

Australian Energy Market Commission

CONSULTATION PAPER

DISTRIBUTED ENERGY RESOURCES INTEGRATION - UPDATING REGULATORY ARRANGEMENTS

PROPONENTS

SA Power Networks
St Vincent de Paul Society Victoria
Total Environment Centre and Australian Council of Social Service

30 JULY 2020

RULE

INQUIRIES

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ABOUT THE AEMC

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

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1 OVERVIEW AND INTRODUCTION

In July 2020, the Australian Energy Market Commission (the Commission) received three rule change requests that aim to better facilitate the efficient integration of distributed energy resources (DER) for the grid of the future. The four proponents are SA Power Networks (SAPN), the St Vincent de Paul Society Victoria (SVDP), and Total Environment Centre (TEC) together with the Australian Council of Social Service (ACOSS). They submitted rule change requests seeking to amend the National Electricity Rules (NER) applying to the economic regulation of distribution network service providers (DNSPs) in the National Electricity Market (NEM).

This consultation paper commences the process of considering these rule change requests. The Commission is seeking feedback on the issues and possible solutions identified by the four proponents, as well as alternative options that may better promote the National Electricity Objective (NEO).

1.1 Reforming the regulatory framework to support sector transformation

The way customers interact with the electricity system is transforming in response to new technology and market developments, and climate change concerns. Households and small businesses are increasingly investing in DER. DER is generally located at a customer's premises and can include rooftop solar PV (which has seen rapid growth), energy storage (such as batteries), demand response, energy management systems and electric vehicles. The uptake of DER is expected to continue with AEMO predicting the amount of DER to double or even triple by 2040.¹

Increasing uptake of DER and changing consumer preferences in the way they interact with the energy system are re-defining the role of DNSPs. DNSPs are expected to facilitate the two-way flow of energy, rather than only the one-way consumption of energy – which has been their traditional role and is reflected in the regulatory arrangements.

The Commission's *2019 Economic regulatory framework review* identified there is a significant risk that the regulatory framework will not continue to promote efficient investment in, and operation and use of, energy services. The Commission called for reforms so that regulations can support the transition to a fully integrated electricity system that takes advantage of opportunities presented by a high DER future, and deliver benefits to all electricity system users.

These three rule changes are submitted in response to the Commission's call for reforms, and draw on a nine-month consultation process that was conducted as part of ARENA's Distributed Energy Integration Program (DEIP).² The consultation process was led by a steering group of consumer representatives, industry association and market bodies, and saw

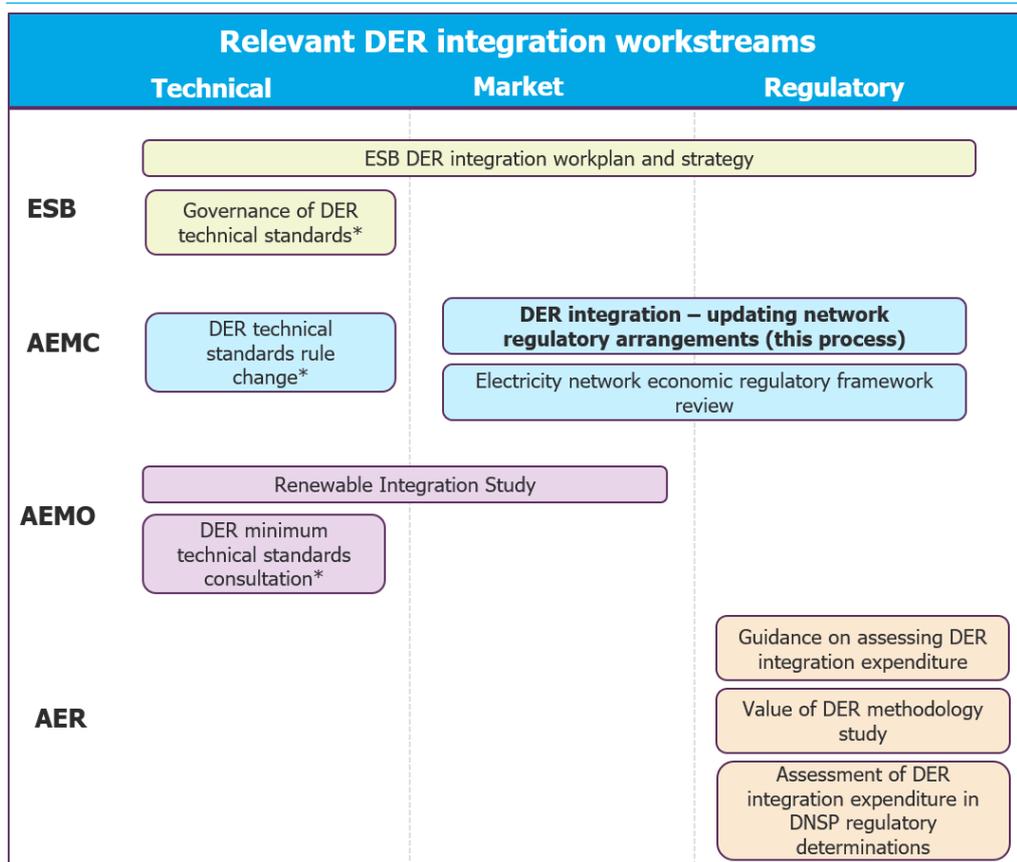
¹ AEMO, Draft 2020 Integrated System Plan, December 2019, pp. 3–4.

