risk faced by retailers and limit any risk-based cost being passed onto SAPS customers. To remove price risk altogether, 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. This would incentivise retailers to continue to supply SAPS customers under their existing retail offers.[72]

In turn, this continuity should 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. Allowing for equivalent retail tariffs is one reason DNSPs need not be required to seek formal consent from customers for their transition to SAPS.

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71 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 2.

72 However, this is not to foreclose the possibility that over time retailers may also consider it appropriate to design SAPS specific tariffs that are based on the SSP.

4.2 Commission's recommended position in SAPS priority 1 report

As detailed in the previous chapter, under the 2019 priority 1 final report,[73] the Commission's approach was that existing NEM regulatory arrangements should apply for DNSP-led SAPS and only be modified to the extent necessary to allow for supply to be provided by SAPS. This was to meet the objective that individual customers should not be disadvantaged where a distributor determined that it would be more efficient to supply them on a stand-alone basis. This would include retaining access to all consumer protections, including equivalent pricing protections in the form of continued access to retail competition.

On this basis, utilising the existing wholesale energy market arrangements makes it feasible for the SAPS retail service to be provided by competing grid retailers. This would also allow SAPS customers to maintain their relationships with existing retailers, and to retain their existing retail offers.

In the final report, the Commission noted that the use of administered price rather than the NEM spot price has a number of benefits. These relate primarily to the fact that retailer risk associated with price volatility in the spot market, and therefore the need for retailers to hedge SAPS customers' load with NEM generators, will be removed by using an administered price for the settlement of SAPS customers load.[74]

Additionally, the Commission noted that the settlement of energy provided by SAPS generators and provided to SAPS customers using an administered price will remove incentives for retailers to send SAPS customers price signals that are inconsistent with minimising the cost of SAPS.[75]

The Commission also indicated that one possible approach to determining and implementing the SSP 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 SSP was set and notified in accordance with the rules.[76]

4.3 Commission's draft report

4.3.1 Overview

The SAPS settlement price makes up a core element of the Commission's SAPS service delivery model. The purpose of the SSP is to remove retailer exposure to price volatility within the spot market associated with serving SAPS customers load, that retailers would otherwise face. This is intended to remove the incentive for a retailer to seek to hedge SAPS customer load with NEM generation. An outcome of this is that retailers will be incentivised to continue to serve SAPS customers. By eliminating the need for retailers to pass through

73 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019.
74 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 70.
75 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 68.
76 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, pp. 121-122.

pricing risk to customers, the SSP also reduces the risk of customers receiving price signals which are designed for the NEM and may not be consistent with the optimal use of SAPS.

In developing the draft report, the Commission engaged Houston Kemp to consider the design of the SSP in detail and provide advice on the potential approaches to setting an administered price for SAPS.[77] Houston Kemp assessed the various options and features having regard to several principles designed to deliver a mechanism for setting the SSP that:

- removes or substantially reduces the price volatility associated with serving SAPS customers and, in doing so, limits the need for retailers to seek hedges from the contract market
- allows retailers to supply SAPS customers using market offers also offered to standard supply customers connected to parts of the DNSP's network forming part of the interconnected grid.

To reach the position outlined in the draft report, the Commission considered the various options put forward by Houston Kemp and proposed an SSP that included the following design features:

- The SSP would be based on historical wholesale price data and set at a level that would present retailers with limited incentives to seek out hedging for SAPS customers' load.
- The data sample period would be calculated over a twelve-month period using historical wholesale prices.
- The SSP would have an annual outlook period and would be updated on 1 July each year.
- The SSP would be given effect through a simple formula described in the NER, which AEMO would apply in settlement.

These design features are discussed further in the following section.

4.3.2 Key design features of the SSP

Pricing data source

A key objective of the SSP is to remove wholesale price risk associated with SAPS customers, and so the need for retailers to hedge SAPS customer load. In the NEM, retailers' ability to enter into hedging contracts will depend on the markets' liquidity, determined by the availability of trades to lock in an agreed wholesale price. If retailers were exposed to wholesale price risk for their SAPS customers they would be likely to hedge SAPS customers' load with contracts from NEM generators. If demand for hedging contracts increased, without any increase in the supply of hedges from NEM generators, retailers may find it more difficult to find hedging contracts that meet their needs. A likely consequence of this mismatch in the demand and supply of hedging contracts would be an increase in the cost of hedging, and subsequently increased retail prices.

In the draft report, the Commission considered that the SSP needs to be set at a level which removes the price risk for retailers associated with their SAPS customer load and therefore

77 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019.

avoids potential distortions in the contract market, including reductions in contract market liquidity.

In applying this principle to the design of the SSP, the Commission first considered a number of options for price data sources including:

- historical wholesale price data
- contract price data including in relation to base load swaps, base load caps and peak swaps.

Based on the advice provided by Houston Kemp,[78] the Commission considered the use of a sophisticated contract-based approach would present additional complexity and administrative burden that is not justified in the context of a SAPS pricing mechanism. Employing a more sophisticated contract-based approach to hedging would also be more challenging in light of liquidity and data access issues in some jurisdictions.[79]

Instead, recognising the need to maintain predictable outcomes for all participants, the Commission supported a price setting approach for the SSP that uses a simple calculation based on historical wholesale prices, with an adjustment.[80] The Commission considered this approach would support the removal of unnecessary risk for retailers servicing SAPS customers and ensure retailers continue to have a strong incentive to serve SAPS customers. Providing this incentive requires setting a price that ensures that retailers continue to make a profit from serving these customers. As the Commission noted, it follows that this approach will also meet the broader objective of enabling SAPS customers to retain choice and control over their retailer and retail offer.

Price setting calculation

In the draft report, the Commission also gave consideration to the appropriate data sample period of wholesale prices for calculating the SSP and how frequently the calculation should be updated. To balance the simplicity of the price setting approach with the need to reflect prevailing wholesale market conditions, the Commission considered that using a year-long interval adequately captures general market changes. The alternative of setting a more frequent quarterly data sample period may lead to variations in price, based on seasonal trends, which may increase the tendency for retailers to hedge their SAPS customers.[81] However, setting the SSP for a complete year will mean that the SSP may be less reflective of prevailing market conditions due to the use of longer-term historical data. In turn, this may present the risk of misalignment of the SSP and actual wholesale costs faced by retailers.[82]

To address this concern, the Commission drew on Houston Kemp's advice and proposed that a conservative adjustment of 0.8 is applied to the previous year's average wholesale price to

78 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, pp. 27-28.

79 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 10.

80 The SSP seeks to manage wholesale spot and hedging costs and risk faced by retailers who take on SAPS customers. Distribution loss factors (DLF) make up an additional component of wholesale electricity supply costs that feed into wholesale market settlement. The Commission's proposed approach to the treatment of DLFs is set out in Chapter 3.

81 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 13.

82 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 13.

mitigate the risk of a case arising where the SSP is greater than the wholesale cost faced by retailers (in which case retailers would not wish to supply SAPS customers).[83]

Update frequency, outlook period and price averaging approach

In considering the design features of the SSP using wholesale prices, the Commission also gave consideration to the frequency with which the administered price should be updated, the period for which prices are set (the outlook period) and how spot prices are averaged across a sample period.

In the draft report, the Commission proposed that the SSP should be updated on an annual basis with an annual outlook period. The Commission's intention is to provide certainty for retailers with regard to the future SSP that will be payable, and to limit the cost and burden associated with calculating the SSP. Compared to a quarterly update frequency, the adoption of an annual update frequency may mean SSP prices are less reflective of prevailing market conditions.[84] However, the Commission noted its view that the benefit of greater certainty for stakeholders, and particularly retailers, with regard to future prices for SAPS customers would outweigh a more accurate reflection of prevailing market conditions. An annual update frequency would contribute to mitigating existing risk for retailers. Additionally, fewer resources would be required to update the SSP annually, compared to quarterly.

As with the update frequency, there is a trade off between setting an annual outlook period and, in doing so, providing greater certainty to retailers with regard to price, and setting a quarterly outlook period which would be more responsive to market conditions.[85] The Commission proposed an annual outlook period as it aligns with the proposed update frequency and therefore provides increased certainty of future prices.

In the draft report, the Commission also gave consideration to how wholesale prices could be averaged, including an average across time and a demand-weighted average. Using time-weighted averages is simple to implement and requires limited data, while using demand-weighting should result in estimates that more closely resemble the true electricity supply costs for retailers.[86] The Commission considered that the degree of precision inherent in demand-weighting is not required and therefore proposed that the approach to calculating the wholesale price under the SSP should be based on a time-weighted average.

Giving effect to the SSP

In the draft report, the Commission proposed that the price setting mechanism would be given effect in the rules and that a description of the formula be placed in Chapter 3 of the NER which would set the SSP for a specified period. [87] Consistent with the SAPS priority 1 final report, the Commission proposed that AEMO would be required to notify the market in advance of the price to be applied to SAPS customers' load. The notice to the market would

83 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 25.
84 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 14.
85 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 15.
86 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 16.
87 Proposed NER clause 3.21.2

be by way of a notice published on AEMO's website that outlines the SSP price and the period for which it is to apply.

On the basis that the SSP would be determined through a simple formula in the NER for use by AEMO in settlement, the Commission considered that AEMO would be the appropriate party to notify the level of the SSP to apply. In addition, an approach based on a simple calculation would also provide a transparent and streamlined process to setting the SSP.

In the draft report, the Commission acknowledged that the SSP will be used by various stakeholders, including AEMO for settlement purposes along with DNSPs and affiliated entities or retailers with SAPS customers. As a simple calculation, based on historical wholesale prices, the SSP can be updated with relative ease. Prices from the relevant sample period can be fed into the calculation for the following period once information becomes available.

Description of SSP calculation

Based on advice provided by Houston Kemp, the Commission's proposed option to calculate the SSP using wholesale prices included:

- a time weighted average;
- an annual outlook period;
- an annual update frequency;
- the prior year of data; and
- a conservative adjustment factor of 0.8.

The SSP would be calculated for a particular financial year using a time-weighted average of the previous year's prices within each region. This approach will calculate the set of prices for the year at 1 July each year (the start of the financial year).

The SSP calculation is as follows, for year *i* and region *r*:

$$SAPSP_{i,r} = 0.8 \times Year\ Average_{i-1,r}$$

Where the year average is calculated as follows, for year *i-1,* region *r* and period *p*:

$$Year\ Average_{i-1,r} = \frac{\sum_{p=a_{i-1}}^{b_{i-1}} RRP_{i-1,r,p}}{N_{i-1}}$$

Where:

- *p* is the period for which wholesale prices are set (e.g 30 minute trading interval);
- *a* is the first period within year *i*-1;
- *b* is the final period within year *i*-1:
- *RRP* is the regional reference price for period *p*; and
- *N* is the total number of periods within year *i*-1.

4.4 Stakeholder views

In submissions to the draft report, stakeholders were generally supportive of the proposed arrangements for the design and administration of the SSP. However, some stakeholders expressed concerns that an administered price may limit the potential development of SAPS-specific pricing arrangements.

The AER expressed support for the proposed approach and maintaining an administratively simple approach to wholesale market settlement and pricing.[88]

The Energy and Technical Regulation Division of the South Australian Department for Energy and Mining (the Division) agreed that, in order for customers to be transitioned to SAPS to be no worse off and maintain access to existing retail market offers, the risks that retailers would face in supplying these customers must be minimised. While the Division supported the adjustment factor of 0.8 to be included in the NER, it proposed consideration of greater flexibility for this factor to be changed if required.[89]

PIAC agreed that the SSP would simplify arrangements for existing retailers, but suggested that it may preclude opportunities for more innovative retailers to emerge and develop bespoke SAPS products. Further, it may discourage retailers from taking on SAPS customers with little profit margin and dilute the effectiveness of any retail tariff provided to customers.[90]

Endeavour Energy supported the principle that customers should be no worse off in transitioning to SAPS but suggested that the SSP will not promote cost-reflective price signals.[91]

88 AER submission to the draft report, pp. 1-2.
89 South Australian Department for Energy and Mining submission to the draft report, pp. 13-14.
90 PIAC submission to the draft report, p. 2.
91 Endeavour Energy submission to the draft report, pp. 6-7.

Essential Energy and Energy Queensland also both considered that the SSP may not provide SAPS customers with appropriate price signals or reflect the cost of provision of energy in a SAPS context. Essential Energy suggested that this would lead to the need for SAPS to be oversized to account for the potential that they may not be efficiently utilised by the customers they serve.[92] Energy Queensland further noted that the 0.8 factor may increase the size of the 'top-up' payment from DNSPs to SAPS generation services, which it suggested would make SAPS solutions more difficult to justify as an economic solution. [93]

4.5 Commission's analysis and final position

Consistent with the position in the draft report, the Commission recommends that an administered price be used to settle the delivery of energy to SAPS customers. The Commission considers that the design of the SSP proposed in the draft report is appropriate to limit retailer exposure to price volatility within the spot market and to allow retailers to supply customers using existing market offers. Further, in the Commission's view, the proposed arrangements to support the determination and administration of the SSP remain appropriate.

With regard to stakeholder comments around an absence of cost-reflective price signals, the Commission notes that it would be difficult to provide such signals through the SSP given the potentially different underlying cost structures of different types of generating technologies. A time-varying SSP would also reduce the simplicity of the approach.[94]

The Commission further notes that the potential for DNSPs to instead levy SAPS-specific network tariff structures, designed to send time-of-use pricing signals more closely aligned to the cost drivers of specific SAPS, was considered in the SAPS priority 1 review.[95] The Commission concluded that the mandatory use of such tariff structures would be inconsistent with the general principle that transitioned customers should be "no worse-off" and would risk the loss of the cross-subsidy that results from all of a DNSP's consumers being treated as part of the same tariff class.

While the Commission considers the SSP is an appropriate starting point to ensure that customers transitioned to DNSP-led SAPS are not disadvantaged and retain their access to retail market offers, it also recognises the potential need for future flexibility in application of the SSP to align with prevailing market conditions. Consequently, the Commission has given further consideration to how the calculation of the SSP and the application of the adjustment factor may be updated into the future. This is discussed below.

Updating the SSP adjustment factor

To mitigate against the risk that the administered price leads to a situation where the SSP is greater than the wholesale costs that a retailer would incur in reality, the Commission

92 Essential Energy submission to the draft report, pp. 4-5.
93 Energy Queensland submission to the draft report, p. 3.
94 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 20.
95 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 66.

continues to consider that the application of a conservative adjustment to the calculation of the SSP is appropriate.

This adjustment, to ensure a conservative estimate, was developed based on analysis carried out by Houston Kemp of variation in historical quarterly averaged wholesale prices.[96] Houston Kemp's analysis indicted that an adjustment factor of approximately 0.8 is appropriate based on analysis of moving annual prices whereby the quarterly reduction in prices exceed 20 percent on two occasions since 2012.[97] Further, Houston Kemp's analysis showed that calender-year annual average prices since 2012 have only seen a reduction of greater than 20 per cent on two occasions.[98] As such, the Commission considers that the conservative adjustment of 0.8 remains appropriate to mitigate the risk that period-on-period changes lead to the administered price exceeding retailer's actual costs in a particular period.

However, it is a practical consideration that the adjustment factor applied to calculate the SSP may, at some stage, no longer be adequate - or, equally, may prove to be consistently too generous. Should market participants, market bodies or governments consider that this is the case into the future, a number of existing mechanisms could be used to assess and determine the need for updating the SSP's adjustment factor. In the first instance, a rule change request may be submitted to the Commission requesting the adjustment factor to be updated to reflect prevailing market conditions. Further, the Commission can formally initiate its own reviews on matters related to the rules and may seek to assess that the adjustment factor is still fit for purpose via this process.[99]

96 Houston Kemp, *Designing a pricing mechanism for distributor-led stand-alone power systems*, November 2019, p. 25

97 This reduction occurred in Queensland in response to the Queensland government's directive to state-owned generators to adjust their bidding and in Victoria a reduction in prices was seen between the Jan-March quarters of 2016 and 2017.

98 These periods are associated with the Queensland government directive to state-owned generators above and in Tasmania between 2017-2018.

99 Part 4 of the NEL sets out the functions and powers of the AEMC. Under Division 5 of Part 4, the AEMC has the power to conduct a review into the operation and effectiveness of the National Electricity Rules (NER).

5 SAPS SERVICE CLASSIFICATION

This chapter outlines the Commission's final proposed approach in respect of the classification and economic regulation of the services provided by means of a regulated stand-alone power system.

In reaching its final position, the Commission has had regard to stakeholder views raised in submissions to the draft report, and directly with the Commission through its industry workshop and other one-to-one meetings.

The Commission's recommendations remain broadly the same as those made in the draft report, including in respect of:

- the description of the components of a regulated SAPS and the associated services
- the classification of the services associated with the SAPS distribution system
- the implications of SAPS service classification for the ability of distribution businesses to provide SAPS generation directly, and
- the role of ring-fencing waivers (and exemptions) as a means of enabling distribution businesses to provide SAPS generation directly in certain circumstances.

This chapter steps through the Commission's final position and reasons, and also describes:

- the cost recovery arrangements supporting the provision of a regulated SAPS by a distribution business, and
- the interaction between provision of a regulated SAPS by distribution businesses and the numerous existing regulatory incentive schemes applied to these businesses, designed to deliver efficient expenditure outcomes in the long-term interests of consumers.

5.1 Background

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. Distribution businesses 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).

In the SAPS priority 1 final report, the Commission recommended specific changes to the NEL to enable DNSPs to recover expenditure on SAPS from regulated revenue.[100] Specifically, the Commission recommended changes which would allow 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. The recommended NEL changes, when made, will allow DNSPs to purchase SAPS services from the competitive market (or to install SAPS themselves if so allowed by the AER), in order to supply electricity to customers where SAPS supply provides an efficient alternative to grid-supply.

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

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 distribution businesses 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 requirements to distributors.

In the context of SAPS, the key questions are whether the activities and services associated with the generation, distribution and the sale of electricity, within a SAPS:

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

Importantly, the approach taken to the classification of the activities and services associated with SAPS is directly linked to the SAPS service delivery model and the changes to definitions in the NEL and NER implemented as an outcome of this review.

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 the ability of distribution businesses 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 distribution businesses to separate the legal, accounting and functional aspects of regulated distribution services from other services provided by it or an affiliated entity.[101]

The objective of the ring-fencing obligations 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, a distribution business 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.

- 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

101 See NER chapter 6, Part H and the AER's Ring-fencing Guideline - Electricity Distribution version 2, October 2017 (the Ring-fencing guideline).

affiliated entities that may provide other electricity services.[102] This 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.[103]

- 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. It does this by imposing behavioural obligations on the DNSP, including restrictions on sharing and co-locating staff, information and on co-branding of advertising materials.[104]

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.[105] One example given by the AER of services where a waiver may be granted is "isolated network services in remote areas".[106]

The AER will consider waiver applications having regard to the national electricity objective, the potential for cross-subsidisation and discrimination if the waiver is granted or refused, and whether the benefit to the DNSP's customers of complying with the obligation (including any likely benefit from increased competition) would be outweighed by the costs to the DNSP of complying with that obligation.[107]

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.[108] 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.

In summary, the ring-fencing guideline requires non-distribution services ('other services') be provided by entities that are not distributors, by a subsidiary or other affiliate of a distribution business that is legally and financially separate from the distribution business, or by a distribution business if the circumstances are such that the AER waives the prohibition on the distributor providing those services.

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102 Ring-fencing guideline, section 3.1(b). DNSPs may (and some do) provide transmission services in addition to distribution services.

103 Ring-fencing guideline, section 3.2.

104 Ring-fencing guideline, section 4.

105 Ring-fencing guideline, section 5.

106 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.

107 Ring-fencing guideline, section 5.3.2.

108 Ring-fencing guideline, section 4.2.1(b)(iii).

5.2 Commission's recommended position in SAPS priority 1 report

In the SAPS priority 1 final report, the Commission recommended that the NEL and NER be amended to enable DNSPs to utilise SAPS to provide distribution services.[109] 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 considered the various ways that the NER and NEL could be amended in order to realise this change and recommended 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.[110]

Having regard to the recommended SAPS service delivery model, it was (and, as noted below, remains) the Commission's view that a stand-alone power system comprises two components, each providing a separate service:[111]

- 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.

In respect of the second point, the Commission considered that 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 an administered settlement price (see chapter 4). 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 purposes of economic regulation meaning that the AER's ring-fencing guideline would, by default, prevent DNSPs from providing SAPS generation services directly. Unless granted a waiver by the AER or subject to a deemed exemption, DNSPs will instead need to procure these services from a third party, a subsidiary or other affiliate of the DNSP.

The Commission noted that while 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, there may be benefit in clarifying in

109 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 80.
110 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 81.
111 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 81.

the NER that the appropriate classification of the distribution services provided by means of a SAPS is as a standard control service.[112]

5.3 Commission's draft report

The draft report considered two key issues related to the Commission's recommended approach to the classification and economic regulation of the services associated with a SAPS, as set out in the SAPS priority 1 final report. It also included the Commission's recommended approach to addressing these issues within the NER.

5.3.1 Prescribing the classification of the SAPS distribution service as a standard control service

In the draft report, the Commission explained that the driver behind allowing DNSPs to use SAPS to provide distribution services to existing grid-connected customers is the fact that only DNSPs would be able to do so at a cross-subsidised price.[113] Without the cross-subsidy, existing customers would be unlikely to choose to leave the grid and the potential reductions in distribution costs for all customers from moving certain customers to SAPS supply would not be captured.[114]

Therefore, for DNSPs to continue to cross-subsidise the provision of distribution services to SAPS customers, the services and activities provided by means of a SAPS (which includes both a generation and distribution system) must include a distribution service which has, or will be, classified by the AER as a standard control service. Without this classification, the cross-subsidy would be lost, and SAPS customers would be subject to the full costs of the SAPS service.[115]

In general, the Commission considered that the existing framework for distribution service classification in the NER is broadly appropriate and fit-for-purpose to support the AER in determining the classification of the distribution service provided by means of a SAPS.

However, the Commission had some concerns that in certain circumstances – for example, where the assets associated with the stand-alone distribution system are difficult to discern as might be the case for individual power systems – there is likely to be some benefit in providing the AER with additional guidance in respect of how the services and activities associated with a SAPS should be treated within the regulatory framework.

For this reason, the Commission proposed to include several provisions in the rules which would have the effect of clarifying:

1. which services and activities provided by means of a SAPS are distribution services and so subject to classification by the AER

112 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, pp. 81-82.

113 This is the case for jurisdictions in which there is no direct subsidy for rural customers through retailers, such as Queensland.

114 Further to this, it could be argued that remote customers who have previously paid potentially significant cost-reflective connection charges to connect to the grid in order to receive supply at a cross-subsidised price are entitled to continue to receive grid supply or equivalent into the future (given that they have paid for it).

115 Put another way, this classification enables DNSPs to charge SAPS customers the same price for distribution services as it charges grid-connected customers.

2. that the distribution services provided by means of a SAPS are to be classified by the AER as direct control service (as opposed to negotiated distribution services), and
3. that the direct control services provided by means of a SAPS are to be further classified by the AER as standard control services (as opposed to an alternative control service).