² DEIP is a collaboration of government agencies, market authorities, industry and consumer associations aimed at maximising the value of DER for all energy users.

a wide range of stakeholders collaborating to develop and test access and pricing reform options, and to identify consensus on needed reforms and principles.³ The Commission's rule change process is a continuation of this work.⁴

DEIP sits within a broader program of work underway by the energy market bodies to integrate DER into the energy system – with the aim of maximising the benefits for all consumers regardless of whether they have access to DER (Figure 1.1). The Energy Security Board (ESB) in particular plays an important role in coordinating the reforms undertaken by all parts of the industry. It has formed a steering committee⁵ dedicated to coordinating DER integration and has developed an integration work plan.⁶

Figure 1.1: Broader DER work program



Source: AEMC

Note: *These are concurrent work streams in a work package undertaken by the ESB, AEMC and AEMO on DER technical standards.

3 This consultation gave stakeholders an opportunity to participate in three large workshops and six more technical 'Reference Group' meetings, and provide written submissions. Over 120 stakeholders participated in this consultation process – informing five reports.

4 See: www.arena.gov.au/knowledge-innovation/distributed-energy-integration-program/

5 The committee comprises of representatives from the ESB, AEMC, AEMO and AER.

6 See: www.coagenergycouncil.gov.au/energy-security-board/distributed-energy-resources

1.2 Proposed reforms

The proponents consider the current regulatory framework is no longer fit-for-purpose. The three rule change proposals aim to unlock the benefits of DER by identifying reform options that promote greater flexibility for the Australian Energy Regulator (AER) and DNSPs to efficiently manage each jurisdiction's circumstances and meet consumer preferences. An overview of the proposals is provided in Chapter 2 and our assessment framework is set out in Chapter 3. The proposals focus on three key areas:

1. Updating the regulatory framework to reflect the community expectation for DNSPs to efficiently provide export services to support DER (see Chapter 4)
2. Promoting incentives for efficient investment in, and operation and use of, export services (see Chapter 5)
3. Enabling export charges as a pricing tool to send efficient signals for future expenditure associated with export services, reward customers for actions that better utilise the network or improve network operations, and allocate costs in a fair and efficient way (see Chapter 6).

To inform this rule change process, the Commission recently engaged CEPA to provide information on options for setting specific obligations and/or incentives for DNSPs to efficiently provide export services. CEPA does not make any recommendations.⁷ We encourage stakeholders to have regard to CEPA's report, which the Commission will consider as part of its draft determination. The report is available on the project web page for each rule change proposal.⁸

1.3 Updating the regulatory framework to recognise the evolving role of distributors

The proponents consider the current regulatory framework does not reflect community expectations for DNSPs to efficiently provide export services – in addition to their existing obligations to provide essential, consumption-based services.

DNSPs, while still providing the core service of the transport of energy, now provide this service to customers in two directions instead of one: the traditional supply of energy downstream to customers' homes and businesses for consumption, and the transport of energy generated by customers' DER to other customers in the market (referred to as 'export services' throughout this consultation paper). While the framework is flexible and has accommodated increasing DER penetration levels to date, the continued uptake of DER means that it needs to evolve so that DNSPs are able to support multi-directional energy flows.

The first step of the proposed reform package is to explicitly recognise export services in the regulatory framework. The Commission seeks your feedback on whether proposed amendments to the NER – such as an update to service definitions and classifications, and

⁷ CEPA, Feasibility of export capacity obligations and incentives, 3 July 2020.

⁸ www.aemc.gov.au/our-work/changing-energy-rules/rule-changes

the imposition of new obligations – are needed to acknowledge the role of DNSPs as a platform to connect, manage and enable DER (see Section 4.4). These are foundational to further reform considerations, including financial incentives and pricing.

1.4 Providing incentives for efficient network expenditure

A key feature of the current regulatory framework is that it provides incentives for DNSPs to meet their obligations and service standards at least cost. The AER applies incentive-based regulation across the energy networks it regulates.

The proponents consider there are currently mixed financial incentives for networks to maintain or improve export service standards – potentially leading to service levels below those expected by customers. If DNSPs are required to provide export services, their incentives may need to be re-aligned to promote efficient provision of these services. However, in developing an incentive scheme, collection of robust data and designing performance measures is not necessarily straightforward, so other options may need to be considered – such as new obligations and information disclosure to create ‘reputational incentives’, at least in the short term. The Commission is seeking feedback on these issues (see Section 5.4).

1.5 Pricing of export services

The four proponents say increased use of distribution networks by DER to export electricity into the system will eventually drive the need for new network expenditure as the inherent ‘hosting capacity’ of the existing assets is used up.⁹ SVDP says there is a need to consider who pays for enabling higher DER uptake.

Some consumer groups have expressed concerns that the current charging arrangements are leading to inequitable outcomes, with network costs associated with DER being borne by consumers regardless of whether they own DER.

SAPN and SVDP propose the removal of NER clause 6.1.4, which prohibits the use of system charges for export services into the distribution network. The proponents consider this would enable export charges to signal the need for additional network expenditure where appropriate, and better allocate costs and reward customers for providing DER services. ‘Export charges’ refer to ongoing distribution use of system charges for the use of DNSP ‘poles and wires’ to transport electricity exported by a distribution network user.

TEC/ACOSS propose the NER be amended to allow for a ‘supplementary’ connection agreement for a DNSP and its customer to negotiate additional capacity, if that investment is not otherwise justified under a ‘net market benefits’ test. This, TEC/ACOSS say, will allow more equitable allocation of DER-related costs.

Proposals to enable export charges are highly contentious and require careful consideration. The Commission is seeking stakeholder views on the benefits and costs of enabling export

⁹ The term ‘hosting capacity’ refers to the amount of DER that can be accommodated on the distribution system at a given time and at a given location under existing grid conditions and operations, without adversely impacting safety, power quality, reliability or other operational criteria, and without requiring significant infrastructure upgrades.

charges (see Section 6.4). Further, we will consider if transitional (or grandfathering) arrangements are needed and, if so, whether they should be prescribed in the NER or managed by the DNSPs and AER through the tariff structure statement process – based on the circumstances of each jurisdiction.

1.6 Consultation

Issues for consultation are discussed and questions raised in the following chapters to provide guidance for submissions on reforms proposed by the rule change proponents. The Commission encourages stakeholders to broadly comment on these issues and any other aspects of the rule change requests. The rule change request documents are available on the project web pages.¹⁰

Submissions to this consultation paper are due by Thursday 10 September 2020. The key project milestones are highlighted in the table below.

Table 1.1: Key dates

MILESTONE	DATE
Submissions on consultation paper due	10 September 2020
Virtual public forum	13 August 2020
AEMC to publish draft determination	19 November 2020
Submissions on draft determination due	14 January 2021
AEMC to publish final determination	25 February 2021

Source: AEMC

1.6.1 Lodging a submission

Written submissions on the rule change request must be lodged with Commission by **10 September 2020** online via the Commission’s website, www.aemc.gov.au, using the “lodge a submission” function and selecting one of the project reference codes: ERC0311, ERC0310, ERC0309 or RRC0039. The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated. Where practicable, submissions should be prepared in accordance with the Commission’s guidelines for making written submissions on rule change requests.¹¹ The Commission publishes all submissions on its website, subject to a claim of confidentiality.

All enquiries on this project should be addressed to Jashan Singh at: jashan.singh@aemc.gov.au

¹⁰ See: www.aemc.gov.au/our-work/changing-energy-rules/rule-changes

¹¹ This guideline is available on the Commission’s website www.aemc.gov.au.