This guidance was given effect in the draft proposed rules through a set of principles to which the AER would be required to give effect when identifying and classifying the distribution services provided by means of a stand-alone power system.

In summary, the draft proposed rules required that:

- the distribution service provided by means of a SAPS distribution system must be given the same classification that it would have been given if the service were not provided by means of a DNSP-led SAPS
- the activities of a DNSP in establishing, operating or maintaining a regulated SAPS or arranging for the provision of services or facilities required for the operation of a regulated SAPS must be classified as a standard control service or treated as an input into a standard control service.

Importantly, the proposed rules recognised that in order to implement a SAPS solution, a DNSP would be required to contract with a generator to design, install, operate and maintain SAPS generation assets to supply electricity to customers connected to the SAPS (unless granted a waiver by the AER). The activities of the DNSP in relation to that contract (including payment of contract charges) would be expected to be classified either as standard control services or considered as an input into a standard control service, as set out above. However, the generation of electricity consumed by retail customers connected to the DNSP SAPS and the sale of the electricity by the retailer would not be distribution services, and therefore would not be classified by the AER.

5.3.2 Waivers from AER ring-fencing obligations

The draft report also explained the Commission's position in respect of the provision of the SAPS generation service by DNSPs. Specifically, under the Commission's draft approach to SAPS service provision, DNSPs would be restricted from providing the SAPS generation service directly, unless granted a waiver from the relevant ring-fencing restrictions (or subject to an exemption) by the AER.

This position was an outcome of the Commission's approach to service classification which, as explained above, was based on the view that a generating system(s) connected to a stand-alone distribution system would provide a generation service which would not be a distribution service and so which would be subject to restrictions set out in the AER's ring-fencing guideline. The objective of ring-fencing is to promote competition in the provision of electricity services which, in this case, would include SAPS generation services. The provision of services through competitive markets can lead to greater efficiency and lower costs in the long term.

The Commission also considered that the existing provisions enabling the AER to both grant waivers (on application from the DNSP) from the prohibition on the provision of non-

distribution services by the DNSP, and establish deemed exemptions to specific ring-fencing restrictions, would provide sufficient flexibility for the AER to relax certain ring-fencing restrictions where strict adherence might, in some circumstances, result in outcomes that are not in the interests of consumers.[116]

In general, the Commission considered that the rules provide sufficient flexibility and suitable means for the AER to consider relaxing some, or all, of the ring-fencing restrictions in circumstances where it may be appropriate or more efficient for a DNSP to provide SAPS generation services directly.

That said, recognising that several DNSPs had expressed concern that reliance on the existing waiver process would likely create some uncertainty around SAPS investment decisions, the AER indicated a commitment to considering the waiver process set out in its ring-fencing guideline in order to better understand the suitability of this process in the context of SAPS.[117]

As a first step, the AER published an explanatory note in December 2019 which aimed to provide distribution businesses with transparency of, and certainty around, the waiver application process in respect of DNSP SAPS. Among other things, the note attempted to address matters such as how best to engage with the AER in applying for a waiver from the ring-fencing obligations, and the evidence DNSPs would be expected to provide to the AER to support an application. Stakeholders views on the AER's explanatory note — for consideration by the AER — were welcomed.[118]

5.4 Stakeholder views

5.4.1 SAPS service classification

In submissions to the draft report, a number of stakeholders expressed general support for the view that the existing service classification process forms an appropriate basis for the economic regulation of distribution services provided by DNSPs in respect of SAPS and to determine which services could be provided by which parties.

In particular, the AER endorsed the proposed approach, and suggested it provided sufficient clarity for the AER to classify a SAPS distribution service as a standard control service.[119]

In contrast, Essential Energy considered the guidance on the classification of SAPS services to be overly prescriptive, and suggested that it may restrict the ability of the AER to classify

116 For example, the AER must have regard to "whether the benefit, or likely benefit, to electricity consumers of the DNSP complying with the obligation (including any benefit, or likely benefit, from increasing competition) would be outweighed by the cost to the DNSP of complying with that obligation". Ring-fencing guideline, section 5.3.2.

117 The Commission understands that this concern is primarily driven by the fact that the existing waiver process currently provides the AER with the ability to grant interim waivers, and to revoke waivers at short notice. In addition, the circumstances under which the AER would consider granting a waiver, the evidence that a DNSP would be required to provide the AER in support of a waiver application, the AER's process for assessing a SAPS-specific waiver application and the timeframes associated with the application process itself, have also been raised informally as potential sources of uncertainty in respect of the suitability of the existing waiver process in the context of SAPS.

118 Twelve stakeholder commented on ring-fencing waivers in their submissions to the draft report with a handful speaking more explicitly to the AER's explanatory note. We understand that the AER has reviewed all comments put forward in submissions on this matter.

119 AER, submission to draft report, p. 1.

SAPS services appropriately.[120] Similarly, Energy Queensland and ENA sought further clarification around how different physical SAPS assets would be classified as part of a generating system or distribution system, noting the implications of this delineation for cost recovery.[121]

Endeavour Energy considered the classification of generation and network components as being distinct to be unnecessary, and suggested that the restriction on networks owning generation assets could result in higher costs and inhibit networks' ability to deploy SAPS quickly.[122] Ausgrid sought clarification with regard of the cost recovery of SAPS generation expenditure, given generation would not be treated as a distribution service and therefore would not be included in the RAB.[123]

5.4.2 Application of ring-fencing waivers

One particular issue identified in submissions by stakeholders was the potential application of the waiver process set out in the AER's ring-fencing guideline, and the suitability of this process in the context of SAPS.

The AER noted that further consideration would be given to the application of ring-fencing waivers, and that the AER intend to engage with distributors to understand the likely need for future waivers.[124]

PIAC suggested that ring-fencing obligations on DNSPs should be proportionate to the potential consumer harm at stake, particularly where this may represent an unnecessary burden and delay the delivery of SAPS projects. PIAC and ENA recommended that the AER consult with stakeholders to examine opportunities to streamline the need for waiver in the case of SAPS.[125]

Firm Power highlighted its concern that, if DNSPs received general waivers or exemptions from ring-fencing, this could lead to the monopolisation of generation services before a market for them in SAPS is able to be established. Firm Power did consider waivers in relation to repair and maintenance would likely be appropriate, but contended that they should not be given in respect of design and construction aspects of SAPS.[126]

Endeavour Energy, Essential Energy, SAPN and ENA sought clarification with regard to instances where networks may require a ring-fencing waiver for SAPS ownership and installation, rather than just ongoing maintenance services.[127]

TasNetworks, Energy Queensland, AusNet Services and Spark Infrastructure considered that reliance on waivers would lessen investor confidence and undermine DNSPs' ability to

120 Essential Energy, submission to draft report, pp. 6-8
121 Energy Queensland, submission to draft report, pp. 12-14; ENA, submission to the draft report, p. 6.
122 Endeavour Energy, submission to draft report, p. 1.
123 Ausgrid, submission to draft report, p. 6.
124 AER, submission to draft report, p. 2.
125 PIAC, submission to draft report, p. 1; ENA, submission to the draft report, p. 5.
126 Firm Power, submission to the draft report, p.6.
127 Endeavour Energy, submission to draft report, p. 1; Essential Energy, p. 6; SAPN, submission to draft report, p. 6; ENA, submission to the draft report, p. 5.

develop internal capabilities where third-parties are unwilling or unable to provide necessary generation services.[128]

5.4.3 SAPS solutions, DMIS and DMIA

The AER observed that the definition of 'SAPS options' as distinct and separate from 'non-network options' and 'demand management' under draft proposed definitions in NER chapter 10 would mean that SAPS options will not be subject to the Demand Management Incentive Scheme (DMIS) and Demand Management Innovation Allowance (DMIA).[129]

However, SAPN recommended that any operating expenditure reasonably incurred by a DNSP should be eligible for the DMIS on the basis that, like demand management, the provision of SAPS will be an alternative to traditional grid supply and will require activities that will require compensation.[130]

5.5 Commission's analysis and final position

5.5.1 Overview of the Commission's final approach

The Commission's final approach in respect of the classification and economic regulation of SAPS is broadly consistent with the position put forward in the draft report. The final approach maintains consistency with the principles underpinning the broader economic regulatory framework for distribution businesses. Importantly, it is premised on the Commission's view that the generation of electricity in a SAPS is a separate service from DNSPs' core service of providing a common distribution service. It is therefore not a distribution service for the purposes of economic regulation.

In light of this, the final proposed regulatory framework for SAPS encourages competition in relation to SAPS generation services for the benefit of consumers. It does so by expecting that, in most cases, SAPS generating systems would be obtained from competitive markets. However, it also recognises that there are likely to be circumstances where it may be necessary for a distribution business to provide both the SAPS distribution and generation services - for example, where contestable service providers may be unable or unwilling to provide a SAPS generation service due to remoteness or other factors.

In these circumstances, distribution businesses will be able to utilise the AER waiver process - which includes the potential for the AER to establish automatic exemptions - as the means to provide SAPS generation services. Waivers or exemptions from the ringfencing obligations are generally provided where the costs of ring-fencing compliance exceed the benefits to customers.

The key features of the Commission's final proposed approach are described in Box 1 below.

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128 Spark Infrastructure, submission to draft report, p. 2; TasNetworks, submission to draft report, p. 2; AusNet Services, submission to draft report, p. 1; Energy Queensland, submission to draft report, p. 14.

129 AER, submission to the draft report, p. 3.

130 SAPN, submission to the draft report, p. 7.

BOX 6: KEY FEATURES OF THE FINAL PROPOSED APPROACH TO THE CLASSIFICATION AND ECONOMIC REGULATION OF SAPS

SAPS assets and services

- A stand-alone power system comprises two components, each providing a separate service:
  - a standalone power system distribution system, which provides a distribution service, and
  - a generating system(s) connected to the standalone distribution system, which provides a generation service directly to SAPS customers and which is also an input into the distribution service provided by a distribution business.

Service classification

- For distribution services provided by the SAPS distribution system that are also provided in non-SAPS networks, the same classification must be applied.
  - If activities or expenditure of a distribution business in establishing and maintaining a regulated SAPS do not fall within one of those service classifications, they must be classified as a standard control service or treated as an input used to provide a standard control service.
- The activities undertaken by a distribution business in respect of arranging for the provision of the SAPS generation service must be treated as an input used to provide a standard control service.
- The generation of electricity by a SAPS generation system is not a distribution service and is therefore not subject to classification by the AER, and nor is it an input to a distribution service.[a]

Ring-fencing obligations

- On the basis that the generation of electricity by a SAPS generation system is not a distribution service, distribution businesses will be unable to provide the SAPS generation service directly unless the AER grants a waiver (or establishes a deemed exemption) from the obligations for legal and/or functional separation, consistent with the AER's distribution ring-fencing guideline.
- If a distribution business is granted a waiver (or is subject to a deemed exemption) from the obligations for legal and/or functional separation such that it can provide the SAPS generation service directly, that service will remain a "non-distribution service" for the purposes of economic regulation.
- Arranging for the provision of a SAPS generation system will continue to be treated as an input into the distribution service provided by a distribution business (regardless of whether the generation service itself is provided by a third party or by a distributor under a waiver).

Cost recovery

- A distribution business would recover the costs associated with provision of the distribution service from its customers via retailers through standard distribution charges, consistent with the classification of these services as standard control services.
- A SAPS generator would recover the costs associated with provision of the generation services in two ways:
  - The generation service provided directly to SAPS customers (that is, the generation of electricity) would be paid for by those customers via their retailers and AEMO's wholesale settlement systems, at the SAPS settlement price.
  - The generation input provided to the distribution business (that is, the input into the distribution service) would be paid for by that distribution business (through operating expenditure). The distributor would recover that cost from its customer base via retailers through standard distribution charges. The payment would be equivalent to the amount agreed in the contract between the distributor and the generator for provision of the SAPS generation activities, less the energy payment from AEMO.

Cost recovery where a waiver/exemption from the ring-fencing restrictions has been provided

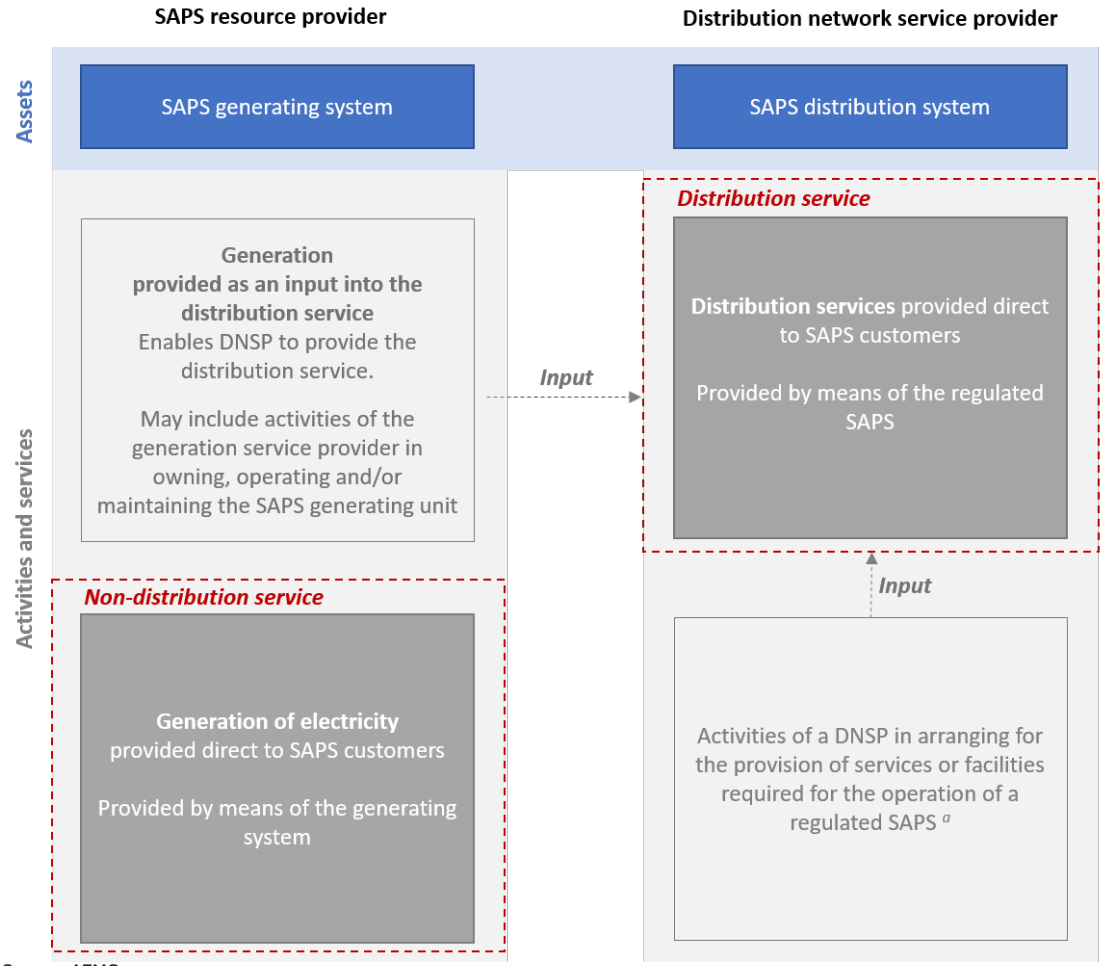
- As above, a distribution business would recover the costs associated with provision of the distribution service from its customers through standard distribution charges, consistent with the classification of these services as standard control services.
- A distribution business would recover the costs associated with provision of the generation services in two ways:
  - The generation service provided directly to SAPS customers would be paid for by those customers via their retailers and AEMO's wholesale settlement systems, at the SAPS settlement price. This would be unregulated revenue.[b]
  - The generation input provided to enable provision of the distribution service (which has been classified as a standard control service) would be paid for by the distribution business's customers through standard distribution charges.

a. The AER does not classify inputs used to provide distribution services as these are not offered to customers on a stand-alone basis.

b. Unregulated revenues are those revenues paid to a distribution business for unregulated services. Unregulated services may be either electricity supply services the AER has determined not to regulate, or non-electricity supply related which are not regulated by the AER by definition.

This characterisation of the assets and services provided by means of a SAPS is illustrated in the figure below.

Figure 5.1: Regulated stand-alone power system and services



Source: AEMC
Note: a. These must be treated as an input into a standard control service.

5.5.2 Reasons for the Commission's final approach

Classification of the distribution service provided by means of a regulated SAPS

The Commission's final approach to service classification is consistent with the position put forward in the draft report. In general, the Commission considers the existing framework for distribution service classification in the NER is broadly appropriate and fit-for-purpose to support the AER in determining the classification of the distribution service provided by means of a SAPS. However, given the need for a SAPS to include a distribution service which has, or will be, classified by the AER as a standard control service, the final rule provides the AER with additional guidance in respect of how a SAPS distribution service should be classified and hence treated within the regulatory framework.

To achieve this outcome, the final proposed rules require the AER to give effect to a set of principles when classifying distribution services provided by means of, or in connection with, a SAPS distribution system and when determining the regulatory treatment of inputs used to provide those distribution services.[131] In summary:

- A distribution service provided by a DNSP by means of, or in connection with, a SAPS distribution system must be given the same classification that it would have been given if the distribution service were provided by means of, or in connection with, a part of the DNSP's distribution system not in a regulated SAPS.[132]
- If an activity or expenditure of a DNSP in establishing and maintaining a regulated SAPS is not classified in accordance with the above, and is:
  - a distribution service, it must be classified as a standard control service, or
  - an input used to provide a distribution service, it must be treated as an input used to provide a standard control service.[133]
- For the purposes of the above:
  - providing, or arranging for the provision of, services or facilities (including a generating system) required to supply a customer by means of a SAPS distribution system is to be treated as an input used to provide a distribution service, and
  - the production of electricity for supply to a SAPS distribution system is not a distribution service or an input used to provide a distribution service.[134]

Importantly, the proposed rules recognise that in order to implement a SAPS solution, a DNSP would be required to contract with a generator to design, install, operate and maintain SAPS generation assets to supply electricity to customers connected to the SAPS, unless granted a waiver by the AER, or subject to a deemed exemption, from the ring-fencing restrictions.

Ring-fencing restrictions on DNSP provision of generation provided by means of a regulated SAPS

An outcome of the Commission's approach to service classification is that distribution businesses will be unable to provide the SAPS generation service directly unless the AER grants a waiver or establishes an exemption from the obligations for legal and/or functional separation. This is consistent with the AER's current distribution ring-fencing guideline.

If a distribution business is granted a waiver from the obligations for legal and/or functional separation such that it can provide the SAPS generation service directly, that service will remain a "non-distribution service" for the purposes of economic regulation. The SAPS generation system will continue to provide an input into the distribution service provided by a distribution business.

131 Final proposed NER clause 6.2.1A(a).
132 Final proposed NER clause 6.2.1A(b).
133 Final proposed NER clause 6.2.1A(c).
134 Final proposed NER clause 6.2.1A(d).

Throughout the course of this review, several stakeholders have expressed concern around the Commission's proposed reliance on the waiver process as the means of enabling distribution businesses to provide both SAPS distribution and generation services directly. In addition to concerns around the investment uncertainty created by elements of the existing waiver process, some stakeholders considered that waivers should only be relied on in limited circumstances and not as the primary means of enabling DNSPs to provide SAPS generation directly.

These stakeholders were generally of the view that the provision of the SAPS generation service should be considered as part of a distribution business's core distribution offering and consequently classified as a standard control service. This would provide a distribution business with discretion over the service delivery method, including whether to provide the services 'in-house' or procure the services from third parties or appropriately ring-fenced related entities. Such an approach would enable a distribution business to provide both the SAPS distribution and generation service where it was efficient to do so, without having to utilise the waiver process set out in the AER's ring-fencing guideline.

The Commission has considered the merits of this approach closely but ultimately does not support an approach which is premised on the generation of electricity to customers being included within the definition of a distribution service. The Commission is concerned that DNSPs, with their incumbent status as monopoly operators of distribution networks, could adversely affect the level of competition in the SAPS generation services market through the ability to install (and operate) these assets and recover the costs of those assets through regulated revenues.

The ring-fencing requirements have been effective in addressing threats to competition of this nature while also providing a means for relaxation of these restrictions where compliance is unlikely to exceed the benefits to consumers.

The Commission acknowledges the concerns of stakeholders in respect of the uncertainty created by the current waiver application (and revocation) process. The Commission also recognises the possibility that, at least in the short term as competition in the provision of SAPS generation services continues to emerge, the number of waiver applications submitted by distribution businesses to the AER may be significant. To this end, there is likely to be merit in the AER establishing an automatic exemption in the ring-fencing guideline, applicable to SAPS in certain circumstances. This route would provide stakeholders with clarity, transparency and regulatory predictability in respect of the circumstances under which direct provision of generation by DNSPs would not be restricted.[135]

The final rule does not oblige the AER to establish such an exemption. Rather, it retains AER discretion to establish a deemed exemption(s) in its ring-fencing guideline. The Commission considers it important for the AER to consult with stakeholders, including jurisdictions, on the circumstances under which an exemption would be appropriate, having regard to a number

135 The AER may choose to follow a similar approach to that which it has already adopted in its ring-fencing guideline where it provided waivers to some ring-fencing obligations in remote areas (defined as areas with less than 25,000 customer connection points within a 100 kilometre radius of the office). The AER noted that, in these areas, the potential for development of competition may be limited.

of factors. Matters that need to be considered include the current state of, and the likely impacts on the development of competition in, markets for SAPS generation services where a deemed exemption is established.

Recognising the importance of the AER undertaking work in this space, the final proposed rule includes a transitional rule which requires the AER to review and where necessary amend and publish the distribution ring-fencing guidelines taking into account the final rule for DNSP SAPS.[136]

The AER began a process to review the current electricity distribution ring-fencing guideline in August 2019. The objectives of this review are to update the ring-fencing guideline to clarify and strengthen some obligations, and to make compliance less administratively complex.[137] While this piece of work is currently on hold due to the COVID-19 pandemic, the Commission understands the intention is still to complete this project this year. The Commission encourages the AER to build consideration of the approach to granting waivers (or establishing deemed exemptions) for SAPS into the distribution ring-fencing guideline review process this year.

Cost recovery arrangements supporting the provision of a regulated SAPS by DNSPs

In submissions to the draft report, several stakeholders expressed concern in respect of the lack of clarity around the recovery of costs associated with the provision of a regulated SAPS in instances where the AER waives (or exempts DNSPs from) the requirements of its ring-fencing guideline.

Waiving the obligations on a distribution business in respect of legal and/or functional separation will enable a distribution business to provide the SAPS generation service (that is, the non-distribution service) directly. This means that rather than having to procure the service from a third-party (which may be a ring-fenced affiliate), a distribution business would be able to invest in assets associated with the SAPS generating system itself.

As explained above, the SAPS generating system will provide both the generation service direct to SAPS customers, and the generation input used to provide the SAPS standard control service. It follows that the granting of a waiver (or establishment of an exemption) will enable a distribution business to provide the input to the standard control service through direct investment in the capital assets which are also providing the generation service.