1.6.2 Virtual public forum

The Commission will hold a virtual public forum on 13 August 2020 as part of our consultation on the rule change requests.

Registration details are available on the project web page. The Commission intends to invite the rule change proponents to each give a short presentation and there will be an opportunity for stakeholder questions.

1.6.3 Technical Working Group

The Commission plans to establish a Technical Working Group as a targeted consultation mechanism and to continue the collaboration among energy sector participants started by the DEIP process. The purpose of this group will be to provide targeted feedback on key issues raised by the rule change requests, and to inform and 'stress test' AEMC staff's thinking.

If you are interested to be part of this Technical Working Group, please register your interest at: registration@aemc.gov.au. The Commission seeks to include a broad range of stakeholders. As a condition of group membership, invitees will be asked to demonstrate respect and allow for a range of views to be expressed at meetings to support open and collegiate dialogue.

2 SUMMARY OF RULE CHANGE REQUESTS

This chapter summarises the issues raised by rule change proponents, and the proposed solutions to address the issues and associated benefits.

2.1 SA Power Networks

2.1.1

Issues raised

SAPN states that although there is a clear regulatory framework for consumption services, no such framework exists in relation to export services and, consequently:¹²

- DER customers are beginning to experience poorer performance of their systems, as the technical limits of the network are reached
- the renewables industry is concerned that DNSPs will increasingly impose 'zero export' requirements on new solar customers connecting in areas that are already congested
- DNSPs do not have a clear basis upon which to make DER-related investment decisions
- vulnerable customers are concerned about increasing cross-subsidies from customers who do not have DER, and may never be able to, to those who do
- the AEMC and ESB are concerned that the current regulatory framework may not support efficient investment in the long term.

2.1.2

Proposed changes

SAPN's proposal seeks to update the regulatory framework to directly recognise and consider export services. The objectives are:¹³

1. Ensuring recognition of all services that customers value – including use of the network by customers to consume energy, and use of the network to export energy they generate
2. Encourage efficient investment, and prevent potential over-investment, by DNSPs to support the service levels that customers desire
3. Enable customers to make informed choices with regard to their energy consumption and export decisions – including the DER they invest in and how these are operated and used.

With the intention of mirroring existing regulatory controls and incentives to an extent to minimise change and any uncertainty, SAPN proposes to create:¹⁴

- Clear rights for all customers to request and be provided with an offer to access the distribution network to export energy, on a fair and non-discriminatory basis – that is, customers should be able to receive a service offer that does not explicitly deny their ability to export, such as via the setting of a static export limit of zero
- For small customers, a defined standard capacity level that customers can request and receive a connection offer for

¹² SAPN, rule change request, p. 5.

¹³ SAPN, Rule change request, p. 10.

¹⁴ SAPN, Rule change request, p. 22.

- A clear regulatory mandate for DNSPs to plan for and invest in providing export services commensurate with customer demand and their desired service levels, and incentive schemes that motivate distributors to maintain service levels at averages that customers value and improve these over time if supported.

SAPN considers the question of access can be addressed by definitional changes in the NER that would then enable export services to be recognised as a fundamental part of the services provided by DNSPs to customers:¹⁵

This change would mean that network businesses would have a new requirement to meet or manage customer demand for export services.

Once this change is made, the existing regulatory requirements, incentive schemes and controls that apply to distribution networks' provision of consumption services would apply and could be adapted to their provision of export services. While most incentive schemes can apply simply, work is needed to adapt the Service Target Performance Incentive Scheme (STPIS) to export services.

SAPN proposes to remove the current rule that prevents DNSPs from proposing tariffs that include an export component, to allow such tariffs to be considered by each DNSP together with their customers and stakeholders (including jurisdictional governments) through consultation on the AER's distribution determination process.¹⁶ This, SAPN says, would enable efficient price signals and rewards to be provided to customers upon which to base their informed DER investment and operation decisions, and improve equity in allocating the costs and benefits of DER.¹⁷ SAPN states any future tariffs applied to exports would principally seek to recover incremental costs associated specifically with the provision of export capacity.¹⁸

SAPN considers customers should have choices that enable them to avoid some or all of the export component of the tariff if they choose to maintain their exports below a level that would, on average, require additional capacity investment – such as through a set export limit reflective of the inherent network capacity, or by using a smart inverter capable of responding to a 'flexible' or dynamic export limit.¹⁹ For example, SAPN envisages customers could choose from the following menu of options:²⁰

1. a 'basic' service at low or zero cost, perhaps reflective of a fixed, low export capacity, aligned to the intrinsic hosting capacity of the network
2. a 'base' level of capacity and reliability – that is, the average reliability across customers as set by an adapted STPIS
3. a 'premium' service, such as higher than average export capacity – without the associated costs being apportioned to customers that don't want them.