A question has been raised whether a distribution business would be able to add the assets associated with a SAPS generating system to its regulatory asset base (RAB) where the AER has waived the relevant ring-fencing obligations to enable a distribution business to provide the SAPS generation service.

As set out in the principles for classification of distribution services in a regulated SAPS, the Commission considers that a SAPS generating system is providing an input to the provision of

136 Final proposed NER clause 11.[xxx].3(a)(6).

137 See www.aer.gov.au for further information on the AER's electricity ring-fencing guideline review, August 2019.

a distribution service.[138] Under the Rules, the regulatory asset base for a distribution system is the value of assets used to provide standard control services, but only to the extent they are used to provide those services.[139] Applying this principle, and taking into account the services provided by a SAPS generating system, the value of assets associated with a SAPS generating system could be included in the regulatory asset base, if a ring-fencing waiver is given and subject to the terms of the Rules.

Where this occurs, the characterisation of the two services the SAPS generating system provides does not change; the asset is an input to the provision of a distribution service and is also providing a non-distribution service (the generation of electricity).[140] Where an asset in the regulatory asset base is providing two services, one of which is not a distribution service, the provisions about shared assets in the Rules apply (discussed in the next section).[141]

Treatment of generation revenue received by DNSP under a waiver

A further question has been raised around how the unregulated revenue received by a distribution business for provision of the SAPS generation service should be treated where the assets used to provide that service are also providing a regulated service (in this case, an input into the standard control service).

A SAPS generator will earn revenue from the sale of electricity to the market under Chapter 3 of the NER. To prevent over-recovery where a DNSP (pursuant to a ring-fencing waiver) owns and operates a generating system that forms part of its RAB,[142] the payments from AEMO for SAPS generation should be deducted from the DNSP's revenue allowance.

To give effect to this, the final proposed rule includes an amendment to Chapter 6 of the NER to allow the AER to provide for this deduction through the Shared Asset Guideline.[143] Currently, the Shared Asset Guideline only relates to assets whose costs were initially allocated to regulated services but later come to be used to provide unregulated services as well. This change from expected use means the assets are earning both regulated and unregulated revenues and have therefore become shared assets.

The Guideline as currently drafted does not provide for the circumstance where SAPS generation assets would be providing both an input used to provide a standard control service and a non-distribution service (that is, generation to the customer) from the outset. In addition, the current version of the guideline contains a materiality test, such that not all unregulated revenue is deducted from the DNSP's revenue allowance. The Commission considers that, for SAPS generation assets, all payments received from AEMO should be considered material, as the DNSP would have incurred no extra cost to earn them.

138 NER rule 6.2.1A.
139 NER clause 6.5.1(a).
140 NER rule 6.2.1A.
141 NER Rule 6.4.4.
142 This would enable the DNSP to earn a rate of return on the investment as part of its regulated revenue.
143 Final proposed NER clause 6.4.4.

The final proposed rule therefore also includes a transitional rule which requires the AER to review the Shared Asset Guideline to provide for these outcomes.[144] However, given that these changes represent a relatively significant departure from the way in which the Shared Asset Guideline is currently used, the AER has until July 2025 to undertake this review. In the interim, this clause also requires the net generating revenue to be deducted on a backward-looking basis when a new distribution determination is made for a DNSP that has any generating systems in regulated SAPS in its regulatory asset base.

5.5.3 Other changes to Chapter 6

Interaction between a regulated SAPS and the demand management incentive scheme

In developing the regulatory framework for SAPS, the Commission has had regard to the interaction between provision of regulated SAPS by distribution businesses and the numerous existing regulatory incentive schemes applied to these businesses, designed to deliver efficient expenditure outcomes in the long-term interests of consumers.

In the SAPS draft report, the Commission made several amendments to the demand management incentive scheme (DMIS) and the demand management innovation allowance (DMIA) mechanism to reflect that:

- SAPS options are distinct from both network options and non-network options, and
- for the purpose of the DMIS/DMIA, SAPS options would be grouped with network options such that expenditure on SAPS would be excluded from the scheme and allowance.

This position was based on the view that expenditure on non-network options to manage demand (or modify the drivers of demand) would largely occur behind the meter and as such, would exclude expenditure related to local generation and SAPS located in front of the meter.[145]

Having had regard to stakeholder views and having discussed this matter further with the AER, the Commission considers that its earlier interpretation of 'demand management' appears to have been too narrow for the purposes of the Chapter 6 incentive regulation frameworks.

In its DMIS explanatory statement, the AER defines electricity network demand management as "the act of modifying the drivers of network demand to remove a network constraint."[146] The AER goes on the note that "[t]his definition recognises that demand management need not be specific to removing network constraints at peak". Rather, DNSPs can get value out of using demand management to remove network constraints driven by a range of factors, including "aging assets and risks associated with equipment failure."[147]

144 Final proposed NER clause 11.[xxx].4.

145 This position was not based on any broader consideration of the incentives on DNSPs to make efficient decisions in relation to expenditure on SAPS relative to expenditure on network options (eg replacement and refurbishment of network assets). The draft position was predominately driven by definitions in the NER – for example, of demand management, SAPS options, non-network options, network options etc.

146 AER, Demand management incentive scheme, Explanatory Statement, p. 10.

147 ibid.

When considering whether SAPS options fall within the scope of the DMIS and DMIA, the key question is therefore whether the use of SAPS could effectively be seen as modifying a driver of network demand. Importantly, there doesn't appear to be anything that speaks to demand management as being strictly behind the meter. Indeed, local generation support is used as an example of how DNSPs could shift or reduce consumer demand.

In light of this, it is the Commission's view that the final rule should enable SAPS options to fall within the scope of the DMIS/DMIA.[148] It would then be for the AER to decide the extent to whether the use of a SAPS by a distribution business is related to demand management – that is, to the extent that a SAPS option is modifying a driver of network demand to remove a network constraint.

Ultimately, the decision on whether the DMIS/DMIA is applied to an individual DNSP is made by the AER having regard to the broader regulatory framework for each business, and whether additional incentives are necessary to encourage efficient decision-making.

148 Final proposed NER clause 6.6.3.

6 SAPS TECHNICAL AND PERFORMANCE STANDARDS

This chapter discusses an issue on which the Commission sought stakeholder feedback in the draft report: the application of technical regulation and performance standards contained in schedules 5.1a to 5.3a of the NER.

The chapter sets out the Commission's final proposed approach in respect of the application of these technical and performance standards for DNPS-led SAPS. This is intended to ensure that SAPS customers continue to receive equivalent power quality and service outcomes, and that standards are appropriately suited to SAPS technologies so as to support DNSPs in the efficient provision of SAPS services. It also includes recommendations in respect of the governance arrangements to support the development of, and compliance with, technical and performance standards for SAPS.

6.1 Background

DNSPs are required to meet a range of technical regulations and design and performance standards when supplying grid-connected customers, and designing their networks. These are imposed at both national and jurisdictional levels. Such jurisdictional requirements are discussed in Appendix C.

National power quality and other technical standards applicable in the NEM are set out in schedules 5.1a to 5.3a of the NER. These define the level of performance required of the equipment that makes up, and is connected to, the interconnected power system. An overview of these technical standards and their relevance to SAPS is provided in Box 7.

BOX 7: NEM TECHNICAL STANDARDS

The NEM technical standards define the level of performance required of the equipment that makes up, and is connected to, the NEM power system. The overall power system is operated to these standards and this allows the power system operator, AEMO, to effectively manage power system security. They are also important tools for managing reliability and safety obligations. Generating units within SAPS are physically separate from the NEM physical networks and, therefore, the reliability and security performance of these generating units has no interaction with NEM security or reliability.

Other aspects of the NER standards are, however, more directly relevant to SAPS - for example, those related to the quality of electricity services that a customer can expect. A number of such standards are set out in Schedule 5.1a of the NER - 'System standards'. These system standards are important as the level of technical performance standards that are provided by distribution networks to SAPS customers have implications for the power quality outcomes received by these customers.

In relation to SAPS, power quality compares an ideal "undisturbed" supply to disturbances that can arise due to network (or SAPS) limitations and/or the characteristic of a customer

load. Power quality needs to be maintained within specified limits as to avoid malfunction of and/or damage to customer equipment.

In order to manage a customer's impact on network power quality (as well as reliability and safety) a DNSP can impose conditions on entities and individuals connecting to its network through connection agreements.[149] These operate in tandem with jurisdictional requirements, such as the Service and Installation Rules (or similar) established in and by each jurisdiction. Service and Installation Rules are primarily designed to define and co-ordinate the relationship between a licensed distributor and its grid-connected customers, including the respective parties' obligations in maintaining power quality, and are discussed in Appendix C with the full range of jurisdictional requirements.

In Western Australia, outside the NEM, Western Power operates the South West Interconnected System in the south-west of the state and services the majority of the state's customers, and Horizon Power serves all other areas of the state, including managing the North West Interconnected System in the Pilbara and many microgrids and standalone power systems that services remote and regional communities. Both providers have, to varying degrees, given consideration to SAPS specific system standards. Western Power is currently developing a range of revisions to its technical rules, and one of the topics being considered is the need to introduce specific system standards for SAPS.[150] Horizon Power's Technical Rules provide for and distinguish separate standards for microgrids and standalone power systems.[151]

6.2 Commission's draft report

In the draft report, the Commission considered that power quality outcomes for DNSP-led SAPS customers should remain equivalent to those of customers connected to the grid.

In respect of the power quality obligations in the NER, the Commission reviewed each of the relevant schedules in Chapter 5 of the NER in order to understand whether amendments were needed to clarify whether a particular standard would or would not be relevant in the context of SAPS.

For the most part, the Commission considered that the application (or otherwise) of the NER chapter 5 technical standards schedules would be apparent from the nature of the requirements themselves - for example, if a connection to the national grid did not exist then several standards would fall away automatically, and others would be limited in their application to situations that actually exist.

The Commission proposed a limited number of amendments to the technical standards schedules to clarify that particular standards would apply, or would not apply, in respect of

149 For DNSP SAPS, these connection agreements are proposed to be regulated under NER chapter 5A. See Appendix B of this report for further details.

150 Western Power, Technical Rules, 1 December 2016.

151 Horizon Power, Technical Rules, Standard Number: HPC-9DJ-01-0001-2012.

DNSP SAPS. If a registered generator or market customer sought to connect to a DNSP-led SAPS, the Commission considered that existing provisions under Chapter 5A of the NER would allow DNSPs sufficient flexibility to negotiate connection applications.[152] The Commission noted this should allow DNSPs to appropriately manage the operation of SAPS systems.[153]

The Commission's proposed application of the technical standards in schedules 5.1a through to 5.3a set out in the draft report is provided in Table 6.1 below. The Commission sought stakeholder feedback in this area, in light of the principle that customer outcomes in a DNSP SAPS, including in relation to quality of electricity supply, should remain equivalent to those of grid-connected customers. The Commission noted that it intended to further consider the potential for certain power quality requirements for SAPS to vary from those in the technical standards set out in schedules 5.1a and 5.1, and sought feedback on the appropriateness of applying these technical standards to SAPS.

152 NER Chapter 5A, Part C.

153 See appendix B, section B.2.1.

Table 6.1: **Proposed application of NER Chapter 5 Schedules 5.1a to 5.3a to DNSP-led SAPS in draft report**

SCHEDULE	PROPOSED APPROACH TO APPLICATION
Schedule 5.1a System Standards	**S5.1a.1 Purpose**: General principles continue to apply. **S5.1a.2 Frequency**: Continues to apply. Note: while national grid frequency performance is the responsibility of AEMO, it becomes the DNSP's responsibility for DNSP-led SAPS. **S5.1a.3 System stability**: Does not apply. **S5.1a.4 Power frequency voltage**: Continues to apply. Note: a "contingency event" trigger does not apply to a SAPS. The power frequency voltage limits continue to apply, including the provision for power factor and reactive power flow at the connection point. **S5.1a.5 Voltage fluctuations**: Continues to apply. No changes needed if the SAPS is regulated under jurisdictional DNSP network licensing. **S5.1a.6 Voltage waveform distortion**: Continues to apply. No changes needed if the SAPS is regulated under jurisdictional DNSP network licensing. **S5.1a.7 Voltage unbalance**: Continues to apply. No changes needed if the SAPS is regulated under jurisdictional DNSP network licensing. **S5.1a.8 Fault clearance times**: Does not apply.
Schedule 5.1 Network Performance Requirements to be Provided or Co-ordinated by Network Service Providers	**S5.1.1 Introduction**: Continues to apply. No changes needed if the SAPS is regulated under jurisdictional DNSP network licensing. **S5.1.2 Network reliability** **S5.1.2.1 Credible contingency events:** Does not apply. **S5.1.2.2 Network service within a region:** Continues to apply. **S5.1.2.3 Network service between regions:** Does not apply. **S5.1.3 Frequency variations:** Continues to apply.

SCHEDULE	PROPOSED APPROACH TO APPLICATION
	S5.1.4 Magnitude of power frequency voltage: Continues to apply. **S5.1.5 Voltage fluctuations:** Continues to apply. **S5.1.6 Voltage harmonic and voltage notching distortion:** Continues to apply. **S5.1.7 Voltage unbalance:** Continues to apply. **S5.1.8 Stability:** Does not apply. **S5.1.9 Protection systems and clearance times:** Continues to apply. **S5.1.10 Load, generation and network control facilities:** Continues to apply. **S5.1.11 Automatic reclosure of transmission or distribution lines:** Continues to apply. **S5.1.12 Rating of transmission lines and equipment:** Will not apply in practice, as AEMO has no reason to request this information. **S5.1.13 Information to be provided:** Does not apply.
Schedule 5.2 Conditions for Connections of Generators	Does not apply.
Schedule 5.3 Conditions for Connections of Customers	Does not apply.
Schedule 5.3a Conditions for Connection of Market Network Services	Does not apply.

Source: AEMC, Updating the regulatory frameworks for distributor-led stand-alone power systems, 19 December 2020, pp.84-85.

6.3 Stakeholder views

Although generally supportive of SAPS customers receiving equivalent levels of power quality and reliability, stakeholders suggested that the application of existing NEM technical standards to SAPS services may not produce the best customer outcomes.

Firm Power supported SAPS technical standards that are fit for purpose. It suggested that although similar technical principles may apply to small, isolated SAPS projects, the application of controls should be sympathetic to the size and type of technologies used. Firm Power recommended that Australian Standard AS4509, Stand-Alone Power Systems, would provide a more targeted approach to quality, safety and reliability more suitable for SAPS applications. In addition, it also noted that Horizon Power may also have a number of standards that could be applied to SAPS that might be more fit-for-purpose than existing NER Chapter 5 Schedules.[154]

ENA considered that SAPS should be capable of accommodating customer DER (i.e. solar and batteries), in addition to those already provided as part of the DNSP-led SAPS. As such, the technical configuration of SAPS would need to be configured with technical limits that ensure the safe operation of SAPS with the addition of customer commissioned DER.[155]

Energy Queensland considered that the management and maintenance of a secure power system is an important consideration in the design of a SAPS, noting that Chapter 4 of the NER which deals with power system security would not apply to SAPS under the proposed framework. Energy Queensland noted that it has encountered difficulties in managing multiple small-scale generators and micro embedded generator connections (such as solar photovoltaic and batteries) in Ergon Energy's isolated systems. To manage against the potential instability caused by this DER, Ergon Energy has introduced an automated system to coordinate and dispatch customer DER.[156]

6.4 Commission's analysis and final position

The Commission has sought to determine an approach to the application of technical and performance standards which allows DNSPs to minimise unnecessary costs while ensuring the SAPS customers are not disadvantaged as compared to the service they would have expected to receive had they remained grid-connected.

To do so, the Commission engaged GHD to provide advice on the suitability of applying technical standards set out in Schedules 5.1a to 5.3a of the NER and other relevant instruments (e.g. the frequency operating standards) to DNSP-led SAPS.

GHD's advice is published with this report.[157]Having considered the various options put forward by GHD, the Commission recommends an approach whereby it is clarified in the NER

154 Firm Power, submission to draft report, p. 2.
155 ENA, submission to draft report, p. 8.
156 Energy Queensland, submission to draft report, pp. 13-14.
157 GHD, *Technical advice on performance standards for stand-alone power systems,* April 2020.

that the present system standards in Chapter 5 do not apply to SAPS, but a requirement is added that each DNSP proposing to develop a regulated SAPS must publish applicable technical standards. The published standards must address the technical requirements covered by the NER technical schedules. In developing the standards, distributors must have regard to the principle that the quality and reliability of supply experienced by a SAPS customer should be no worse than the quality and reliability of supply that the customer would experience if connected to the interconnected national electricity system.[158]

The purpose of having DNSPs determine technical and performance standards is to give DNSPs the flexibility to develop appropriate standards for nascent SAPS technologies and operation, particularly in instances where existing NER technical standards are not directly applicable to SAPS. This is intended to ensure that SAPS customers are not disadvantaged following the transition to a DNSP-led SAPS and enable appropriate alternative technical performance standards that consider SAPS specific technical limitations. Where applying the typical standards used for power systems in the interconnected system may create barriers to the efficient provision of SAPS, thereby imposing a potentially higher cost of provision, DNSPs are able to consider a more cost effective but equally appropriate technical or performance solution.

In developing this approach, the Commission has given consideration to the:

- suitability of applying existing NER technical standards to DNSP-led SAPS
- establishment of requirements in the rules to ensure DNSPs' technical standards for SAPS meet equivalent power quality outcomes
- monitoring and oversight of standards developed by DNSPs.

6.4.1 Suitability of NER Chapter 5 Schedules 5.1a to 5.3a to DNSP-led SAPS

The standards in the Chapter 5 schedules define the technical obligations on network operators and network users for the connection of a generating unit, network service provider or end use customer. The framework for the standards comprises the following:

Schedule 5.1a of the rules establishes the security, reliability and quality parameters of the power system.[159] The standards set out the targets for the performance of the power system. The purpose of Schedule 5.1a is to establish power system standards that:

- are necessary or desirable for the safe and reliable operation of facilities of Registered Participants
- are necessary or desirable for the safe and reliable operation of equipment
- could reasonably be considered good electricity industry practice
- seek to avoid the imposition of undue costs on the industry or Registered Participants.

Importantly, Schedule 5.1a standards specify the quality and nature of electricity supplied by the network. These are the standards to which supply can be expected to conform and the

158 Proposed NER clauses 5.10.2 and 5.13B.1(d).

159 See Table 6.1 above for an overview of the power quality parameters dealt with in S5.1a.

system performance which the plant and equipment connected to the system must be designed to withstand.

Schedules 5.1 to 5.3a set out the requirements and processes for proposing and negotiating access to the network. Specifically, Schedule 5.1 contains the obligations on network businesses to implement the standards; it describes what a DNSP must do to achieve the performance standards, either itself or in coordination with network users. In many cases, there are also obligations in Schedule 5.2 on generators and Schedule 5.3 on customers that complement the network obligations. Schedule 5.3a is concerned with the conditions of connection for market network service providers. Both the DNSP and, in the case of standards that relate to system security, AEMO must be satisfied that the outcome of negotiations for access to the network, and the resultant performance standards, do not adversely affect power system security or quality of supply to other network users.

Having considered the framework in detail, the Commission considers that the application of NER chapter 5 technical standards that relate to system-wide control and performance measures for the national grid would not be appropriate for SAPS. With respect to those set out in schedules 5.2-5.3a, this is on the basis that the relevant equipment, such as generating units, would be physically separate from the interconnected network and, therefore, their performance would have no impact with NEM security, reliability or quality of supply.

In respect of the application of Schedules 5.1a and 5.1, GHD's review of the Commission's proposed revision to these schedules in the draft report identified gaps which GHD considered may leave some of the key technical requirements for SAPS either undefined or poorly defined. [160] In part, this is on the basis that technical concepts associated with electricity generation and transmission (including the technical schedules in the NER) have been developed focusing on the power system performance parameters that are relevant and important for systems dominated by rotating synchronous machines. However, with the transition to variable renewable electricity generation in SAPS, these concepts may not continue to apply in the same form. For example, SAPS may comprise of only asynchronous inverter-based technologies. In these technologies, the system-wide control and performance characteristics such as frequency control are significantly different from an interconnected power system with a large proportion of rotating synchronous generation.[161]

The Commission considered a number of ways to develop technical requirements applicable to SAPS, including:

- revision of existing NEM standards and NEM frequency operating standards to make them applicable to SAPS
- the creation of new, targeted technical schedules in the NER to specify technical requirements for SAPS.

160 GHD, *Technical advice on performance standards for stand-alone power systems,* April 2020, p. 19.
161 GHD, *Technical advice on performance standards for stand-alone power systems,* April 2020, p. 2.

Based on advice from GHD,[162] the Commission considers that revisions to existing system standards would be overly complex, and that the creation a new technical schedule for SAPS in the NER would potentially inhibit innovation in SAPS standards at a time when the application of SAPS technologies is immature.

Informed by the principle that the experience of a SAPS customer in the terms of the quality of supply should be no worse than if the customer had remained grid-connected, the Commission recommends an approach whereby the existing system standard in Schedule 5.1a and network performance standards in Schedule 5.1 are dis-applied in relation to DNSP-led SAPS, and DNSPs instead determine technical standards for SAPS. The standards must meet equivalent requirements to those set out in the NER technical schedules, but be applicable to SAPS technologies and operation. Given the absence of specific technical standards in the rules, DNSPs would be responsible for considering appropriate measures to ensure standards are set at a level that does not degrade customer experience.

The Commission recommends this requirement is established through a high-level principle in the NER ('SAPS quality of supply principle'). The approach to establishing this principle in the rules is discussed in detail in the following section.

6.4.2 Establishing SAPS quality of supply principle and standards

In considering the development of a principle to be set out in the NER in order to maintain equivalent power quality outcomes for SAPS customers, the Commission has given consideration to how SAPS power quality performance requirements are to be defined by DNSPs. This is necessary given DNSP SAPS would be specifically excluded from the chapter 5 technical schedules; that is, they would not need to meet those standards.[163]

Instead, the Commission recommends that the standards for performance that a DNSP's SAPS would be required to cover includes each of the parameters set out in Table S5.13.1, which is based on the parameters covered in the chapter 5 technical schedules, including at a minimum the information specified in that table.[164]

These parameters are intended to ensure that where a customer is transitioned to a DNSP-led SAPS, DNSPs would have sufficient flexibility to alter technical standards to be fit-for-purpose for SAPS technologies, but on an 'output' basis only (that is, with reference to what the customer experiences and the impacts on the customer, not the impacts on the system as with the chapter 5 schedules). So while from a generator's or system operator's perspective the technical performance criteria for a SAPS may be quite different to what would be required under the chapter 5 schedules, the customer experience should not be degraded as compared to being grid-connected.

162 GHD, *Technical advice on performance standards for stand-alone power systems,* April 2020, p. 19.
163 Proposed NER clauses S5.1a.1 and S5.1.1.
164 Proposed NER Schedule 5.13.