¹⁵ SAPN, Rule change request, p. 6.

¹⁶ SAPN, Rule change request, p. 8; 22.

¹⁷ SAPN, Rule change request, p. 5.

¹⁸ SAPN notes that in addition to recovering the costs of incremental investments to enable DER, any export charges could contain a component to recover costs of enabling DER which may have already been incurred (sunk costs) – which SAPN says have been largely immaterial up to now.

¹⁹ SAPN, Rule change request, p. 7.

²⁰ SAPN, Rule change request, p. 25.

2.1.3

Benefits of proposed changes

SAPN considers its proposal will lead to improved outcomes for all customers in the long term, as the energy system continues its community-led transition to distributed renewable energy. SAPN claims that its proposal will:²¹

- Provide greater confidence to customers and their agents in respect of service levels for DER
- Provide enhanced market benefits for all customers through increased DER exported energy
- Encourage efficient investment by DNSPs to support services levels desired by customers by providing DNSPs a clearly defined regulatory framework
- Provide DNSPs a means of enabling and customising service choices to their customers
- Substantively preserve competitive neutrality between upstream and downstream sources of generation in the NEM
- Enable efficient price signals and rewards to be provided to customers which in turn will:
 - enable customers to make more informed investment and operational decision
 - improve equity in allocating the costs and benefits of DER.

2.2

The St Vincent de Paul Society Victoria

2.2.1

Issues raised

SVDP considers that DER participants (the direct beneficiaries of DER integration) should pay their fair share of the costs associated with the measures implemented to integrate DER.²² SVDP states clause 6.1.4 of the NER impedes DNSPs from recovering export service costs from these customers – potentially leading to inequitable and inefficient allocation of costs and benefits.²³ SVDP considers:²⁴

As the cost of DER technologies such as rooftop solar are likely to decrease we can expect to see an increase in uptake, both in terms of the number of installations and the size of the systems installed. We therefore need to create a framework that can address these issues in the long run.

An increased uptake in DER technologies should be a positive development, however as some consumers will be unable to participate a sustainable framework must ensure that not everyone pays the same when the greatest benefits are returned to some.

Further, SVDP says prohibiting export charges under the NER precludes DNSPs from rewarding customers who choose to store energy and export it later.²⁵

21 SAPN, Rule change request, p. 5.

22 SVDP, Rule change request, p. 4.

23 SVDP, Rule change request, p. 9.

24 SVDP, Rule change request, p. 3.

25 SVDP, Rule change request, p. 2.

2.2.2 Proposed Changes

SVDP proposes to remove impediments in the NER to DNSPs recovering their costs in supporting the export of electricity from the users who export energy.²⁶ SVDP states it is not necessarily advocating for an approach where DER participants have to pay for using the networks. SVDP is proposing to explore a solution that allows exporters to choose between paying or being constrained. This, SVDP says, is an important distinction as some DER participants may prefer being constrained, rather than paying a distribution use of system charge for export.²⁷

2.2.3 Benefits of proposed changes

SVDP expects the benefits of its proposal include enhanced opportunities for distributed energy providers and other participants in the market, greater options and choices for energy consumers and communities, and increased participation of DER in the wholesale and other markets. SVDP states that its rule change enables options rather than proposed solutions, so the costs will be minimal.²⁸

2.3 Total Environment Centre / Australian Council of Social Service

2.3.1 Issues raised

TEC/ACOSS submit the NER are 'stuck in the outdated one-way system', with several consequences:²⁹

- Current pricing arrangements result in investment in and deployment of DER that is not economically efficient.
- Technical issues will increasingly act as a handbrake on the decarbonisation of the energy system due to the increasing practice of limiting rooftop solar exports.
- Equity issues are arising, especially because people without DER are paying a higher proportion of the costs of the grid that everyone depends upon.

2.3.2 Proposed Changes

The objective of TEC/ACOSS's request is to create a regulatory framework that efficiently and equitably optimises the expanding role of DER exports to support a rapid, fair and affordable transition to a zero net carbon energy system.³⁰ TEC/ACOSS aim to prevent 'prosumers' (defined as consumers who also produce energy) from facing export limits or being shut off (preventing even self-consumption),³¹ and to optimise existing and incentivise additional DER hosting capacity.³²

26 SVDP, Rule change request, p. 1.

27 SVDP, Rule change request, p. 7.

28 SVDP, Rule change request, p. 9.

29 TEC/ACOSS, Rule change request, p. 2.

30 TEC/ACOSS, Rule change request, p. 2.

31 TEC/ACOSS, Rule change request, p. 3.

32 TEC/ACOSS, Rule change request, p. 10.

TEC/ACOSS propose incremental reforms focused on two aspects of DER exports:³³

- Planning and investment – to make the best use of existing network capacity to integrate DER and encourage efficient network investment in new DER hosting capacity.
- Access – to allow choices for ‘prosumers’ to increase their export capacity in return for a guaranteed level of service (but not ‘firm access rights’), and ensure the equitable distribution of hosting capacity between prosumers.

The TEC/ACOSS request applies only to small customers (those consuming less than 100 or 160 kWh per year depending on the jurisdiction).³⁴

2.3.3

Benefits of proposed changes

TEC/ACOSS say that the proposed rule changes are intended as a first step to creating a fit-for-purpose regulatory framework that will ‘support greater investment in and better operation of DER to facilitate faster decarbonisation of the energy system and deliver more equitable and efficient outcomes for all energy users’.³⁵ TEC/ACOSS’ proposal aims to:³⁶

- improve the utilisation of existing DER and encourage investment in new DER
- distribute costs, benefits and risks associated with DER integration transparently
- allow for greater utilization of existing low carbon generation and greater uptake of new low carbon generation, assisting the shift to a zero net emissions energy system by 2030.

33 TEC/ACOSS, Rule change request, pp. 2–3.

34 TEC/ACOSS, Rule change request, p. 10.

35 TEC/ACOSS, Rule change request, p. 2.

36 TEC/ACOSS, Rule change request, p. 10.

3 ASSESSMENT FRAMEWORK

3.1 Achieving the NEO and NERO

Under the NEL the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national electricity objective (NEO).³⁷ This is the decision-making framework that the Commission must apply.

The NEO is:³⁸

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.

Similarly under the NERL, the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national energy retail objective (NERO).³⁹ This is the decision making framework that the Commission must apply.

The NERO is:⁴⁰

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.

The Commission must also, where relevant, 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' (the 'consumer protections test').⁴¹

Where the consumer protections test is relevant in the making of a rule, the Commission must be satisfied that both the NERO test and the consumer protections test have been met.⁴² If the Commission is satisfied that one test, but not the other, has been met, the rule cannot be made.

There may be some overlap in the application of the two tests. For example, a rule that provides a new protection for small customers may also, but will not necessarily, promote the NERO.

3.2 Making a more preferable rule

Under section 91A of the NEL and section 244 of the NERL, the Commission may make a rule that is different (including materially different) to a proposed rule (a more preferable rule) if

³⁷ Section 88 of the NEL.

³⁸ Section 7 of the NEL.

³⁹ Section 236(1) of the NERL.

⁴⁰ Section 13 of the NERL.

⁴¹ Section 236(2)(b) of the NERL.

⁴² That is, the legal tests set out in s. 236(1) and (2)(b) of the NERL.

it is satisfied that, having regard to the issue or issues raised in the rule change request, the more preferable rule will or is likely to better contribute to the achievement of the NEO or the NERO (as applicable).

3.3 Rule making in the Northern Territory

Under the Northern Territory legislation adopting the NEL, the Commission must regard the reference in the NEO to the "national electricity system" as a reference to whichever of the following the Commission considers appropriate in the circumstances having regard to the nature, scope or operation of the proposed rule:⁴³

- (a) the national electricity system
- (b) one or more, or all, of the local electricity systems⁴⁴
- (c) all of the electricity systems referred to above.

For the purposes of the proposed electricity Rule, the Commission proposes to regard the reference to the "national electricity system" in the NEO to be a reference to item (c) from the list above.

The NER, as amended from time to time, apply in the Northern Territory, subject to modifications set out in regulations made under the Northern Territory legislation adopting the NEL.⁴⁵ Under those regulations, only certain parts of the NER have been adopted in the Northern Territory.⁴⁶

As the proposed rule relates to the parts of the NER that apply in the Northern Territory, the Commission will assess whether to make a uniform or differential rule (defined below) under Northern Territory legislation.