Table 6.2: Standards for the performance of regulated SAPS (NER Table S5.13.1)

PARAMETER	MINIMUM CONTENT OF STANDARDS
Frequency	*Frequency* band in normal operation *Frequency* band following a contingency and the maximum permitted time for excursions outside this band
System stability	Transient, oscillatory or voltage stability requirements to ensure stable *supply* in a *regulated SAPS*
Power frequency voltage	*Normal voltage* of *supply* at *connection points* Acceptable limits of supply *voltage* variation from *normal voltage* in normal operation and following a contingency Maximum time for which voltage may vary from *normal voltage* for any given variation from *normal voltage* These are to be set to achieve distortion free voltage supply for the efficient and safe operation of equipment in customer installations
Voltage fluctuations (flicker)	Maximum *voltage* fluctuation level of *supply*
Voltage waveform distortion	Permitted *voltage* distortion (harmonics)
Voltage unbalance (if applicable)	*Voltage* unbalance is to be measured as negative sequence *voltage* Maximum average *voltage* unbalance in normal operation, measured at a connection point, over a specified averaging period Maximum average *voltage* unbalance following a contingency
Fault clearance times	Maximum allowed fault clearance times at nominal *voltage* levels Fault ride through requirements as necessary to meet stability requirements These must be reasonable and sufficiently fast that they ensure stability and safety with respect to a *regulated SAPS*
Reliability	Performance targets for frequency and duration of *supply* interruptions in a *regulated SAPS* Performance targets for expected load not served in a *regulated SAPS*

Source: AEMC, proposed NER Table Schedule 5.13.1

In preparing the SAPS performance and supply standards, the DNSP must have regard to the SAPS quality of supply principle.[165] As part of the development of SAPS performance and supply standards, DNSPs must also have regard to the development of standards that are necessary for the safe and reliable operation of SAPS and connected equipment, are considered good electricity industry practice and avoid the imposition of undue cost.[166] DNSPs must develop these standards using a public consultation process specified in the NER.[167] Once developed or amended, a DNSP mush publish its SAPS performance and supply standard on its website.[168]

The Commission considers that the establishment of an industry-led working group (for instance, by ENA) to help with the development of model or best-practice DNSP SAPS performance and supply standards may prove beneficial. This could assist in the initial development of technical and performance settings for DNSPs to adopt in the development and application of their technical performance requirements for DNSP-led SAPS. It might also allow DNSPs to demonstrate that their SAPS performance and supply standards are in accordance with good electricity industry practice.[169]

The Commission has also given consideration to the technical terms and conditions of connection agreements. In instances where a generator or market customer seeks to connect to a DNSP-led SAPS, the Commission remains of the view that the application of the Chapter 5A connection process provides sufficient flexibility to negotiate connection applications.[170] Subsequently, the performance obligations of connecting parties must be established at levels at or above the minimum standards set out in SAPS performance and supply standards, with the objective of ensuring that the DNSP-led SAPS operates securely and reliably and in accordance with the standards of performance in the SAPS performance and supply standards.[171]

In addition to the proposed approach to the application of SAPS performance and supply standards, a number of consequential changes have been proposed to the SAPS customer engagement strategy, guidelines and consultation procedures. The Commission considers it is a necessary condition that a DNSP must provide its SAPS performance and supply standards as part of its SAPS customer engagement. [172] This is discussed further in Appendix A.

6.4.3 Monitoring SAPS performance and supply standards

The Commission has given consideration to the appropriate arrangements for the ongoing monitoring and oversight of DNSPs' SAPS performance and supply standards to ensure they meet equivalent customer power quality outcomes.

165 Proposed NER clause 5.13B.1(d)(1).
166 Proposed NER clause 5.13B.1(d)(2).
167 Proposed NER clause 5.13B.1(b)(2).
168 Proposed NER clause 5.13B.1(c).
169 Proposed NER clause 5.13B.1(e).
170 See Appendix B for further detail.
171 Proposed NER clause 5.13B.1(k).
172 Proposed NER clause 5.13B.4(c)(1).

The Commission's proposed rule requires DNSPs to plan and design their facilities to ensure that, among other things, they operate in a manner that complies with the applicable performance standards.[173] To support this, the Commission considers it is a necessary condition to institute and maintain a performance monitoring program to monitor the performance of its regulated SAPS. [174]

The Commission also recommends, as part of the DNSP's monitoring program, that a DNSP will be required to publish information about its-performance monitoring program on its website [175] and keep records, which must be provided to the AER on request . [176] For example, this information may include whether the SAPS have met the standards, and details of instances where they have not. The Commission recommends that this reporting requirement is classified as a civil penalty provision.

The AER would enforce DNSP's compliance with all the above requirements, including that DNSPs comply with SAPS performance and supply standards, [177] in accordance with its usual compliance monitoring and enforcement role.[178]

173 Proposed NER clause 5.13B.1(f).
174 Proposed NER clause 5.13B.1(g).
175 Proposed NER clause 5.13B.1(h)
176 Proposed NER clause 5.13B.1(i).
177 Proposed NER clause 5.13B.1(f).
178 NEL section 15.

7 IMPLEMENTATION

This chapter sets out the steps that the Commission considers will need to be undertaken by the COAG Energy Council, market institutions, jurisdictions and industry before the Commission's proposed framework commences. The proposed framework will be implemented by:

- Parliamentary Counsel drafting the law changes to the NEL and NERL, based on the Commission's proposed law changes provided to the COAG Energy Council in May 2019,[179] and the South Australian Parliament making the law changes
- the COAG Energy Council approving changes to the NER and NERR, based on the Commission's proposed rule changes provided to the COAG Energy Council with this report, and the South Australian Minister for Energy making the proposed rule changes
- relevant jurisdictions reviewing and amending relevant jurisdictional instruments, particularly the operation of some NERL application Acts to allow the consumer protections under the NECF to apply to DNSP-led SAPS.

The Commission anticipates that the new framework could be fully implemented by mid- to late-2021 (noting that it will not take effect in a jurisdiction until that jurisdiction opts in). The Commission has provided for transitional rules that are linked to the commencement date of the amending rules or until such time a jurisdiction has opted in.

However, the Commission notes that a number of adjustments may be required in response to the impacts of COVID-19. As such, the Commission recommends that the COAG Energy Council and the South Australian Minister for Energy coordinate with the Commission, AER and AEMO to ensure the commencement date, effective date and proposed law and rule changes proposed to implement the framework take into account the prioritisation of other major legislative and rule changes under the joint market body prioritisation framework.[180] This review was identified as a reform suitable to progress on its existing timeframe.

In addition, the Commission notes that the implementation of this reform comes at a time when the deployment of SAPS may provide an appropriate response to recent bushfire events that occurred during the 2019-2020 summer period. The Commission recognises the opportunities presented by the deployment of SAPS in supporting the bushfire recovery and providing future quality, safety and reliability benefits to bushfire-prone communities. As such, the Commission is strongly supportive of the expeditious implementation of these reforms.

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

180 Arising from the impact of COVID-19, on 7 April 2020 the market bodies advised of an agreed set of objectives and criteria for considering altering the implementation dates, and the key elements of the joint work program that is assessed as able to continue. Letter from AEMC, AER, and AEMO, *Prioritising implementation timeframes: a more detailed view,* 9 April 2020. www.aemc.gov.au.

7.1 Implementation and key dates

The regulatory framework for stand-alone power systems will not be implemented in a jurisdiction until the complete package of national energy law and rule changes have been made and the jurisdictions has opted in.

On 22 November 2019, the COAG Energy Council gave consideration to the proposed law changes presented in the SAPS priority 1 final report. In its formal response,[181] the Energy Council noted it would commence drafting of the necessary legislative amendments to implement the Commission's framework, with an aim to have the legislative amendments made in 2020. The Energy Council also noted that it expected the South Australian Minister would make the initial Rules in 2020, subject to the endorsement of the Council.

To support these objectives, the COAG Energy Council's Senior Committee of Officials (SCO) has established a working group to progress recommendations from the *Review of the regulatory framework for stand-alone power systems - priority 1* and the *Updating the regulatory framework for embedded networks review*. The working group has commenced drafting National Energy Law amendments with reference to recommendations from the SAPS priority 1 review.[182] The Commission will continue to liaise closely with the working group to provide advice and assistance as required.

It is expected that the law amendments will be agreed by the COAG Energy Council and put to the South Australian parliament later this year. Following the passage of this legislation, the South Australian Minister will then be able to make the rule changes described in this report. The full framework could then take effect, subject to jurisdictions finalising all necessary jurisdictional arrangements and opting-in. The Commission recommends that the amending rules should be made immediately after the law changes are made, and take effect immediately after the law changes take effect. This timeframe aligns with the advice provided under the joint market body prioritisation framework, whereby implementation timeframes from reviews and rules in progress will be targeting 2021-2022 timeframes where practicable.[183]

In identifying the areas where industry, market bodies and jurisdictional governments will need to undertake work to implement the framework, the Commission has come to the view that there is limited consultation that need to be carried out and therefore consultation requirements are not anticipated to be a burden on industry. Therefore, no adjustment of the proposed implementation timeframe is required.

The Commission notes that, to the extent the agreed law changes differ from the changes recommended in the priority 1 final report (and on which these proposed rules are based),[184] a revised set of proposed rules may need to be provided to the COAG Energy Council so that

181 COAG Energy Council, *Australian Energy Market Commission Review of the Regulatory Frameworks for Distributor-led Stand-Alone Power Systems - Priority 1 Final Report*, Response, December 2019, p.4.

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

183 Letter from AEMC, AER and AEMO - *Prioritising implementation timeframes: a more detailed view*, 9 April 2020. www.aemc.gov.au.

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

the rules work with the new definitions in the law. The Commission supports undertaking this work as soon as practicable after receiving the final law drafting.

7.1.1 Key dates

The Commission has defined the following key dates for the implementation of the new framework for stand-alone power systems.

Commencement date (CD) means the day that the changes to the electricity and energy retail rules are made. The transitional rules will commence on that date. Under these rules, AEMO, the AER and DNSPs will need to begin development and consultation on system, procedural and guideline changes required to give effect to the reform.

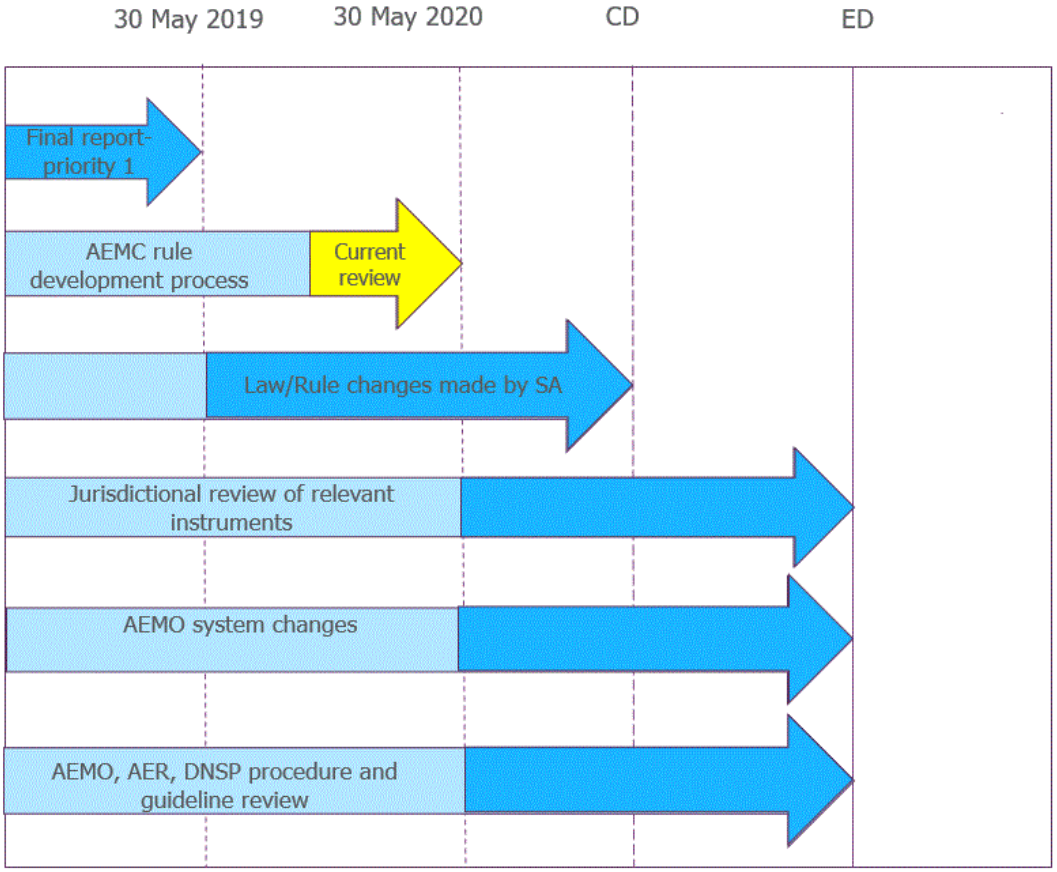
From the commencement date, jurisdictions will also be able to review and consult on relevant regulatory instruments with certainty, and if applicable, make amendments to remove any restrictions which would prevent relevant jurisdictional regulations applying to DNSP-led SAPS, prior to opting in.

Effective date (ED) means the day that the new framework comes into effect, and is proposed to be one year after the commencement date. That is, the Commission recommends that the effective date should be twelve months after the South Australian Minister makes the rules. This should provide sufficient time for AEMO to establish the required settlement systems and procedures and the AER to review and update relevant guidelines.[185]

An overview of the approach to implementation of the recommended regulatory framework for DNSP-led SAPS is set out in Figure 6.1 (noting that the date for law and rule changes remains uncertain and jurisdictional participation in the national arrangements require the relevant jurisdiction to opt-in).

185 AEMO and the AER are required to undertake consultation in accordance with the Rules consultation procedures detailed in clause 8.9 of the NER. The Commission notes that the Rules consultation procedures provide sufficient scope and flexibility for AEMO and the AER to meet the one year timeline required to develop system changes, procedures and guidelines.

Figure 7.1: Implementing the recommended regulatory framework for SAPS



Source: AEMC

7.2 Proposed rules

The Commission's proposed rules to implement the DNSP-led SAPS recommended framework are explained throughout this report and its appendices, and are published with this report. For ease of reference, Appendix D summarises all the proposed changes to the NER and NERR that the Commission considers would be necessary to allow for DNSP SAPS to be implemented and regulated in the manner outlined in this report, assuming that changes to the NEL and NERL are made as recommended in the priority 1 final report.

7.3 Key changes to jurisdictional arrangements to adopt the framework

In conjunction with the enactment of the recommended national law and rule changes, and prior to opting in to the new framework, jurisdictions will also need to make amendments to relevant jurisdictional instruments. The need for, and scope of, these amendments was

discussed in the SAPS priority 1 final report.[186] The next two sections provide a summary of those recommendations.

7.3.1 Changes to NERL application Act in certain jurisdictions

In New South Wales, South Australia and Tasmania, the Acts adopting the NERL as a law of those jurisdictions currently contain provisions limiting the application of the NERL (in those jurisdictions) to the sale of electricity to customers whose premises are connected, or are to be connected, to the interconnected national electricity system within the meaning of the NEL.[187] These restrictions would prevent the consumer protections in the NECF applying to customers of SAPS even if the law and rule changes described in this report have been made.

The Commission considers that DNSP SAPS customers should receive the protections of the NECF and, in the final report for priority 1, recommended changes to the application Acts which will remove the restriction of the NECF to the interconnected grid. [188] The Commission has subsequently been informed that, in New South Wales and Tasmania, it will be possible to extend the application of this legislation by way of regulation. In South Australia, legislative changes will be required in any event, in order to make the required changes to the NEL and NERL.

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

7.3.2 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 identified jurisdictional regulations applying to DNSP-led SAPS prior to opting-in.[189]

The Commission proposes that state and territories consider the following functions as part of this review of jurisdictional instruments:

- access to state and territory concessions and rebates
- access to independent dispute resolution for distribution and retail services
- network reliability protection, including GSL schemes
- other GSL payments
- safety of electricity supply

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

187 *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.

188 AEMC, *Review of the regulatory framework for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 118.

189 A more detailed overview of the Commission's proposed application of jurisdictional regulation can found in the AEMC's *Review of the regulatory framework for stand-alone power systems - priority 1,* Final report, 30 May 2019, pp. 84-95 and Appendix B.

- ability to access land required for the supply of electricity
- technical regulation, such as equipment and performance standards.

Jurisdictional action is especially important with regard to network reliability and technical regulation. This is on that basis that maintaining an equivalent level and quality of supply to DNSP-led SAPS as that received by standard supply customers was a key consideration of the Commission in deciding to recommend allowing DNSPs to transition customers to DNSP-led SAPS (where it is more economically efficient than standard supply).[190]

The Commission proposes that any changes to licensing schemes and other jurisdictional legislation be implemented by the effective date or (if later) the date the jurisdiction opts in to the framework.

7.4 Jurisdictional opt-in provision

In the SAPS priority 1 final report, the Commission recommended a restriction on DNSP participation in the national arrangements until such time as the relevant jurisdiction had opted-in by making a regulation under that jurisdiction's NEL application Act.

This recommendation was given effect in the Commission's proposed changes to the national energy laws through provisions which would:

- limit stand-alone power systems to systems located in adoptive SAPS jurisdictions (in both the NEL and NERL)
- 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.

A jurisdiction may opt-in at any time after the changes to the NEL and NERL outlined in the SAPS priority 1 final report have been made. It was the Commission's proposal that all relevant jurisdictions opt in promptly after this time, to provide a consistent national framework for DNSP SAPS.[191] However, it was (and remains) the Commission's expectation 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 the coverage of its NERL application Act, as discussed above.

Subject to jurisdictions opting in, the SAPS-related obligations set out in the rules will take effect on the dates set out in the amending rules. Jurisdictions that have not opted in will not be subject to these obligations, and DNSPs in those jurisdictions will not be able to supply customers using a DNSP SAPS. Once a jurisdiction has opted-in, DNSPs will automatically be required to comply with the requirements of the recommended framework and the obligations set out in these rules for DNSP-led SAPS in regard to the ownership and operation of regulated SAPS, planning and engagement arrangements, connections and the application of consumer protections.

190 This work is already under way in some jurisdictions. For example, the NSW Independent Pricing and Regulatory Tribunal's 2020 review of distributor reliability standards is considering how NSW network reliability standards can account for DNSP-led SAPS.

191 With the exception of Western Australia, which is not part of the regulatory framework established by the NEL and NERL.

7.5 Updates to procedures, guidelines and systems

The recommended regulatory framework for DNSP-led 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 final recommendations. DNSP-led SAPS will, in effect, be brought within the scope of existing roles and responsibilities.

AEMO

The Commission's proposed SAPS service delivery model will require AEMO to develop settlement processes to accommodate a SAPS settlement price for each region. 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 a SAPS settlement price will nevertheless require a program of work to update systems and processes as needed, including updating relevant AEMO guides and procedures.

The Commission continues to propose that AEMO will be required to notify the market in advance of the price to be applied to SAPS customers' load (the SSP). The notice to the market should be published on AEMO's website and provide the SSP price and the period for which it is to apply. Given the simplicity of the calculation to be applied to set the SSP and the accessibility of historical wholesale data required to do so, the Commission is satisfied that AEMO is the appropriate party to carry out this function.

Having regard to the Commission's approach to classification and registration (outlined in chapter 3), AEMO should review its Guide to generator exemptions and classification of generating units to assess whether it requires amendments to reflect the Commission's final proposed rules. [192]

In addition, the final rules would require AEMO to review and consider whether the following instruments require amendment before the effective date:[193]

- Credit limit procedures
- Market management systems access procedures
- PoLR cost procedures
- Reliability forecast guidelines
- Metrology procedure
- Service level procedure
- Guidelines clarifying the application of the requirements of the *National Measurement Act* to metering installations.

192 The guide to generator exemptions and classifications of generating units is published for the assistance of potential applicants for registration as a generator in the NEM, and constitutes the guidelines AEMO may publish under clause 2.2.1(c) of the NER. It also details how AEMO will assess applications for classification of generating units, where an exemption does not apply.

193 Proposed NER clause 11.[X].2.

AER

The Commission's proposed regulatory framework for SAPS does not include a new enforcement role for the AER. Consistent with its existing powers and functions, the AER will be responsible for monitoring, investigating and enforcing compliance with the energy rules related to DNSP SAPS, having regard to its own compliance and enforcement priorities.

As discussed in appendix B, the proposed rule includes a new provision providing the AER with the ability to develop a SAPS customer engagement guideline.[194] This guideline may provide guidance on a number of matters, including on the form and content of DNSPs' SAPS customer engagement documents. While this provision provides the AER with complete discretion in respect of developing and publishing such a guideline, the Commission expects the AER will consider the relative merit or otherwise of doing so ahead of the SAPS framework being implemented.

In addition, the final proposed rules would require the AER to review and, where appropriate, amend a number of its existing guidelines to ensure they are consistent with the national arrangements for DNSP SAPS, ahead of the effective date, as follows:[195]

- RIT-D application guidelines
- Connection charge guidelines
- Distribution service classification guideline
- Asset exemption guidelines
- Cost allocation guidelines
- Distribution ring-fencing guidelines
- Distribution reliability measures guidelines
- Forecasting best practice guidelines
- Contracts and firmness guidelines
- Reliability compliance procedures and guidelines
- MLO guidelines.

With regard to the proposed amendments to allow the AER to provide for deductions to be made from DNSP's revenue allowance through the Shared Asset Guidelines in Chapter 6, the Commission recommends the AER review and revise the Shared Asset Guidelines to provide for this outcome. However, this is not required to occur until 2025.[196]

Over the course of the review, the only potential issue identified with implementation of the framework occurring at varied stages of DNSPs' regulatory control periods related to DNSPs' connection policies. The Commission recommends that the AER, in amending its Connection charge guidelines, provide guidance to DNSPs as to the appropriate treatment for SAPS, to the extent any applications for an alteration of a connection to a DNSP-provided SAPS, or

194 Proposed NER clause 5.13B.3.
195 Proposed NER clause 11.[X].3.
196 See proposed NER Chapter 11 transitional rules.

new connection to an existing DNSP-provided SAPS, are made during the remainder of DNSPs' existing regulatory control periods.

ABBREVIATIONS

AEMA	Australian Energy Market Agreement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CESS	Capital expenditure sharing scheme
COAG	Council of Australian Governments
Commission	See AEMC
DAPR	Distribution Annual Planning Report
DLF	Distribution loss factor
DMIA	Demand management innovation allowance
DMIS	Demand management incentive scheme
DMO	Default market offer
DNSP	Distribution network service provider
EBSS	Efficiency Benefit Sharing Scheme
FCAS	Frequency control ancillary services
FRMP	Financially responsible market participant
GSL	Guaranteed service level
IPS	Individual power system
MCE	Ministerial Council on Energy
MSATS	Market settlement and transfer solutions
MSGA	Market small generation aggregator
MSRP	Market stand-alone power system resource provider
NECF	National energy customer framework
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules
NEO	National electricity objective
NERL	National Energy Retail Law
NERR	National Energy Retail Rules
NERO	National energy retail objective
NGL	National Gas Law
NGO	National gas objective
NMI	National metering identifier
NCAS	Network support control ancillary services
PoLR	Provider of last resort
RERT	Reliability and emergency reserve trader

RIT-D	Regulatory investment test for distribution
RRO	Retailer reliability obligation
SAIDI	System average interruption duration index
SAIFI	System average interruption frequency index
SGA	Small generation aggregator
SAPS	Stand-alone power system
SRP	Stand-alone power system resource provider
SSP	Stand-alone power system settlement price
STIPIS	Service target performance incentive scheme
TLF	Transmission loss factor
TNI	Transmission node identifier
UFE	Unaccounted for energy
VDO	Victorian default offer

A SAPS PLANNING AND ENGAGEMENT

This appendix sets out the Commission's final approach and recommended changes to the existing planning arrangements to increase transparency around both the opportunities for, and decisions made in respect of, DNSP SAPS. It includes recommendations in respect of obligations for DNSPs to:

- report on DNSP-led SAPS projects
- revise their demand-side engagement strategies and documents
- develop a SAPS customer engagement strategy and guideline, and
- quantify all classes of market benefits.

In addition, the appendix sets out the Commission's proposed approach for giving these recommendations effect in the Rules.

A.1 Background

A.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. Among other things, 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 8 below.

BOX 8: **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.

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).

A.1.2 Customer choice

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.2 Commission's recommended position in SAPS - priority 1 final report

In the SAPS priority 1 final report, the Commission noted 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.[197] However, the Commission recommended supplementing existing planning arrangements with a number of additions to the DAPR reporting requirements to increase transparency around SAPS opportunities.

In addition, the Commission recommended introducing a new set of SAPS customer engagement obligations which would 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. This section provides an overview of the Commission's recommendations.

A.2.1 Efficiency precondition

In the priority 1 final report, the Commission proposed two changes to the existing planning arrangements to increase transparency around both the opportunities for, and decisions made in respect of, DNSP SAPS.[198] These recommendations, discussed below, were underpinned by the position that DNSPs 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.

197 AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 33.
198 AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 42.

Additional DAPR reporting requirement

In the final report, the Commission considered the extent to which DAPR reporting requirements around system limitations on the distribution network, set out in schedule 5.8 of the NER, were sufficient to capture activities related specifically to SAPS.[199] The Commission subsequently recommended the inclusion of a number of additional reporting requirements in schedule 5.8 to ensure the provision of sufficiently detailed and timely information on current and future opportunities for SAPS.

The Commission noted that the inclusion of SAPS specific information within DNSPs' DAPRs would enable SAPS proponents to identify potential opportunities for SAPS over the forward planning period. It proposed that this would support the submission of credible alternatives to traditional network investment by SAPS proponents to DNSPs.

The Commission noted its intention to consider further the details of the proposed DAPR reporting requirements during the rule drafting phase of the review.

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

The Commission also recommended that the NER provisions in respect of the RIT-D (specifically, the RIT-D principles) 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.[200] The Commission considered this change would support the RIT-D in being applied in a predictable, transparent and consistent manner by DNSPs.

The Commission also noted that the 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.

In addition, the Commission considered it would be appropriate for the AER to determine, through its RIT-D application guidelines review process, whether it was necessary and appropriate for the RIT-D application guidelines to include guidance and worked examples on the application of the RIT-D to SAPS options. The Commission recommended that other matters relevant to the RIT-D and associated consultation process be considered further during the rule drafting process, including any definitional changes made to the NER to support services provided by means of SAPS assets to be distribution services.

A.2.2 Customer consent and engagement

SAPS customer engagement obligations

In the final report, the Commission recommended requiring a DNSP to carry out a comprehensive program of information provision and consumer engagement where it has

199 AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 43.
200 AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 44.

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.[201]

Specifically, the Commission recommended 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. The Commission noted that 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 Commission considered the inclusion of these requirements would 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.

A.3 Commission's draft report

In the draft report, the Commission described draft rules that largely reflected the final recommendations made in the SAPS priority 1 final report. Specifically, the proposed arrangements would require DNSPs to:

- include additional information in their DAPRs to report specifically on DNSP-led SAPS projects
- revise their demand-side engagement strategies (including demand-side engagement documents) to include consideration of SAPS. The term "demand-side engagement" would be replaced with the term "industry engagement" to reflect the extended scope
- develop a SAPS customer engagement strategy and guideline for engaging with affected network users in relation to SAPS being considered by the DNSP in relation to its network
- quantify all classes of market benefits which are considered to be material or may alter the selection of the preferred option.

A.3.1 Obligation for DNSPs to report on DNSP-led SAPS projects

In the draft report, the Commission proposed that DNSPs should report specific information in their DNSPs in respect of their SAPS projects, including information on committed SAPS projects, opportunities to develop SAPS projects and total numbers of SAPS implemented.

Such reporting was intended to drive transparency and consistency in DNSP planning with regards to the use of SAPS, and to support SAPS proponents interested in proposing or tendering to provide SAPS solutions.

A.3.2 Obligation on DNSPs to revise their demand-side engagement strategies and documents

To further support SAPS proponents, the Commission also proposed to extend DNSPs' existing demand-side engagement obligations to incorporate the broader range of alternative

201 AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, p. 46.

investment options to traditional network investment, including stand-alone power system solutions. The Commission noted that the proponents of SAPS solutions, like the proponents of non-network options, will require transparency around the process and procedures that DNSPs will follow when engaging with SAPS proponents and assessing SAPS solutions as alternatives to network investment.

The Commission noted that the inclusion of SAPS within the scope of the demand-side engagement obligations would ensure that DNSPs engage with SAPS proponents, and consider SAPS solutions, in a manner consistent with non-network proponents/options.

In the draft report, the Commission therefore proposed to:

- extend the existing demand-side engagement obligations to include SAPS options
- include a requirement for DNSPs to revise their existing demand-side engagement strategies and demand-side engagement documents to capture DNSP-led SAPS projects
- replace the term "demand-side engagement" with the new term "industry engagement" to reflect the extended scope of the demand-side engagement provisions and avoid confusion with the customer engagement provisions.

A.3.3 Obligation for DNSPs to develop SAPS customer engagement strategy and guideline

The draft report proposed that DNSPs develop a strategy and guideline for engaging with affected network users in relation to SAPS projects being considered by the DNSP. [202]

Proposed obligations on DNSPs to engage affected parties (including potential SAPS customers and the local public) would require each DNSP to develop a SAPS customer engagement document to set out its SAPS customer engagement strategy. In developing and amending the SAPS customer engagement document, DNSPs would be required to have regard to the following SAPS customer engagement objectives:

- providing relevant and timely information about DNSP-led SAPS projects and SAPS customer engagement strategies and processes
- engaging in timely and effective communications and other engagement with affected network users and landowners during the planning, development, construction and commissioning of a DNSP-led SAPS project.

The Commission also proposed in the draft report that the AER may develop and publish guidelines about engaging with affected network users in relation to DNSPs' SAPS projects.

Providing affected customers with appropriate notice and opportunity for consultation on a proposal to convert part of a DNSP's network to a regulated SAPS is an essential step in meeting customer engagement obligations. On this basis, the inclusion of a formal consultation process in the NER would be intended to ensure that relevant information on SAPS projects is made accessible to all parties who may be affected by a decision to transition a customer to SAPS supply. In the final proposed rule these provisions have been renumbered as NER clause 5.13B.4.

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202 AEMC, *Updating the regulatory frameworks for distributor-led stand-alone power systems,* Draft report, 19 December 2019, p. 62.

A.3.4 Requirements for DNSPs to quantify all classes of market benefits

In the draft report, the Commission considered that 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. This would be effected through replacing the term "may" in NER clause 5.17.1(d) with the term "must".

The Commission noted that the 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. In addition, the Commission considered that where appropriate, the AER must review and where necessary amend and publish the RIT-D application guidelines.

The extended scope of the distribution planning arrangements explained above (excluding the proposed RIT-D amendment) would only apply in relation to networks located in a participating jurisdiction that has opted in to the DNSP-led SAPS arrangements under the NEL.

A.4 Stakeholder views

In submissions to the draft report, stakeholder views on SAPS planning and engagement were, in general, highly supportive of the proposed arrangements.

PIAC supported the need for DNSPs to effectively engage with customers identified to be transitioned to SAPS supply, and was supportive of the AER developing a more formal framework for this purpose.[203]

The AER suggested it would consult further with DNSPs and stakeholders to determine its approach to the SAPS customer engagement guideline. It expressed support for the DAPR requirements under the proposed rules, noting that requiring a distributor to publish information on SAPS opportunities considered in the past year, committed projects and existing regulated SAPS will provide transparency for stakeholders and the AER. [204]

Firm Power considered that quantifying all applicable classes of market benefit would create a more predictable, consistent and transparent approach to RIT-D processes.[205]

ENA proposed that the classification of market benefits should be sufficiently broad to recognise the value of distributed energy resources (DER) or reducing fire risks.[206]

SAPN raised the need for consideration of distributors' rights in resolving situations where customers do not consent to transitioning to a SAPS.[207]

203 PIAC, submission to the draft report, p. 2.
204 AER, submission to the draft report, p. 3.
205 Firm Power, submission to the draft report, p. 2.
206 ENA, submission to the draft report, p. 7.
207 SAPN, submission to the draft report, p. 9.

A.5 Commission's analysis and final position

The Commission's final position largely reflects the final recommendations made in the draft report. Consistent with the draft report, the key aspects of the proposed rules will require DNSPs to:

- include additional information in their DAPRs to report specifically on DNSP-led SAPS projects
- revise their demand-side engagement strategies (including demand-side engagement documents) to include consideration of SAPS. The term "demand-side engagement" has been replaced with the term "industry engagement" to reflect the extended scope
- develop a SAPS customer engagement strategy and guideline for engaging with affected network users in relation to SAPS being considered by the DNSP in relation to its network
- quantify all classes of market benefits which are considered to be material or may alter the selection of the preferred option.

The Commission has made an additional recommendation with regard to introducing a new set of SAPS customer engagement obligations. Specifically, the Commission proposes that DNSPs should be required to publish their SAPS technical standards (as discussed in Chapter 6) to meet requirements under their SAPS customer engagement obligations.

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

A.5.1 Obligation for DNSPs to report on DNSP-led SAPS projects

The Commission continues to consider that requiring DNSPs to provide specific information in their DAPRs in respect of their SAPS projects will provide a transparent and consistent approach to identifying current and future opportunities to supply customers by means of SAPS. This additional information, to be reported at a high level only, is intended to provide important context to DNSPs' planning processes and activities and is a record of past decisions and projects. This additional information is also intended to support SAPS proponents interested in proposing or tendering to provide SAPS solutions, to identify potential SAPS opportunities over the forward planning period.

Consistent with the Commission's recommendation in the draft report 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, the final proposed rules would require DNSPs to report on:[208]

- system limitations in the forward planning period for which a potential solution is a regulated SAPS, including estimates of location, timing and potential type of SAPS solution that may address the system limitation
- opportunities to develop DNSP-led SAPS projects that have been considered in the last year

208 Final proposed NER clauses S5.8 (d1) and (o).

- committed projects to implement a regulated SAPS over the forward planning period, and
- total numbers of SAPS implemented and customer premises transitioned to SAPS supply.

The purpose of these requirements is to ensure that proponents of SAPS will receive sufficiently detailed and timely information on current and future opportunities for SAPS. In addition, high level reporting on committed SAPS projects and SAPS options will allow the outcomes of the new regulatory framework for SAPS to be captured in a central location. In doing so, it will also assist the AER in its distribution determination process by reducing information asymmetries between the AER and DNSPs.

A.5.2 Obligation on DNSPs to revise their demand-side engagement strategies and documents

The Commission continues to consider it is appropriate to extend DNSPs' existing demand-side engagement obligations to incorporate the broader range of alternative investment options to traditional network investment, including SAPS solutions. The proponents of SAPS solutions, like the proponents of non-network options, will require transparency around the process and procedures that DNSPs will follow when engaging with SAPS proponents and assessing SAPS solutions as alternatives to network investment. Further, the inclusion of SAPS within the scope of the demand-side engagement obligations will ensure that DNSPs engage with SAPS proponents, and consider SAPS solutions, in a manner consistent with non-network proponents/options.

The final proposed rule therefore:

- extends the existing demand-side engagement obligations to include SAPS options[209]
- includes a requirement for DNSPs to revise their existing demand-side engagement strategies and demand-side engagement documents to capture DNSP-led SAPS projects[210]
- replaces the term "demand-side engagement" with the new term "industry engagement" to reflect the extended scope of the demand-side engagement provisions and avoid confusion with the customer engagement provisions.[211]

A.5.3 Obligation for DNSPs to develop SAPS customer engagement strategy and guideline

Consistent with the recommendations in the draft report,[212] the Commission's final proposed rule requires a DNSP to develop a strategy and guideline for engaging with affected network users in relation to SAPS projects being considered by the DNSP. The SAPS customer engagement strategy and guideline is intended to ensure effective and timely engagement between DNSPs and affected parties.

The Commission considers that imposing obligations on DNSPs to engage affected parties (including potential SAPS customers and the local public) is appropriate to meet expected customer engagement outcomes. As such, the Commission's final rule requires DNSPs to

209 Proposed NER clauses 5.13.1(e)-(j).
210 Proposed NER clause 5.13.1(e)-(j).
211 Proposed NER rules 5.10, 5.13, 5.14 and 5.17 and schedule 5.9.
212 AEMC, *Updating the regulatory frameworks for distributor-led stand-alone power systems*, Draft report, 19 December 2019, p. 63.

develop a SAPS customer engagement document that sets out its SAPS customer engagement strategy.[213] These obligations would support DNSPs in engaging with affected parties throughout the planning, development and operational stage of a SAPS project. [214]

In developing and amending the SAPS customer engagement document, DNSP will be required to have regard to the SAPS customer engagement objectives. The SAPS customer engagement objectives are:[215]

- providing relevant and timely information about DNSP-led SAPS projects[216] and SAPS customer engagement strategies and processes
- engaging in timely and effective communications and other engagement with affected network users and landowners during the planning, development, construction and commissioning of a DNSP-led SAPS project.

The Commission's final proposed rule also proposes that the AER may develop and publish guidelines about engaging with affected network users in relation to DNSPs' SAPS projects.[217] These guidelines are intended to provide general guidance on the form and content of SAPS customer engagement documents and other matters the AER considers appropriate to promote the SAPS customer engagement objectives.

In addition, the Commission continues to consider that providing affected customers with appropriate notice and opportunity for consultation on a proposal to convert part of a DNSP's network to a regulated SAPS is an essential step in meeting customer engagement obligations. On this basis, the Commission's inclusion of a formal consultation process in the NER is intended to ensure that relevant information on SAPS projects is made accessible to all parties who may be affected by a decision to transition a customer to SAPS supply.[218]

Publishing SAPS technical standards as part of SAPS customer engagement requirements

In the draft report, the Commission set out its initial approach to the proposed application of technical standards, which it considered may require further consideration to ensure that the application of technical controls was fit for purpose and would support SAPS customers having equivalent access to quality, safety and reliability standards.[219]

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213 Proposed NER clause 5.13B.2.

214 The Commission recognises the importance of effective and timely engagement between DNSPs and affected parties (including potential SAPS customers and the local community) and notes that obtaining explicit customer consent to transition to SAPS supply would be logistically challenging and present risks that small numbers of customers could veto changes that would benefit all consumers. As DNSP are therefore not required to obtain explicit consent from customers, the Commission expects DNSPs to develop a SAPS customer engagement strategy based around notifying and consulting affected parties well in advance of any transfer, recognising that implicit customer consent will generally be required for DNSPs to install SAPS.

215 Proposed NER clause 5.10.2.

216 This term is proposed to be defined in NER chapter 10 to include planning, developing, constructing and commissioning a SAPS, undertaken by a DNSP to address system limitations. It does not cover the ongoing operation of a DNSP SAPS.

217 Proposed NER clause 5.13B.3.

218 Proposed NER clause 5.13B.4.

219 AEMC, *Updating the regulatory frameworks for distributor-led stand-alone power systems*, Draft report, 19 December 2019, pp. 83-85.

As set out in Chapter 6, the final proposed rule requires DNSPs to develop and publish technical standards for SAPS.[220] These standards are intended to support SAPS customers having equivalent access to power quality, safety and reliability standards while those standards are appropriate for the size and operation of SAPS technologies. As such, the Commission considers that providing affected customers with a copy of the technical standards and the opportunity for consultation regarding their expected power quality outcomes is an important step in supporting customers in understanding the design of the relevant SAPS installation, and any potential impacts on the activities that a SAPS customer could undertake.

A.5.4 Requirements for DNSPs to quantify all classes of market benefits

The Commission continues to consider that 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. This would be effected through replacing the term "may" in NER clause 5.17.1(d) with the term "must".[221]

As noted in the draft report,[222] the quantification of market benefits is becoming increasingly important as the characteristics of traditional distribution investments have evolved. 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. As such, the Commission is of the view that this change will support DNSPs applying the RIT-D in a predictable, transparent and consistent manner.

The Commission notes that the 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.

In addition, the Commission considers that the AER must review and where necessary amend and publish the RIT-D application guidelines.[223]

The extended scope of the distribution planning arrangements explained above (excluding the proposed RIT-D amendment) will only apply in relation to networks located in a participating jurisdiction that has opted in to the DNSP-led SAPS arrangements under the NEL.[224]

Definition changes to support services provided by means of SAPS

The Commission proposes to replace the term 'non-network option report' with the 'options screening report' in the local definitions in NER clause 5.10.2. This is on the basis that the

220 Proposed NER clause 5.13B.1.

221 Proposed NER clause 5.17.1(d).

222 AEMC, *Updating the regulatory frameworks for distributor-led stand-alone power systems*, Draft report, 19 December 2019, p. 64.

223 Proposed NER clause 11.X.3(a)(1).

224 The jurisdictional opt-in arrangements may allow for partial opt-in, in relation to specific networks or network areas within a jurisdiction. The proposed drafting, including the term "adoptive SAPS network" (defined in clause 5.10.2), is intended to be sufficiently flexible to accommodate partial opt-in.

RIT-D process will apply to a proposed regulated SAPS solution, and so the use of the term 'non-network' is no longer appropriate. The Commission considers that this amendment will support the process for assessing the efficiency of SAPS options.

B NEW CONNECTIONS AND RECONNECTION

This appendix sets out the Commission's recommended framework for connection to a regulated SAPS. Specifically, the appendix outlines the proposed application of Chapters 5 and 5A of the NER in respect of connection to SAPS, including:

- the treatment of new connections, including the initial connection of a SAPS generator to a SAPS distribution system to enable the transition of an existing customer from grid-supply to SAPS supply, and the connection of an independent generator to an existing SAPS, and
- the treatment of reconnection and augmentation in regard to SAPS systems.

The appendix sets out the Commission's final approach for addressing these issues in the proposed SAPS rules.

B.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.[225] 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

225 NER chapter 5A.

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.[226]

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.

Frameworks in the NER applicable to the connection of customers and generators in the NEM

There are currently two frameworks in the NER applicable to the connection of customers and generators in the NEM:

- Chapter 5 of the NER is intended principally to apply to connections by Registered Participants to the interconnected network. In addition to a connection process for load and generation connected at the transmission level, Chapter 5 includes a process for the connection of embedded generation (that is, generation connected at the distribution level) with systems greater than 5MW - that is, greater than the standing exemption from the requirement to register as a participant with AEMO. Importantly, the Chapter 5 connection process also includes processes and technical requirements directed at system security issues.
- Chapter 5A of the NER, in contrast, principally covers matters associated with new connections and connection alterations for retail electricity customers (end users and real estate developers). It also covers connection requirements and obligations for DNSPs and for embedded generation with systems less than 5MW - that is, embedded generators that are both micro (small) embedded generators (such as residential roof-top solar PV systems) and non-registered embedded generators operating in the NEM.

B.2 Commission's recommended position in SAPS - priority 1 final report

In the SAPS priority 1 final report, the Commission 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. The Commission made a number of recommendations in this regard. These included:

- 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.

226 NERL s. 66.

- DNSPs should be allowed to provide an offer to connect a new customer to an existing DNSP-led SAPS, where the connection to the DNSP-led SAPS would be more efficient than connecting to the interconnected grid.
- DNSPs' current connection policies, including cost allocation and capital contribution policies, can be extended to DNSP-led SAPS.
- SAPS customers should have no special right of reconnection to the interconnected grid once transitioned to a SAPS by a DNSP.

These recommendations are consistent with the Commission's position that DNSP-led SAPS should be considered to be part of a DNSP's network. Customers supplied via DNSP-led SAPS would therefore be considered as being connected to the DNSP's distribution network.

B.3 Commission's draft report

The Commission's position in the draft report largely reflected the final recommendations made in the SAPS priority 1 final report.[227] The approach the Commission proposed to give effect to these recommendations through the NER is discussed in further detail below.

B.3.1 Suitability of Chapters 5 and 5A of the NER

In the draft report, the Commission proposed that the connection processes set out in Chapter 5A of the NER should provide for the initial connection of a SAPS generator to a SAPS distribution system or for an independent generator or a customer. The Commission noted that it considered that Chapter 5 of the NER would not provide a suitable framework for connection of a facility to a SAPS. This is on the basis that the Chapter 5 connection process is intended principally for connections by Registered Participants to the interconnected network, and includes processes and technical requirements directed at system security issues, neither of which are relevant in the context of SAPS (see chapter 6 for further discussion on the application of the NER Chapter 5 technical standards to SAPS).

Given that the facilities within a SAPS will be connected to a distribution network and, more often than not, will be less than 5MW, the Commission proposed that Chapter 5A would provide an appropriate framework to apply to the connection of load and generation within a DNSP-led SAPS.

In respect of the initial connection of a SAPS generator to a SAPS distribution system by a DNSP, the process set out in Chapter 5A of the NER would provide the framework to enable this connection. As part of the connection process, a connection agreement and service agreement would be established between the DNSP and the registered participant in respect of the generating plant. The Commission noted that the proposed approach would avoid the need for the 'application to connect' process set out under Chapter 5 to be followed. It would also mean that the connection will not be governed by the technical requirements in Chapter 5 (nor would it be subject to the provisions on power system security in NER Chapter 4).

227 AEMC, *Review of regulatory frameworks for stand-alone power systems*, Final report, 30 May 2019.

In respect of the connection of an independent generator, or a customer, to an established SAPS, the Commission also considered that the Chapter 5A connection process would be the appropriate framework to apply. Where a registered generator or market customer seeks to connect to a DNSP-led SAPS, the DNSP must "make reasonable endeavours to make a connection offer that complies with the connection applicant's reasonable requirements".[228]

There may be valid reasons why a participant's connection application to a DNSP SAPS may require negotiation, such as a lack of capacity or site characteristics. The Commission considered this as a necessary condition to allow DNSPs to appropriately manage the operation of SAPS systems, particularly in relation to the connection of generation or load above the standing exemption threshold of 5MW.[229] This does not prevent a DNSP agreeing to connect a registered generator or market customer to a SAPS if it considers it appropriate to do so, but provides a pathway to negotiate these connection applications on an informed basis.

B.3.2 New connections

In the draft report, the Commission restated its view that new connections via new SAPS should be provided by the competitive market and not via DNSP-led SAPS. This approach is intended to ensure that where price incentives exist for a customer to procure a SAPS rather than connect to the interconnected grid, the SAPS should be supplied by the competitive market.

The Commission also noted its view that it would be appropriate to allow a ring-fenced DNSP affiliate to offer SAPS to new connections. Customers supplied by a ring-fenced DNSP affiliate would not be able to access cross subsidies.[230] 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. The AER may also waive those requirements on other grounds, on application from the DNSP.[231]

New connection to existing DNSP-led SAPS

The Commission noted that it continued to consider that DNSPs should be allowed to offer to connect new customers to existing DNSP-led SAPS where more economically efficient than connecting them to the interconnected grid. As such, the requirements relating to connection charges under chapter 5A, Part E, of the NER would continue to apply to customers connecting to existing DNSP-led SAPS. The application of these requirements would be intended to provide DNSPs with the ability to connect new customers (those that did not previously have a connection to the interconnected grid or a DNSP SAPS) to an existing DNSP SAPS where more economically efficient than connecting to the interconnected grid. The Commission noted that this would be appropriate as the existing DNSP SAPS, provided to

228 NER clause 5A.C.3(a)(6).

229 This exemption threshold is set out in AEMO's Guide to generator exemptions and classification of generating units, November 2018, p. 7.

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

231 Ring-fencing guideline, sections 4.2.1 (b)(iii), 4.2.2(b)(iii), 5.

customers when transitioning from the interconnected grid, replaces that part of the DNSP's distribution network.

The draft report proposed that in cases where a new connection is made to an existing DNSP SAPS, connection and augmentation costs should be allocated in the same way as for new connections to the interconnected grid.[232] This would be on the basis that doing so would 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 existing DNSP-led SAPS customers.

However, consistent with the existing approach to the reallocation of charges, the Commission proposed to treat Market Participants and Intending Participants in the same group as real estate developers under NER clause 5A.E.1. This would mean that these participants would be liable for charges in the same way as real estate developer.

Consistent with chapter 5A, Part E, of the NER, the costs of the connection from the existing DNSP SAPS to the new connection point would be payable by the customer, and any cost to augment the SAPS to facilitate the new connection would be apportioned in the same way between the customer and DNSP as for connection to the interconnected grid. DNSPs are required to develop their connection policies for approval by the AER.[233] The connection policies set out the circumstances in which connection charges are payable and the basis for determining the amount of these charges. The Commission proposed that the existing connection charge guideline is, in general, fit-for-pupose with regard to allocating DNSP SAPS connection and augmentation costs.[234]

B.3.3 Augmentation of a DNSP SAPS

In the draft report, the Commission noted that certain circumstances may arise that result in the need to augment an existing SAPS in order to increase its capacity. The Commission proposed that it would be reasonable for DNSPs to apply their connection policies to 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 increased their load to a level that required the capacity of the SAPS to be augmented, but remained below the capital contribution threshold, the DNSP would be required to increase the capacity of the SAPS at no additional cost to the customer. Conversely, if the customer increased their load above the applicable threshold, the customer would be required to make a capital contribution for any capacity above that threshold, in line with the DNSP's existing connection policy.

B.3.4 Reconnection

In the draft report, the Commission proposed that customers who have transitioned to a DNSP-led SAPS should have no special right of reconnection. The Commission considered this would be appropriate as the DNSP-led SAPS will be subject to the same consumer

232 The AER's connection charge guideline codifies how electricity distributors should charge new electricity customers for connecting to their networks.

233 NER rule 6.7A; AER, Connection charge guideline, 2012.

234 A requirement on AER to review this guideline and update it if required has been included as a transitional measure in NER clause 11.[X].3.

protections, safety, technical and reliability standards as the interconnected network. In addition, the Commission considered there would be no need for revised reconnection policies as the redefinition of DNSP-led SAPS as part of a DNSP's network would mean a customer who is supplied electricity from a DNSP-led SAPS would not be classified as disconnected from the DNSP's network.

B.4 Stakeholder views

In submissions to the draft report, stakeholder views were generally supportive of the proposed approach to new connections and reconnection.

A number of stakeholders raised specific issues in regard of the management of SAPS capacity and alteration requests. For example, SAPN suggested that, to establish the initial sizing of a SAPS, DNSPs will need to calculate a customer's typical consumption and demand profile - and that this may require some prudent over-sizing so that capacity is not exceeded with minor changes to energy usage.

However, SAPN considered further clarity was required around the process to action customer requests for additional SAPS capacity, to accommodate large changes in their energy consumption and demand. In particular, SAPN suggested that it was unclear whether existing arrangements for augmentation under chapter 5A are to apply to SAPS. If so, SAPN considered that a number of amendments to distributors' Connection Policies and augmentation thresholds might be required.[235]

Similarly, ENA suggested further consideration should be given to the appropriate mechanism to facilitate capacity augmentation of existing DNSP-led SAPS and provide clarity on the relevant financial arrangements.[236]

In relation to the provision of new connections, Energy Queensland was of the view that DNSPs should be able to provide SAPS to new customers as an alternative to grid connection where it is technically and more economically feasible than providing a network solution. A related issue raised by Energy Queensland concerned the proposed approach to the management of new connections to an existing DNSP-led SAPS. In particular, Energy Queensland highlighted concerns about the potential complexity involved in instances where the SAPS generation unit is owned and operated by a third-party, and the DNSP may be required to re-negotiate contracts to facilitate additional generation or changes to capacity.[237]

B.5 Commission's analysis and final position

The Commission's thinking in this area has been guided by its position that DNSP-led SAPS should be considered to be part of a DNSP's network. Customers supplied via DNSP-led SAPS would therefore be considered as being connected to the DNSP's distribution network, enabling DNSPs to capture the efficiency benefits associated with supplying a customer, or

235 SAPN submission to the draft report, pp. 5-6.
236 ENA submission to the draft report, p. 8.
237 Energy Queensland submission to the draft report, pp. 13-14.

group of customers, via a SAPS rather than continuing to supply them via the interconnected grid.

The Commission's final approach largely reflects that presented in the draft report. The Commission's position on issues raised in submissions are discussed below. In particular, further clarification is provided in regard of the arrangements for the management of SAPS capacity and augmentation requests.

B.5.1 New connections

The Commission remains of the view that new connections via new SAPS should be provided by the competitive market and not by 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.[238]

This position aligns with the Commission's recommendations throughout this review, and 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.[239] The Commission considers that cross and direct subsidies would be exacerbated if DNSPs are allowed to provide new connections via new SAPS, and its final approach means that this would be avoided.

However, the Commission continues to consider 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.

It is also important to clarify that the exclusion of new connections does not apply to connections that have been temporarily isolated from the interconnected grid due to events such as fires or floods. A 'new connection' is defined in Chapter 5A as 'a connection established or to be established, in accordance with this Chapter and applicable energy laws, where there is no existing connection'. The term 'connection' is defined in Chapter 5A as 'a physical link between a distribution system and a retail customer's premises to allow the flow of electricity'.

The definition of 'distribution system' in Chapter 10 requires there to be a connection to another distribution system (or for the system to be part of a regulated SAPS, which is not relevant for present purposes). Where a network has been damaged by fire or flood, a part of the network may be temporarily disconnected from the rest of the national grid and so if a DNSP considers that this raises doubt about whether it is an 'existing connection' for the

238 Proposed NER clause 5A.A.5.

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

purposes of the definition of 'new connection', the DNSP may be unwilling to convert an existing connection in a damaged part of its network to a regulated SAPS due to clause 5A.A.5. As it is not intended that the prohibition in new clause 5A.A.5 should have that result, a new term 'existing connection' has been added to Chapter 5A and the new defined term is now used in 'new connection' and 'connection alteration'. [240]

B.5.2 Augmentation and DNSP SAPS

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 small or large, urban or rural), customers are required to fund any shared network augmentation. DNSPs' connection polices currently determine how much a customer contributes towards the alteration and how much is recovered from all customers. This is based on the cost-revenue test set out in the AER's Connection Charge Guideline.[241]

While the Commission continues to consider it is reasonable for DNSPs to apply their connection policies to DNSP SAPS in the same manner as they would for grid connected customers, it recognises that changes may be required to existing connection policies to ensure their application is appropriate to DNSP SAPS.[242] For example, SAPS may need to be established under a particular category of connection service in DNSP's existing policies, and the costs of upgrades may be different. It is the Commission's view that DNSPs' connection policies should generally seek to apply the thresholds detailed in their existing policies to SAPS customers, for the reasons discussed below.

As discussed in Appendix A, the Commission recommends that the DNSP should be required to communicate extensively with a customer prior to transitioning the customer to a SAPS.[243] The Commission notes the potential for DNSPs to develop, as part of their SAPS customer engagement strategy, measures to establish the prudent sizing of SAPS so that customers transitioned to SAPS systems are aware of the capacity requirements of their systems, the implications this may have on the activities they can undertake, and so that capacity is sufficient so as not to be exceeded following minor changes in energy use.

Under this approach to customer notice and consultation, the Commission considers DNSPs have adequate scope to assess a SAPS customer's required demand and any potential requirements for future capacity. To the extent that there are subsequently more substantial changes in a customer's load, the customer would need to request a connection alteration. However, as discussed above, unless this change was significant enough so as to exceed the augmentation threshold, the customer would not be charged for the additional capacity.

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240 Proposed NER clause 5A.A.1.

241 AER, Connection charge guideline, 2012, p. 14.

242 The process for the updating of DNSPs' connection policies is discussed in chapter 7 of this report.

243 Proposed NER clause 5.13B.4.

Customers should be made aware of this process as part of the DNSP's communication with the customer prior to transition to SAPS supply.

As such, the Commission considers that the application of existing connection policies and thresholds for allocating DNSP SAPS connection and augmentation costs remains appropriate and contributes to maintaining the principle that customers should be subject to equivalent quality of supply and service standards on transition to DNSP-led SAPS. [244]

244 See section 2.1.2 for a more detailed discussion of how this principle has been used to inform the Commission's assessment throughout this review.

C APPLICATION OF CONSUMER PROTECTIONS

This appendix sets out the Commission's recommended final approach for the application of consumer protections to DNSP-led SAPS, including in relation to:

- the application of national energy-specific consumer protections for customers supplied via DNSP-led SAPS
- the application of SAPS-specific consumer protections, including additional information provision obligations on DNSPs
- the application of jurisdictional consumer protections and reliability considerations.

The Commission received only limited stakeholder views on the application of consumer protections to DNSP-led SAPS in submissions to the draft report, which the Commission considers reflects broad stakeholder support for the proposed positions detailed at various stages of this, and the preceding, review. Consequently, the Commission's positions outlined in the draft report have been retained (and, in one instance, augmented) and make up the Commission's final position.

C.1 National energy specific consumer protections

C.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 National Energy Customer Framework (NECF), the main legal instruments of which are the National Energy Retail Law (NERL) and the National Energy Retail Rules (NERR). The NECF:[245]

- 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 other small customers
- defines the rights, obligations and protections relating to the relationship between customers, energy retailers and energy distributors, and
- 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.[246] Consumers in NSW, Tasmania and South Australia who move off-grid would lose their energy-specific consumer protections under the NECF.[247] No consumers in Victoria are

245 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.

246 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.

247 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.

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.

C.1.2 Commission's recommended position in SAPS - priority 1 final report

In the SAPS priority 1 final report, the Commission recommended that consumer protections for DNSP-led SAPS should be equivalent to those under standard supply arrangements.[248] The model of supply recommended in the final report preserves (as much as 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 obligations under the NECF.[249]

In addition, the Commission also considered the need for any consumer protections specific to customers receiving supply via a SAPS.

Application of NECF to SAPS customers in each jurisdiction

As noted in the final report, the Commission considered that the full suite of consumer protections under the NERL and the NERR should be extended to customers being supplied via a DNSP-led SAPS (in jurisdictions where the NECF applies). The Commission noted 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.[250]

In Victoria, the Commission suggested that SAPS customers supplied by a licensed retailer would be covered by protections under the Victorian Energy Retail Code.

SAPS-specific consumer protections

In the final report, the Commission considered that amendments to the national consumer protections in the NERR would be required to incorporate additional information provision obligations on DNSPs, both prior to transitioning a customer to a SAPS, and once the customer has transitioned to a SAPS model of supply.[251] The purpose would be to help customers understand the reality of supply under a SAPS. The Commission recommended that the following SAPS-specific consumer protections be 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

248 AEMC, *Review of the regulatory framework for stand-alone power systems* - priority 1, Final report, p. 88.
249 The model of supply developed in chapter 3 of this report also preserves this link to the full range of obligations under the NECF.
250 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, pp. 88-89.
251 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, pp. 89-90.

performance standards, safety issues, communication functions, interactions with the customer's other assets, customers rights and obligations, and arrangements for placement of the SAPS.

- 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.[252]

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

C.1.3 Commission's draft position and final proposed position

In the draft report, the Commission's position largely reflected the recommendations in the SAPS priority 1 final report.[253] However, some minor changes were made. The proposed draft position outlined in this section has been retained and makes up the Commission final position.

In the draft report, the Commission's view on the application of the NECF to SAPS customers remained the same. That is, the Commission considered that the full suite of consumer protections under the NERL and the NERR should be extended to customers being supplied via a DNSP-led SAPS. 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.[254]

In extending the application of consumer protections under the NERR, the Commission proposed that transition to a SAPS should not be treated as a disconnection and, as such, should not be subject to various restrictions on disconnection that apply under the NERR. The Commission, therefore, proposed to specify that the temporary unavailability or temporary curtailment of the supply of energy to a customer's premises to implement a regulated SAPS conversion is an interruption for the purpose of the NERR and the National Energy Retail Law (and not a de-energisation or disconnection).[255] In addition, the Commission proposed to extend the definition of distributor planned interruption to include an interruption for conversion to a regulated SAPS.[256]

The Commission also supported recommendations around the provision of information by DNSPs to prospective and transitioned SAPS customers. Where a DNSP is considering transitioning an existing grid-connected customer to a SAPS, the Commission considered the

252 The Commission's recommendations on developing SAPS customer information and engagement requirements are in appendix A.

253 AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1,* Final report, 30 May 2019, pp. 84-101.

254 The Commission has subsequently been informed that it would be possible to extend the application of this legislation by way of regulation in NSW and Tasmania.

255 Proposed definitional change under NERR clause 3.

256 Proposed definitional change under NERR clause 88.

proposed SAPS consumer engagement provisions (discussed in appendix A) are adequate to support sufficient information provision to prospective SAPS customers.[257]

In relation to information provided by a DNSP to customers already transitioned to a SAPS, or who move into premises supplied by a SAPS, the Commission also considered that the proposed SAPS customer engagement provisions are likely to be the appropriate mechanism to support the provision of necessary and appropriate information to these customers in respect of their energy supply. As discussed in appendix A, the Commission has provided the AER with the option to develop a SAPS customer engagement guideline.[258] This guideline is intended to provide general guidance on the form and content of DNSPs' SAPS customer engagement documents, and other matters the AER considers appropriate to promote the SAPS customer engagement objectives. In developing this guideline, the proposed rule contemplates that the AER may provide guidance on information provision obligations when a customer transitions to, or moves into premises supplied by, a DNSP provided SAPS.[259]

C.2 Jurisdictional consumer protections

C.2.1 Background

Under the Australian Energy Market Agreement (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.[260] The jurisdictional consumer protections and safety regulations that are of potential relevance 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
- reliability
- other guaranteed service level (GSL) payments.

Each of these consumer protections is discussed 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".[261] Retail energy price controls can be transferred to the AER and the AEMC at the discretion of each jurisdiction.[262] For example,

257 Further detail regarding these customer obligation requirements is provided in appendix A and set out in the proposed NER clauses 5.13B.2 and 5.13B.4.

258 Proposed NER clause 5.13B.3.

259 Proposed NER clause 5.13B.3(c).

260 COAG, Australian Energy Market Agreement, Annexure 2.

261 COAG, Australian Energy Market Agreement, s. 14.15.

262 COAG, Australian Energy Market Agreement, s. 14.15(b).

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 network area in Queensland, jurisdictional regulators have set regulated retail prices for grid-connected customers.[263] In Victoria, prices were re-regulated by the Essential Services Commission under the Victorian Default Offer (VDO) which was introduced from 1 July 2019. At Commonwealth level, the Default Market Offer (DMO) was introduced from 1 July 2019 for retailers in states or regions where there is no regulated price for electricity. The DMO is set under the Competition and Consumer (Industry Code - Electricity Retail) Regulations 2019.[264]

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,[265] 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.[266] 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

DNSP must also 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 power quality obligations relating to voltage range, frequency, and disturbances as well as

263 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.

264 This instrument is made under the *Competition and Consumer Act 2010.*

265 NERL section 46 and NERR rule 25(1)(s).

266 NERL section 86.

enforcement regimes to monitor compliance with the obligations. These power quality obligations exist in a variety of regulatory instruments including the NER, jurisdictional Acts, codes and licences (depending on the jurisdiction) and in relevant Australian Standards.

Power quality and other technical standards applicable in the NEM are set out schedules 5.1a to 5.3a, and have already been discussed in Chapter 6. However, on the basis that network businesses are responsible for managing localised power quality problems on their networks (for example, ensuring voltage remains within allowed technical limits), network power quality obligations are also imposed on DNSPs through jurisdictional instruments. DNSPs also rely to a significant extent on Service and Installation Rules (or similar) established in and by each jurisdiction.[267]

Service and Installation Rules are primarily designed to define and co-ordinate the relationship between a licensed distributor and its grid-connected customers, including the respective parties' obligations in maintaining power quality. These rules provide reasonable technical requirements that allow the customer's installation to work safely and in harmony with the DNSP networks, as well as helping to define the limits of the service that the DNSP is providing to the customer.[268]

DNSPs can also draw from a number of technical design and performance standards set out in or imposed under various jurisdictional instruments when supplying grid-connected customers and designing their networks. For example, there are standards, codes and guidelines covering overhead line clearances and designs, underground cable installations, substation electrical and civil aspects, fire segregation and customer installations.

In addition, there are quality of supply standards relating to voltage range, frequency, and disturbances. For stand-alone power systems, there is an Australian Standard (AS 4509) which sets out safety and installation requirements for SAPS supplying a single load, single residence or building or a group of residences or buildings.[269]

While a broad suite of Australian Standards are currently in place,[270] Standards Australia has identified a need for further work in the areas of microgrids, distributed energy coordination and electrical system operations.[271]

Ability to access land required for the supply of electricity

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267 State of New South Wales through Division of Energy, Water and Portfolio Strategy, NSW Department of Planning & Environment, Service and Installation Rules of New South Wales - The electricity industry standard of best practice for customer connection services and installations, November 2018; Citipower, Jemena, Powercor, Ausnet, United Energy, Victorian Electricity Distributors Service & Installation Rules 2014; Energex and Ergon Energy, Queensland Electricity Connection Manual - Service and Installation Rules, effective from 24 August 2018; SA Power Networks, Service and Installation Rules - Manual No. 32, August 2017;TasNetworks Service and Installation Rules, September 2018; Government of Western Australia, Department of Commerce, Energy Safety, WA Electrical Requirements, January 2014; NT Power and Water Corporation, Network Policy NP 003 InstallationRules, 20 July 2009; and in the ACT, Evoenergy, Service and Installation Rules, November 2018.

268 For example, the Victorian Service and Installation Rules cover topics such as supply application, connection and disconnection, supply types, use and protection, connection to the low voltage network, low voltage metering, and high voltage electrical installations.

269 In NSW these are called up in the *Electricity Supply Act* 1995 (NSW) and the Electricity Supply (Safety and Network Management) Regulation 2014 (NSW), and in addition, licence conditions provide technical regulations and design and performance standards.

270 Standards Australia, GB 3000-2017, Quick reference guide - wiring rules 2007 and electrical safety standards, provides a more comprehensive list of safety related standards. Other standards, such as some of those in the IEC and AS/NZS 61000 series are also relevant.

271 Standards Australia, Roadmap for standards and the future of distributed electricity, Final Report, May 2017, p. 12.

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.

Reliability

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.[272]

There are three types of reliability standards and service levels that DNSPs are required to aim to meet:

- jurisdictional reliability standards
- GSLs, and
- national reliability targets within economic regulation.

Each state and territory government retains control over how transmission and distribution reliability is regulated, which has resulted in different regulations in each jurisdiction.[273] The levels of reliability that must be provided by distribution (and transmission) networks are generally contained in jurisdictional license conditions or in state codes and regulations. Jurisdictional reliability levels are generally measured by the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI).

Each state and territory also has reliability standards for the average number and duration of unplanned outages that each distribution network should not exceed each year.[274] 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.

At the national level, 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.[275] The STIPIS comprises four components, which relate to reliability of supply, quality of supply, customer service and GSLs. However, the GSL component only applies where a distributor is not subject to a jurisdictional GSL scheme.

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

272 NER clause 3.9.3C(a).

273 COAG, Australian Energy Market Agreement, Annexure 2.

274 For reliability, there are generally Guaranteed Service Levels (GSLs) for unplanned supply interruptions covering both duration and frequency of interruption.

275 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.

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.

Other Guaranteed service level (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, some other jurisdictional GSLs include:

- notice of planned interruption
- 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.

C.2.2 Commission's recommended position in SAPS priority 1 final report

In the priority 1 final report, the Commission recommended 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.[276]

The Commission noted that detailed analysis of all jurisdictional regulatory instruments had not been undertaken, and the position may vary depending on the exact wording of the jurisdictional instrument in question. Therefore, reviews of the relevant regulatory instruments will be required by the responsible jurisdictional body.

The Commission's high-level position on each consumer protection regulated by jurisdictions is detailed below.[277]

276 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 99.
277 AEMC, *Review of the regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, pp. 99-101.

Table C.1: Commission's recommended position on key consumer protections and reliability

CATEGORY	APPLICATION TO DNSP-LED SAPS
Retail price protections	• As the recommended SAPS service delivery model maintains access to retail competition, the Commission considers that additional retail price protections would not be required. • In areas with market competition, customers would have retailer choice and be able to 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.
Access to state-base energy concessions and rebates	• As the SAPS service delivery model recommended includes retail services being provided by an authorised retailer, 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 independent dispute resolution	• As SAPS customers will be supplied by a licensed DNSP and an authorised retailer who are required to be members of the jurisdictional energy ombudsman schemes, 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. • The Commission noted that 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 electricity supply	• The Commission recommended that DNSP's safety obligations should cover DNSP-led SAPS. • On the basis that 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. • In instances where these obligations, generally placed on DNSPs via jurisdictional safety Acts, Regulations, guidelines and licence conditions, do not automatically extended to DNSP-led SAPS, amendments should be made to extend the DNSP's safety obligations to DNSP-led SAPS.
Technical regulation such as equipment and performance standards	• The Commission recommended that amendments are made to extend the DNSP's obligations to cover DNSP-led SAPS as well as the interconnected grid. •

CATEGORY	APPLICATION TO DNSP-LED SAPS
	• However, the Commission did not carry out a detailed investigation of the technical regulations applying in each jurisdiction.
Ability to access land required for the supply of electricity	• 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.
Reliability	• For DNSP-led SAPS the Commission considered 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.
Other GSL categories	• The Commission's analysis suggested that GSL categories that apply in different jurisdictions, apart from interruption of supply, would be able to be applied to DNSP-led SAPS.

Source: AEMC

C.2.3 Commission's draft position and final proposed position

This section sets out the application of consumer protections for DNSP-led SAPS proposed by the Commission in the draft report. This has been retained as the Commission's final proposed position.

In large part, this reflects the recommendations in the SAPS priority 1 final report. High level analysis of each consumer protection regulated by jurisdictions suggested that many jurisdictional consumer protections may automatically apply to DNSP-led SAPS, as customers would continue to be supplied by their current DNSP and an authorised retailer.

The only area where there has been a change to the position proposed in the draft report relates to the application of technical and performance standards in the NER. These changes have been discussed in detail in Chapter 6.

Retail price protection

The Commission continues to consider that no additional retail price or competition protections would be required for customers supplied via a DNSP-led SAPS. This is on the basis that access to retail market competition will be maintained under the recommended SAPS service delivery model. Therefore, customers would have retailer choice and be able to access available market offers in the same manner as if they were grid-connected (where competition is available). In areas where there is jurisdictional price regulation, customers would continue to pay the regulated price. The application of the DMO is a matter for the Australian Government.[278]

Access to state-based energy concessions and rebates

The Commission also continues to consider that customers in DNSP-led SAPS should be eligible for jurisdictional concessions or rebates (if they were eligible and met other prerequisites) in the same way as a grid-connected customer.[279] Under the proposed service delivery model for DNSP-led SAPS, retail services would be provided by an authorised retailer. As such, DNSP-led SAPS customers would continue to remain eligible.

Access to independent dispute resolution

Customers in a DNSP-led SAPS should be able to access jurisdictional energy ombudsman schemes for independent dispute resolution. As the customer will be supplied by a licensed distribution business and an authorised retailer, each of which are required to be members of jurisdictional ombudsman schemes, SAPS customers are likely to be eligible. Jurisdictional regulatory instruments governing energy ombudsman schemes may need to be reviewed by each jurisdiction to confirm this is the case.

Safety of electricity supply

278 The DMO does not apply if the total number of consumers to whom electricity retailers supplied electricity in the region, and any interconnected distribution regions, in the previous financial year was less than 100,000. The implications of this for DNSP-led SAPS are unclear. Competition and Consumer (Industry Code - Electricity Retail) Regulations 2019.

279 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 in the draft report, the Commission continues to take the position that, if a SAPS is considered to be part of a distribution system, the DNSP's safety obligations should extend to the DNSP-led SAPS. In instances where they may not automatically extend to a DNSP-led SAPS, jurisdictions should look to make amendments to extend the DNSP's safety obligations to cover DNSP-led SAPS.

Technical regulation

The Commission continues to consider that DNSP-led SAPS customers should not be disadvantaged by any changes to power quality outcomes. The Commission's recommendations with regards to the technical and performance standards contained in the NER have already been set out in Chapter 6. However, as recommended in the SAPS priority 1 final report, jurisdictions will also need to review the relevant jurisdictional Acts, codes and licenses in respect of technical regulations and performance standards - including those governing power quality obligations - to ensure these are clear and fit-for-purpose in the context of SAPS.

Ability to access land required for the supply of electricity

As in the draft report, the Commission continues to be of the view that if the DNSP-led SAPS is considered to be a distribution system under the relevant jurisdictional definition, then it is likely that DNSP's land access rights would extend to maintaining DNSP-led SAPS and installing any associated distribution network.

Reliability

Network reliability, security and quality standards for with equivalent principles to those for grid-connected customers should apply to DNSP-led SAPS. 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 the 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.[280]

Although the Commission considers that the STPIS should encompass DNSPs' SAPS as well as their interconnected distribution networks, it is important to note that a DNSP's ability to comply with the scheme will, in some instances, be shaped by the operation of the generating unit. For example, there is the potential for the interruption of supply to a SAPS customer to be caused by a failure related to the generating unit. However, DNSPs will remain responsible for maintaining reliability outcomes under the scheme. The Commission notes that this may have implications for the requirements that DNSPs set out in contracting arrangements when engaging generation service providers.

Other GSL categories

As in the draft report, the Commission considers that GSL categories that apply in different jurisdictions, apart from interruption of supply, would be able to be applied to DNSP-led

280 For further detail on the extension of jurisdictional reliability standards and GSL schemes see AEMC, *Review of regulatory frameworks for stand-alone power systems - priority 1*, Final report, 30 May 2019, p. 99-101 and appendix B.

SAPS. Currently, in most jurisdictions, GSLs for unplanned supply interruptions apply to customers connected to DNSPs' distribution networks 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.

D OUTLINE OF PROPOSED CHANGES TO THE NER AND THE NERR

This appendix outlines the changes to the NER and the NERR that the Commission considers would be necessary to allow for DNSP SAPS to be implemented and regulated under those rules in the manner outlined in this 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 NER and the NERR. The proposed changes themselves are published with this report in the form of markup against the relevant provisions of the rules.

Table D.1: **Commentary on final proposed SAPS rules**

REFERENCE	EXPLANATORY NOTES AND COMMENTS
Chapter 2	
Overview	Four key activities need to be considered for Chapter 2 purposes. • **The ownership, operation or control of the distribution system elements in a regulated SAPS**: The relevant DNSP will already be registered under the NER for these activities. • **The ownership, operation or control of the generating unit (or units) supplying electricity to a regulated SAPS**: An exemption from registration under clause 2.2.1(c) can be sought in accordance with AEMO's guidelines, which AEMO will review to take into account generation connected to a regulated SAPS. • **The sale or purchase (through AEMO under Chapter 3 of the NER) of the electricity generated by, or used by, a SAPS generator**:**[1]** As explained below, it is proposed the person entitled to payment (or required to pay) will register using a new SAPS Resource Provider registration category. • **The purchase (through AEMO under Chapter 3 of the NER) of electricity consumed by customers in a SAPS**: A retailer, or customer buying from the NEM, will need to be registered under the NER as a Customer. A retailer will need a retailer authorisation under the National Energy Retail Law. [1] Purchases may occur in larger SAPS if there is more than one generating unit connected to the SAPS, and one or more of those units contain energy storage facilities that could be charged with energy from another generating unit.
2.2.1(c)	No change is proposed to this clause other than to include in the note a reference to the new SAPS Resource Provider category in new rule 2.3B. It is proposed that the transitional rules in Chapter 11 will require AEMO to

REFERENCE	EXPLANATORY NOTES AND COMMENTS
	review its generation exemption guidelines to take into account the changes to the Rules for regulated SAPS. Assuming the generation exemption guidelines apply in relation to small (<30 MW) generators connected to a regulated SAPS as they do to other generators: • generators smaller than 5 MW will be automatically exempt; and • an exemption would likely be available for a generator between 5MW and 30MW if there is a SAPS Resource Provider for the generator. The connection of larger generators (>30 MW) cannot be ruled out. Whether these are exempt will be for consideration by AEMO as part of its review of the guidelines. Even if not exempt, a SAPS Resource Provider could not participate in dispatch or the spot market in relation to a generating unit connected to a regulated SAPS – refer to proposed new rule 3.21. In accordance with clause 2.2.3(g), if an exemption under clause 2.2.1(c) applies, classification is not required under clauses 2.2.2 to 2.2.7. However, the generating unit may be classified as a market generating unit under new rule 2.3B.
2.3.4(c)	The load at a connection point in a regulated SAPS purchased other than from the Local Retailer will be classified as a market load under clause 2.3.4(a). It is proposed to change 'spot market' to 'market' in this clause since electricity supplied in a regulated SAPS is not purchased from the spot market. It is also proposed to include a reference to the arrangements under rule 3.21 in the definition of 'market' in Chapter 10.
2.3.4(d)	The amendment to paragraph (d) makes it clear that a load in a regulated SAPS cannot be classified as a scheduled load. This change is for the avoidance of doubt, as the load could not in any event participate in dispatch due to proposed new rule 3.21. No similar change has been proposed in clause 2.3.5 as (in the very unlikely event classification were to be sought) AEMO would be able to refuse consent to classification of a load connected to a regulated SAPS as an ancillary services load as the requirements in clause 2.3.5(e) will not be met.
2.3B.1	Rule 2.3A.1 has been amended to exclude registration as a Small Generation Aggregator in relation to small generating units connected to a stand-alone power system.
2.3B	New Rule 2.3B creates a new registration category, the 'SAPS Resource Provider'. Registration as a SAPS Resource Provider allows the output from a generating unit connected to the network in a regulated SAPS to be sold under Chapter 3 without imposing the full suite of obligations that apply in relation to generating units participating in central dispatch and the spot

REFERENCE	EXPLANATORY NOTES AND COMMENTS
	market. It is also flexible as the person who registers as the SAPS Resource Provider need not be the owner, operator or controller of the generating unit.[2] This category will be used to register the person entitled to payment from AEMO under Chapter 3 for the electricity generated by a generating unit in a regulated SAPS, or responsible for payment if the facility consumes electricity generated by other generators in the SAPS in any circumstances. This approach allows for flexible SAPS commercial models. For example, if permitted by a ring-fencing waiver, the DNSP could register as the SAPS Resource Provider even if it does not own or operate the generating unit. The new Rule will: • allow a person to register as a SAPS Resource Provider in relation to a generating unit connected to a SAPS, including both large and small generating units (clauses 2.3B.1(a) and (b)); • require a SAPS Resource Provider to register as a Market Participant (in the category Market SAPS Resource Provider) before selling the sent out generation at a connection point under Chapter 3 (clause 2.3B.1(c)); • also require the SAPS Resource Provider to classify the relevant connection point as a market connection point (clause 2.3B.1(c)) and classify its generating units connected to a regulated SAPS as market generating units (clause 2.3B.1(d)); and • require a SAPS Resource Provider to sell the output from the SAPS generating unit and buy any electricity consumed by the facility under Chapter 3 (clause 2.3B.2). [2] The owner, operator or controller of a non-exempt generating unit can be exempt from registration if it appoints an intermediary but remains jointly and severally liable for the acts of the intermediary.
2.4.1(a)(1C)	This new subparagraph adds 'Market SAPS Resource Provider' as a category of Market Participant.
2.4.2(c)(2B)	This new subparagraph requires a person to be a 'SAPS Resource Provider' before registration as a 'Market SAPS Resource Provider', consistent with the approach to other Market Participant registration categories.
2.10.1(d2)	This new subparagraph provides for AEMO to reject a notice from a Market SAPS Resource Provider to declassify a generating unit connected to a SAPS unless AEMO is satisfied someone else is taking responsibility for it under the Rules or it is being disconnected.
2.12(b)(1A)	A consequential change excludes generating units in a stand-alone distribution system from being treated as a generating unit of a Small Generation Aggregator.

REFERENCE	EXPLANATORY NOTES AND COMMENTS
2.12(b)(1C)	This new subparagraph provides for the interpretation of the term 'SAPS Resource Provider' to limit it to matters connected with its generating units or market generating units. This is consistent with the approach for other registration categories.
2.12(b)(7)(i3)	This new subparagraph provides for the interpretation of the term 'Market SAPS Resource Provider' to limit it to matters connected with its market generating units. This is consistent with the approach for other Market Participants.
Chapter 3	
Overview	Chapter 3 will apply in relation to a regulated SAPS as follows: • energy-related payments will be included in the calculation of settlement amounts; • energy-related payments will be calculated using a SAPS settlement price instead of the spot price; • losses and unaccounted for energy in a regulated SAPS will be allocated to connection points for market generating units supplying energy into the regulated SAPS; • the calculation of non-energy payments to be made by a Market SAPS Resource Provider or a Market Customer will not take into account energy supplied to or taken from a regulated SAPS. Much of Chapter 3 is concerned with pre-dispatch, the dispatch process and the determination of spot market prices and loss factors for connection points in the interconnected grid. These arrangements will not apply in respect of a regulated SAPS.
3.15 General principles	Rule 3.15 provides for the calculation of settlement amounts for energy (spot market transactions) and non-energy fees or charges. In relation to energy charges, refer to new rule 3.21. In relation to non-energy charges, it is intended that the calculation of energy quantities (such as AGE) under clause 3.15 will exclude quantities in a regulated SAPS. As a result, a Market SAPS Resource Provider for a SAPS-connected generating unit and the Market Customer for a connection point in a regulated SAPS will not have energy supplied to or from a regulated SAPS taken into account when calculating non-energy charges under clause 3.15. Similarly, for procurer of last resort (PoLR) cost allocation under clause 3.15.9A, changes to Chapter 4A exclude SAPS energy from the calculations.
New 3.21.1	This new clause explains how Chapter 3 applies to a regulated SAPS. • Paragraph (b) explains that rules 3.3 (prudentials), 3.15.12 to 3.15.25 (settlements), 3.19 (access to market management systems) and 3.21

REFERENCE	EXPLANATORY NOTES AND COMMENTS
	apply in respect of regulated SAPS, SAPS energy, SAPS Participants, SAPS facilities and connection points in a regulated SAPS. • Paragraph (c) excludes the application of the balance of Chapter 3.
New 3.21.2	This clause provides for calculation of the SAPS settlement price. The price will be calculated for each financial year and region as the time-weighted average spot price for the region for the preceding financial year.
New 3.21.3	For each trading interval, a trading amount will be calculated for SAPS connection points equal to the SAPS settlement price multiplied by the metered energy at the connection point. To allocate losses to market generating units in a regulated SAPS, the 'calculated metering data' would be used. This will be calculated by the Metering Data Provider using a method determined by AEMO and included in the metrology procedure, in accordance with clause 7.16.3(c)(6)(iv). The trading amount is then included in the calculation of an FRMP's settlement amount under clause 3.15.12(a).
Chapter 4	
4.1.2	A new clause carves out regulated SAPS from the operation of Chapter 4.
Chapter 4A	
Overview	The final report proposes that electricity supplied to a customer in a regulated SAPS should not be taken into account for the purposes of the Retailer Reliability Obligation, as the Retailer Reliability Obligation is principally concerned with reliability for customers connected to the interconnected national grid.
4A.A.4(b)(1)	The proposed amendment is intended to result in demand in a regulated SAPS being disregarded when calculating the peak demand for a region for a trading interval. Peak demand is defined in section 14C of the NEL as follows: '***peak demand***, for a period in a region, means the maximum electricity demanded, in megawatts, in the region during the period, determined in accordance with the Rules'.
4A.D.1	Part D of Chapter 4A defines who is a liable entity for a region (clause 4A.D.2) and this in turn depends on whether the person is 'registered as a *Market Customer* for a *connection point* in that *region* at the end of the contract position day'. Electricity supplied to a customer in a regulated SAPS should not be taken into account for the purposes of the Retailer Reliability Obligation. The proposed amendment to clause 4A.D.1 is intended to achieve this by

REFERENCE	EXPLANATORY NOTES AND COMMENTS
	providing that in Part D, a reference to a connection point does not include a connection point in a regulated SAPS.
4A.E.1 and 4A.E.2	No changes to these clauses are proposed. Clause 4A.E.1 provides for the AER's Contracts and Firmness Guidelines to include guidance for liable entities to determine whether a contract or arrangement is a qualifying contract. Clause 4A.E.2 specifies how the net contract position of a liable entity is determined. The provisions are concerned with a liable entity's exposure to the volatility of the spot price in a region. Consumption in a regulated SAPS is not exposed to the volatility of the spot price since price used to calculate trading amounts for those connection points is the SAPS settlement price. The final proposed provisions in Chapter 11 provide for the Contracts and Firmness Guidelines to be reviewed by the AER. Those Guidelines could clarify how clauses 4A.E.1 and 4A.E.2 apply in relation to consumption in a regulated SAPS, if required.
4A.E.7	Clause 4A.E.7 explains when a liable entity may apply to the AER for approval to adjust its net contract position for a region. This includes where the number of connection points for small customers or large customers (measured separately) in the region for which the liable entity is financially responsible changes the liable entity's expected maximum demand by more than 10%. No amendment to this clause is proposed on the basis that connection points in regulated SAPS will not be taken into account in determining the liable entity's expected maximum demand, as this in turn relates to its net contract position which, as described above, is concerned with a liable entity's exposure to the volatility of the spot price in a region.
4A.F.1	Part F of Chapter 4A deals with compliance with the Retailer Reliability Obligation and for that purpose, defines a liable entity's liable load (clause 4A.F.3). New paragraph 4A.F.1(c) makes it clear that (as in Part D), a reference to a connection point in Part F does not include a connection point in a regulated SAPS and (to avoid doubt) would state that the adjusted gross energy at a connection point in a regulated SAPS must not be taken into account in determining liable load for a compliance TI.
Chapter 5 Parts B and C- Connection applications and obligations of connected parties	
Overview (as reflected in the table in	The connection framework in Chapter 5 will not apply to any SAPS connection. Only Chapter 5A will apply. This is intended to operate as follows:

REFERENCE	EXPLANATORY NOTES AND COMMENTS
clause 5.1.2)	• For the 'connection' of the generating unit that enables the conversion to a SAPS to occur: Assuming the DNSP runs a procurement process for that generation, the likely result is a connection agreement and a service agreement between the DNSP and the owner of the generation. However, this does not require an 'application to connect' process to be followed under Chapter 5 nor does it require the connection to be governed by the technical requirements in Schedule 5.2 in Chapter 5. To the extent the NER connection rules are relevant to this process, Chapter 5A will apply. • For a connection by a third party to the regulated SAPS: Chapter 5 does not provide a suitable framework for connection of a facility to a SAPS, as Chapter 5 is intended principally for connections by Registered Participants to the interconnected network and includes processes and technical requirements directed at system security issues. Chapter 5A is the appropriate framework for a third-party generator or customer to apply to connect to a regulated SAPS.
5.1.3	This clause is intended to carve out connections to a regulated SAPS from the scope of Chapter 5, while also preserving the general obligations of DNSPs in relation to the quality and reliability of supply in a regulated SAPS. The clause has two parts as follows: • Rules 5.3 and 5.3A do not apply: All applications to connect to a regulated SAPS will be subject to Chapter 5A. Chapter 5A will be amended to provide that in the case of an application to connect an embedded generator to a regulated SAPS, no election to proceed under rule 5.3A of Chapter 5 is available. • Part C does not apply. Part C deals with post connection agreement matters that are not appropriate for a connection to a regulated SAPS.
5.2.3	In general, the obligations of a DNSP with respect to its network will continue to apply to a DNSP in relation to its regulated SAPS. However, to the extent that these require compliance with the power system performance and quality of supply standards in Schedule 5.1 (such as clause 5.2.3(b)), an amendment to Schedule 5.1 will clarify that the provision does not apply in relation to a regulated SAPS.
5.2.3(e)	A DNSP will not be required to arrange for operation of a regulated SAPS in accordance with instructions given by AEMO. Although this may seem self-evident, the clause is a civil penalty provision and so an amendment is proposed to clarify that the obligation in paragraph (e) does not extend beyond the interconnected grid.
5.3 and 5.3A	As provided for in new clause 5.1.3, neither of these rules will apply in relation to a connection to a regulated SAPS.

REFERENCE	EXPLANATORY NOTES AND COMMENTS
5.3A.2	A consequential change uses the new term 'industry engagement document'; refer to the changes to Part D of Chapter 5.
Part C: Post connection matters	As provided for in new clause 5.1.3, none of Part C will apply in relation to a connection to a regulated SAPS.
Chapter 5 Part D – Network Planning and Expansion	
General principles	It is proposed to amend Part D to: • extend the demand side engagement provisions to cover industry participants interested in proposing, or tendering for, regulated SAPS solutions; • include new requirements for DNSPs to prepare and publish the performance and quality of supply standards applicable in its regulated SAPS; and • include new requirements for engagement with customers and other affected persons before implementing a regulated SAPS. The extended scope of Part D will only apply in relation to networks located in participating jurisdictions that have opted in to the DNSP-led SAPS under the NEL. Under proposed amendments to the NEL, the NEL will allow opt-in for specific networks or network areas. The proposed rule drafting is intended to be sufficiently flexible to accommodate either approach.
5.10.2 Definitions – industry engagement	A new term 'SAPS option' will be included (in Chapter 10) to mean a proposal for a regulated SAPS and the terms 'network option' and 'non-network option' will be amended to carve out SAPS options. In the local definitions in clause 5.10.2: • 'demand side engagement' has been replaced with the term 'industry engagement', to reflect the extended scope of the demand side engagement provisions and avoid confusion with the customer engagement arrangements; • the term 'non-network provider' will be retained but extended to persons providing SAPS support services through changes to the definition of 'non-network options' – refer to the definition below; and • the RIT-D process will apply to a proposed regulated SAPS solution, and so the non-network options report has been renamed the 'options screening report'.
5.10.2 and Chapter 10 Definitions – SAPS	Chapter 10 will include a definition of 'DNSP-led SAPS project', to refer to a project undertaken or proposed to be undertaken by a DNSP to address system limitations identified by a DNSP and that involves the planning, development, construction and commissioning of a regulated SAPS. It will also include a definition of 'adoptive SAPS network' to refer to a particular

REFERENCE	EXPLANATORY NOTES AND COMMENTS
customer engagement	network for which a participating jurisdiction has authorised the use of a regulated SAPS solution. The local definitions in clause 5.10.2 will include: • affected network user (to cover the network users in the part of the network to be converted, and landowners); • landowner (the owner or lessee of land); • SAPS customer engagement document; • SAPS customer engagement objectives (to cover the provision of relevant and timely information about DNSP-led SAPS and SAPS development processes, and timely and effective consultation during project planning, development, construction and commissioning); and • SAPS customer engagement strategy (covering the strategy to be developed under clause 5.13B.2).
5.10.2 Definitions – SAPS technical standards	As described below, new clause 5.13B.1 will require a DNSP to set the performance and quality of supply standards for its regulated SAPS. The published document is the DNSP's 'SAPS performance and supply standards'. In doing so, it must have regard to the 'SAPS quality of supply principle'. This new defined term requires the quality and reliability of supply experienced by a Distribution Customer in a regulated SAPS to be no worse than the quality and reliability of supply that the Distribution Customer would experience if the connection point were in a part of the distribution network forming part of the interconnected national electricity system.
5.11.2(b)	A consequential change extends the clause to contingencies specified in SAPS performance and supply standards.
5.13.1(e) to (j)	In addition to using the new defined terms mentioned above, it is proposed to amend these to: • extend the scope of the strategy referred to in paragraph (e) to consideration of SAPS options, for networks that have been opted in to the regulated SAPS arrangements; and • remove the date for publication of the strategy document (since it currently refers to a date in 2013) and instead specify in Chapter 11 the date by which a revised strategy document must be published once a network has been opted in.
New 5.13B	A new rule 5.13.B will cover matters relating to conversion to a regulated SAPS.
New 5.13.B.1	Before converting any part of its network to a regulated SAPS, a DNSP will be required to develop and publish on its website performance and quality of supply standards for its regulated SAPS. The new term 'SAPS performance

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	and supply standards' refers to these standards made by a DNSP. In developing or amending SAPS performance and supply standards, the DNSP must comply with Schedule 5.13 and with the Rules consultation procedures (paragraph (b)). The DNSP must also take into account the 'SAPS quality of supply principle' and the other principles in paragraph (d), which are based on the principles described at the commencement of Schedule 5.1a. A DNSP must ensure that the SAPS performance and supply standards are in accordance with good electricity industry practice (paragraph (e)). A DNSP will be required to comply with its SAPS performance and supply standards or (if higher standards are set in a connection agreement), the standards in the connection agreement (paragraph (f)). Paragraphs (j) and (k) confirm that the DNSP and a Network User may negotiate higher standards. A DNSP will be required to establish a program to monitor performance of its regulated SAPS against the SAPS performance and supply standards (paragraphs (g) and (h)). The DNSP will be required to publish information about its performance monitoring program on its website (paragraph (h)(4)) and keep records, which must be provided to the AER on request (paragraph (i)).
New 5.13B.2 to 5.13B.4.	The remaining clauses in new rule 5.13B cover: • the obligation of a DNSP for a network that is permitted by a participating jurisdiction to establish regulated SAPS to develop a SAPS customer engagement strategy and publish it in a SAPS customer engagement document; • matters the DNSP must have regard to when developing the SAPS customer engagement document; • power for the AER to publish guidelines about the content of a SAPS customer engagement document; • the obligation of a DNSP to give notice of a proposal to convert a part of a network to a regulated SAPS in accordance with its SAPS customer engagement document, including the content of the notice, who it must be given to and the obligation to allow time to respond; and • an exception to the obligation to give the notice where the regulated SAPS is required to address an urgent and unforeseen network issue, for example if the regulated SAPS will replace facilities damaged by bushfire.
5.14.1(d)(4)	A consequential amendment uses the new defined term.
5.15.2	A drafting change in paragraph (a) makes it clear that regard must be had to all relevant matters in clause 5.15.2, rather than limiting the cross reference

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	to (b) or (d). Paragraph (c) has been amended to include a reference to SAPS options.
5.17.1(c)(7)	A consequential amendment uses the new defined term.
5.17.1(d)	Change to provide that a RIT-D proponent must (rather than may) quantify all classes of market benefit for RIT-D purposes, where material or where to do so may alter the selection of the preferred option.
5.17.4	Consequential amendments to the clause use the new terms such as 'industry engagement register' and 'options screening report' and extend the scope of the clause to consideration of SAPS options in adoptive SAPS jurisdictions.
5.18B.1	Consequential amendments clarify that the register of completed embedded generation projects is to include embedded generators forming part of a regulated SAPS.
Schedule 5.1a (the system standards)	A new paragraph added to the end of clause S5.1a.1 states that Schedule 5.1a does not apply to a regulated SAPS.
Schedule 5.1	A new paragraph added to the end of clause S5.1.1 states that Schedule 5.1 does not apply to a regulated SAPS.
Schedule 5.2	As a result of new clause 5.1.3, this schedule does not apply in relation to generation connections in a regulated SAPS.
Schedule 5.3	New clause S5.3.1a(f) specifies that the schedule does not apply in relation to a Network Service Provider or a Network User in relation to a connection to a regulated SAPS.
Schedule 5.8 DAPR	New paragraph (d1) provides for the DAPR for an adoptive SAPS network to include information on system limitations in the forward planning period for which a potential solution is a regulated SAPS, including estimates of the location and timing of the system limitation and a brief discussion of the types of potential stand-alone power systems that may address the system limitation. New paragraph (l)(1)(iii) provides for information on a DNSP's demand management activities to include actions taken to promote SAPS proposals, where the network is an adoptive SAPS network. New paragraph (o) provides for reporting on DNSP-led SAPS projects, including the total number of regulated SAPS in a DNSP's network and the number of retail customer premises served by them.
Schedule 5.9 Demand side engagement document	The schedule has been re-named to use the new term 'Industry engagement document' and similar consequential changes have been made throughout. The scope of the schedule has been extended to cover proposals relating to DNSP-led SAPS projects.

REFERENCE	EXPLANATORY NOTES AND COMMENTS
Schedule 5.13	New Schedule 5.13 sets out the required content of a DNSP's SAPS performance and supply standards. A DNSP's SAPS performance and supply standards are intended to perform the role that Schedules 5.1a and 5.1 perform for distribution systems that are part of the interconnected national electricity system. Accordingly, the SAPS performance and supply standards must include the following: • Standards for the performance of a regulated SAPS covering each of the parameters in table S5.13.1 and including at a minimum the information specified in that table. The table follows the topic headings and content of Schedule 5.1a, where applicable to a regulated SAPS. • The planning, design and operating standards and requirements for coordination with Network Users that the DNSP will apply in relation to its regulated SAPS, which are expected to correspond to relevant matter in Schedule 5.1. To reflect the approach in Schedule 5.1 (as described in the introduction to that schedule), the DNSP is to apply these standards and requirements to achieve adequate levels of network power transfer capability and quality of supply in its regulated SAPS, to achieve a specific level of network service at an individual connection point in a regulated SAPS and to observe and apply the quality of supply and system standards for the regulated SAPS. In addition, the DNSP must specify in the SAPS performance and supply standards the contingencies it will take into account in the planning and design of a regulated SAPS.
Chapter 5A	
Overview	The final report proposes that only Chapter 5A will apply where a person is seeking connection to a regulated SAPS. Chapter 5A (in its current form) does not apply to applications for connection by a Registered Participant or Intending Participant (clause 5A.A.2). It is proposed to amend Chapter 5A so that it applies where a Registered Participant or Intending Participant is seeking connection to a regulated SAPS. This might occur where, for example, a customer wishes to buy from the NEM at the SAPS settlement price. For connection charging purposes, Registered Participants and Intending Participants will be treated in the same category as real estate developers.
existing connection	Refer to the notes about new clause 5A.A.5 below.
new connection	Refer to the notes about new clause 5A.A.5 below.
retail	A new paragraph extends the definition to a Registered Participant or

REFERENCE	EXPLANATORY NOTES AND COMMENTS
customer definition	Intending Participant in relation to a regulated SAPS. This in turn extends the meaning of terms such as 'connection applicant'.
5A.A.2(a)	The amendment allows Chapter 5A to apply where a Registered Participant or Intending Participant is seeking connection to a regulated SAPS.
5A.A.2(c)	This clause allows certain non-registered embedded generators to elect to seek connection under Chapter 5, rather than 5A. A new sentence provides that this election is not available for a connection to a regulated SAPS.
New 5A.A.4	This clause provides for a Market SAPS Resource Provider to be deemed to be the agent of a retail customer whose premises are connected to a stand-alone distribution system. It is based on the similar provision for Market Small Generation Aggregators in clause 5A.A.3.
New 5A.A.5	This clause prohibits a DNSP from establishing a 'new connection' to its network by converting a part of its network to a regulated SAPS or establishing a new regulated SAPS. A 'new connection' is defined in Chapter 5A as 'a connection established or to be established, in accordance with this Chapter and applicable energy laws, where there is no existing connection'. The term 'connection' is defined in Chapter 5A as 'a physical link between a distribution system and a retail customer's premises to allow the flow of electricity'. The definition of 'distribution system' in Chapter 10 requires there to be a connection to another distribution system (or for the system to be part of a regulated SAPS, which is not relevant for present purposes). Where a network has been damaged by fire or flood, a part of the network may be temporarily disconnected from the rest of the national grid and so if a DNSP considers that this raises doubt about whether it is an 'existing connection' for the purposes of the definition of 'new connection', the DNSP may be unwilling to convert what was an existing connection in a damaged part of its network to a regulated SAPS due to clause 5A.A.5. As it is not intended that the prohibition in new clause 5A.A.5 should have that result, a new term 'existing connection' has been added to Chapter 5A and the new defined term is now used in 'new connection' and 'connection alteration'.
5A.D.1(a)(3)	The amendment corrects the use of italics for the defined term.
New 5A.D.1(a)(8)	Clause 5A.D.1 lists information relating to connections that a DNSP must publish on its website. New subparagraph (a)(8) includes the SAPS performance and supply standards made by the DNSP under Chapter 5.
5A.E.1(b)	The amendment allows for Registered Participants and Intending Participants to be required to contribute to the cost of augmentation of a regulated SAPS.

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5A.E.1(c)(5)	The amendment allows for Registered Participants and Intending Participants to be required to contribute to the cost of augmentation of a regulated SAPS.
5A.E.3(c)(4)	The amendment excludes Registered Participants and Intending Participants from the arrangements under which the AER sets a threshold below which retail customers are exempt from any requirement to pay connection charges.
5A.E.4(c)	Additional words allow for invoices to be sent to a Registered Participant or Intending Participant.
Chapter 6	
New 6.2.1A	This deals with classification of distribution services provided in relation to a SAPS and inputs to those services. The proposed new clause takes into account the approach described by the AER in its Electricity Distribution Service Classification Guideline (September 2018) and provided for in clause 6.2.3A(b)(4) under which the Guidelines distinguish between services (which the NER permits to be classified) and inputs (which are not classified under the NER) such as the capital and operating inputs that contribute to the provision of a service. The principles in clause 6.2.1A can be summarised as follows: • For distribution services provided in a regulated SAPS that are also provided in non-SAPS networks, the same classification must be applied (paragraph (b)). • If activities or expenditure of a DNSP in establishing and maintaining a regulated SAPS do not fall within one of those service classifications, they must be classified as a standard control service or treated as an input used to provide a standard control service (paragraph (c)). • Providing, or arranging for the provision of, services or facilities (including a generating system) required for supply to a Distribution Customer by means of a stand-alone distribution system should be treated as an input used to provide a distribution service (subparagraph (d)(1)). • The production of electricity for supply to a stand-alone distribution system is not a distribution service or an input used to provide a distribution service (subparagraph (d)(2)). A note confirms that a DNSP who proposes to own, operate or control a generating system in a regulated SAPS (instead of using a related entity or a third party to provide a generation service) will need to have regard to the ring fencing rules in the Distribution Ring-Fencing Guidelines.
6.2.3A(b)(4)	The new subparagraph requires the Distribution Service Classification Guidelines to explain the AER's proposed approach to applying the principles

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	in cl 6.2.1A when classifying services provided by means of, or in relation to, a stand-alone distribution system in a regulated SAPS.
6.4.4(c)(3) and (f)	If a DNSP (pursuant to a ring-fencing waiver) owns and operates the generating system in a regulated SAPS, the generating system may form part of the DNSP's regulatory asset base. As the generating system is providing two services (the provision of a generating system at a specific location to enable supply to a Distribution Customer by means of a stand-alone distribution system, and the production of electricity by means of that generating system) the asset is a shared asset. New paragraph (f) confirms that the clause extends to these generation systems. The amendment to paragraph (c)(3) ensures that the recovery of market revenue is not subject to a materiality threshold.
6.5.6(e)(10)	Under the amended clause, the AER is to consider the extent the DNSP has considered, and made provision for, efficient and prudent non-network options or SAPS options.
6.5.7(e)(10)	Under the amended clause, the AER is to consider the extent the DNSP has considered, and made provision for, efficient and prudent non-network options or SAPS options.
6.5.8(c)(5)	Under the amended clause, the AER is to consider the possible effect of the scheme on incentives for the implementation of non-network options or SAPS options.
6.6.2(b)(3)(vii)	Under the amended clause, the AER is to consider the possible effect of the scheme on incentives for the implementation of non-network options or SAPS options.
6.6.3(b)	Under the amended clause, the objective of demand management incentive scheme objective is extended to incentives to undertake efficient expenditure on relevant non-network options, or SAPS options, relating to demand management.
6.6.3(c)(2)	Under the amended clause, the scheme should reward DNSPs for implementing relevant non-network options, or SAPS options, that deliver net cost savings to retail customers.
6.6.3(c)(3)	Under the amended clause, a demand management scheme should balance the incentives between expenditure on network options and non-network options, or SAPS options, relating to demand management.
6.6.3(c)(7)(i)	The amendment extends the clause to SAPS options and clarifies that the reference is to non-network options, or SAPS options, relating to demand management (consistent with clause 6.6.3(c)(3)).
6.6.3A(c)(2)(ii)	As for 6.6.3(c)(7), the amendment clarifies that the reference is to non-network options, or SAPS options, relating to demand management.

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6.7A.1(a) and (b)(2)(v)	Consequential amendments to these clauses reflect the changes in Chapter 5A which give an extended meaning to 'retail customer' in some circumstances and exclude Registered Participants and Intending Participants from the threshold set by the AER.
6.18.4(a)(4)	The new subparagraph includes a new principle applicable when the AER is formulating provisions of a distribution determination governing the assignment of retail customers to tariff classes or the re-assignment of retail customers from one tariff class to another. The principle is that retail customers connected to a regulated SAPS should be treated no less favourably than retail customers connected to the interconnected national electricity system.
Chapter 7	
7.10.1(a)(4A)	This new clause adds a reference to the role of the Metering Data Provider in calculating, validating, estimating and substituting the metering data for a metering installation in a regulated SAPS.
7.10.2(a)(3) and (4) 7.10.2(e) 7.10.3(a) 7.11.1(d)(1)	These provisions refer to the persons permitted to access information in the metering database under clauses 7.15.5(c)(1) to 7.15.5(c)(5a). This covers all the categories in clause 7.15.5(c) other than the AER and Jurisdictional Regulators under subparagraph (6). To simplify the drafting, subparagraph (6) in clause 7.15.5(c) will be moved to a new clause 7.15.5(ca) and the cross reference will be changed to 'clause 7.15.5(c)'. A consequential change will be made in the introduction to clause 7.15.5(c).
7.10.2(b1)	This new paragraph will require Metering Data Providers accredited for metering installations in a regulated SAPS to maintain techniques for determining calculated metering data for metering installations that are exporting to the regulated SAPS in accordance with the metrology procedure. This will support the operation of clause 7.16.3(c)(6)(iv).
7.10.5(a)(2A)	New subparagraph (2A) inserts a requirement for the Metering Data Provider for market generating units that supply electrical energy to a stand-alone distribution system in a regulated SAPS to collate metering data into trading intervals.
7.15.5(c)(4a)	This new paragraph allows the Metering Data Provider (or former Metering Data Provider) for a connection point for a generating unit in a regulated SAPS to have access to the metering data for any other connection point in the same regulated SAPS.
7.15.5(c)(5a) and (6)	Subparagraph (5a) will be renumbered as subparagraphs (6) and subparagraph (6) will be moved to a new paragraph (c1).
7.16.3(c)(6)(iv)	This new subparagraph requires the metrology procedures to include the method by which electrical losses or unaccounted for energy in a regulated SAPS will be allocated to market connection points for market generating

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	units in the regulated SAPS on affair and reasonable basis. The method will be used by the Metering Data Provider to determine the calculated metering data for a connection point for a market generating unit in a regulated SAPS.
S7.2.3	The change allows for a new category of registration for Metering Data Providers that will engage in the remote acquisition, calculation, processing and delivery of calculated metering data for market connection points for market generating units in a regulated SAPS. A consequential change has been made to Category 7D, due to the change to the definition of calculated metering data.
Chapter 10	
adoptive SAPS network	This new definition is used to identify a distribution network that has been opted-in to the new framework by a participating jurisdiction. The term applies to a network if the law of the participating jurisdiction provides for a particular stand-alone power system, or a class of stand-alone power systems, to form part of the national electricity system.
calculated metering data	Amended to include a reference to the calculated metering data to be calculated by a Metering Data Provider for a market connection point for a market generating unit in a regulated SAPS in accordance with the method specified by AEMO in the metrology procedure in accordance with clause 7.16.3(c)(6)(iv).
distribution system	Amended to specify that a distribution system includes the distribution network and connection assets comprised in a regulated SAPS.
DNSP-led SAPS project	The new definition is used in Chapter 5 to describe a project to implement a regulated SAPS undertaken by a DNSP to address system limitations.
good electricity industry practice	The term 'power system' will be replaced with the term 'national electricity system'. A note in the definition confirms that 'national electricity system' includes regulated SAPS. It is expected that the note can be removed when the changes to the National Electricity Law for DNSP-led SAPS are in final form, as it is likely that under the Law, the term 'national electricity system' will be extended to include regulated SAPS. This change follows from the requirement in Chapter 5 that a DNSP must ensure that its SAPS performance and supply standards are in accordance with good electricity industry practice.
market	The amendment specifies that a 'market' includes the arrangements in Chapter 3 for supply and purchase of electricity in a regulated SAPS. The term 'market' is used in Chapter 2 to define the scope of some obligations under that Chapter.
Market Participant	The amendment adds 'Market SAPS Resource Provider' as another category of Market Participant.

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Market SAPS Resource Provider	This new definition is modelled on the definition of 'Market Small Generation Aggregator'. It refers to a SAPS Resource Provider registered as a Market Small Generation Aggregator and so able to buy and sell electricity under Chapter 3.
national grid	Amended to include regulated SAPS within the scope of the term. These would otherwise be excluded as they are not connected within the meaning of the current definition. One provision has been amended in Chapter 5 to avoid an unintended consequence arising from this amendment.
network option	A consequential amendment is proposed to exclude a SAPS option from the scope of the definition. The term is used in the context of distribution network planning under Part D of Chapter 5. This amendment, together with the amendment to non-network option and the new definition of SAPS option, is intended to result in the following three categories for the purposes of those provisions: • network options • SAPS options • non-network options.
non-network option	A consequential amendment is proposed to clarify that a non-network option is an option that is not a network option or a SAPS option.
power system	An amendment is proposed to carve out regulated SAPS. The term is principally used in the context of provisions directed at system security, which are not intended to apply in relation to regulated SAPS.
regulated SAPS, regulated stand-alone power system	A regulated SAPS will be: • a stand-alone power system implemented as part of a DNSP-led SAPS project; or • an existing stand-alone power system of a DNSP designated by a law of a participating jurisdiction to be a part of the national electricity system.
SAPS energy	This definition is used in new rule 3.21 to carve out SAPS energy from scheduling, dispatch and spot market operations under Chapter 3. It describes electrical energy flowing at a connection point (including a child connection point) in a regulated SAPS.
SAPS facility	This definition is used in new rule 3.21 to carve out SAPS facilities from scheduling, dispatch and spot market operations under Chapter 3. It describes a facility comprised in or connected, directly or indirectly, to a regulated SAPS.
SAPS option	The term is used in the context of distribution network planning under Part D of Chapter 5 and, consistent with the definition of 'network option', is

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	proposed to be defined as a means by which an identified need can be fully or partly addressed by converting a part of a distribution network to a regulated SAPS.
SAPS Participant	This definition is used in new rule 3.21 to carve out SAPS Participants from scheduling, dispatch and spot market operations under Chapter 3. It refers to a Registered Participant in its capacity as: • the owner, operator or controller of a SAPS facility; or • the financially responsible Market Participant in respect of a connection point in a regulated stand-alone power system.
SAPS performance and supply standards	This new definition refers to the standards for performance and quality of supply for a regulated SAPS developed and published by a DNSP in accordance with clause 5.13B.1.
SAPS Resource Provider	This new definition is modelled on the definition of 'Small Generation Aggregator' and applies to a person supplying electricity from a generating unit in a SAPS and who is registered with AEMO as a SAPS Resource Provider.
SAPS settlement price	The term is used in new rule 3.21 and is proposed to mean, for a trading interval, the price determined in accordance with clause 3.21.3 to be the SAPS settlement price for the financial year in which the trading interval falls.
stand-alone distribution system	This new definition refers to a distribution system that does not form part of the interconnected national electricity system.
stand-alone power system	This new definition refers to a stand-alone distribution system and the generating systems and other facilities connected to the stand-alone distribution system.
transmission or distribution system	Under the current Rules, this only covers the interconnected national electricity system. It is proposed to amend this term to include a regulated SAPS.
Chapter 11	
AEMO-made instruments	The second clause in the new Part lists the instruments for review by AEMO and amendment if needed, before the effective date. These are proposed to be: • the generator registration exemption guidelines made by AEMO under clause 2.2.1(c); • the credit limit procedures made by AEMO under clause 3.3.8(c); • the Market Management Systems Access Procedures; • the PoLR costs procedures;

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	• the Reliability Forecast Guidelines; • the metrology procedure; and • the service level procedures. In addition, AEMO must consider whether guidelines made under clause 7.16.8 in consultation with the National Measurement Institute need to be amended and (if so) consult again with the National Measurement Institute.
AER-made instruments	The third clause in the new Part lists the instruments for review by the AER and amendment if needed, before the effective date. These are proposed to be: • the regulatory investment test for distribution application guidelines made by the AER under clause 5.17.2; • the connection charge guidelines made by the AER under clause 5A.E.3; • the Distribution Service Classification Guidelines; • the Asset Exemption Guidelines; • the Cost Allocation Guidelines; • the Distribution Ring-Fencing Guidelines; • the Distribution Reliability Measures Guidelines; • the Forecasting Best Practice Guidelines made by the AER under clause 4A.B.5; • the Contracts and Firmness Guidelines made by the AER in accordance with clause 4A.E.8; • the Reliability Compliance Procedures and Guidelines (as defined in the National Electricity Law); and • the MLO Guidelines made by the AER under clause 4A.G.25.
Shared Asset Guidelines	If a DNSP (pursuant to a ring-fencing waiver) owns and operates a generating system in a regulated SAPS, the generating system may form part of the DNSP's regulatory asset base and so the DNSP will earn a rate of return on the investment as part of its regulated revenue. In addition, as the financially responsible market participant for the distribution system, the DNSP will earn revenue from the sale of electricity to the market under Chapter 3. The calculations are in clause 3.21.3 and provide for payments by AEMO for electricity generated by a generating system in a regulated SAPS and for payments to AEMO where the generating system is consuming electricity, for example if it is charging batteries using electricity produced elsewhere in the regulated SAPS. The net amount calculated under clause 3.21.3 should be deducted from the DNSP's revenue allowance. The proposed amendments to clause 6.4.4 allow the AER to provide for this deduction through the Shared Asset Guidelines.

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	The fourth clause in this new Part in Chapter 11 requires the AER to review the Shared Asset Guidelines to provide for this outcome. As this is not required to occur until 2025, the clause also requires the net generating revenue to be deducted on a backward-looking basis when a new distribution determination is made for a DNSP that has any generating systems in regulated SAPS in its regulatory asset base.
Industry engagement obligations	Where a jurisdiction opts a DNSP's network into the new arrangements, the DNSP will need to review its demand side engagement document (now the industry engagement document) and make its initial SAPS customer engagement strategy and initial SAPS customer engagement document. It is proposed that the DNSP will have at least 6 months after the opt-in legislation is made (but with no extension if the opt-in comes into effect some time after it is made) and that the earliest compliance date will be when the opt-in comes into effect.
National Energy Retail Rules	
3	An amendment will specify that the temporary unavailability or temporary curtailment of the supply of energy to a customer's premises to implement a regulated SAPS conversion is an interruption the purpose of the NERR and the Law (and not a de-energisation or disconnection). The provisions in the NERR dealing with interruptions, such as notice requirements, will apply.
88	The definition of 'distributor planned interruption' will be extended to include an interruption for conversion to a regulated SAPS.

Source: AEMC