Under the NT Act, the Commission may make a differential rule if it is satisfied that, having regard to any relevant MCE statement of policy principles, a differential rule will, or is likely to, better contribute to the achievement of the NEO than a uniform rule.⁴⁷ A differential rule is a rule that:

- varies in its terms as between:
 - the national electricity system, and
 - one or more, or all, of the local electricity systems, or
- does not have effect with respect to one or more of those systems

but is not a jurisdictional derogation, participant derogation or rule that has effect with respect to an adoptive jurisdiction for the purpose of s. 91(8) of the NEL.

⁴³ Clause 14A of Schedule 1 to the *National Electricity (Northern Territory) (National Uniform Legislation) Act 2015* (referred to here as the NT Act), inserting section 88(2a) into the NEL as it applies in the Northern Territory

⁴⁴ These are specified Northern Territory systems, listed in schedule 2 of the NT Act.

⁴⁵ The regulations under the NT Act are the *National Electricity (Northern Territory) (National Uniform Legislation) (Modification) Regulations 2016*.

⁴⁶ The version of the NER that applies in the Northern Territory is available on the AEMC website at www.aemc.gov.au/regulation/energy-rules/northern-territory-electricity-market-rules/current.

⁴⁷ Clause 14B of Schedule 1 to the NT Act, inserting section 88AA into the NEL as it applies in the Northern Territory.

A uniform rule is a rule that does not vary in its terms between the national electricity system and one or more, or all, of the local electricity systems, and has effect with respect to all of those systems.⁴⁸

3.4 Proposed assessment framework

The relevant aspects of the NEO and NERO in this instance are the promotion of efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers with respect to price, reliability of the national electricity system, and reliability and quality of supply of electricity supply experienced by consumers.

The Commission is proposing to use the following assessment criteria to assess whether the proposed rules are likely to promote the NEO and NERO:

- **Regulatory clarity and certainty.** A lack of clarity and certainty in regulatory arrangements can affect confidence of stakeholders to invest and participate in the markets. Similarly, the framework needs to provide clear rights for customers to allow them to make optimal consumption choices and investment decisions in behind the meter devices.
- **Efficient provision of electricity services.** The regulatory framework should facilitate the efficient provision of electricity services. A key consideration in the Commission's assessment of the rule change request is whether the proposal is likely to contribute to the lowest possible total system cost.
- **Efficient pricing.** The prices should signal to consumers the costs of providing network services. Price signals can provide opportunities for consumers to adjust their usage patterns in ways that can reduce their own cost of using the network as well as contribute to reducing future network costs more broadly. The Commission seeks to consider whether the proposed rules will provide for efficient pricing outcomes.
- **Regulatory burden.** The Commission intends to consider whether the implementation and administrative costs arising from the proposed rule are proportionate to the benefits. Where possible, Rules should minimise additional regulatory burden or the increase in administrative costs.
- **Robustness to climate change mitigation and adaptation risks.** In order to make decisions that promote the NEO and NERO, the Commission considers whether its decisions are robust to any impacts of climate change, or climate change mitigation or adaptation measures, on the price, quality, safety, reliability and security of supply of energy or energy services.

⁴⁸ Clause 14 of Schedule 1 to the NT Act, inserting the definitions of "differential Rule" and "uniform Rule" into section 87 of the NEL as it applies in the Northern Territory.

QUESTION 1: APPROACH TO RULE CHANGE ASSESSMENT

1. Is the assessment framework, specifically the criteria outlined above, appropriate for considering the proposed rule changes?
2. Are there any other relevant considerations that should be included in the assessment framework?

4 UPDATING THE REGULATORY FRAMEWORK TO RECOGNISE THE EVOLVING ROLE OF DISTRIBUTORS

4.1 Overview and issues for discussion

This chapter discusses whether it may be necessary to make changes to the rules to ensure that the range of services provided by DNSPs to their customers are sufficiently recognised in the regulatory framework. It considers issues raised by the respective rule change proponents associated with:

- current definitions of key terms in the NER and National Energy Retail Rules (NERR) as they relate to the ability of customers and DNSPs to access and provide export services (Section 4.2)
- the potential form of regulation to apply to export services provided by DNSPs (Section 4.3)
- whether obligations need to be established in the rules to support DNSPs in providing access to and optimising existing, or investing in additional, DER hosting capacity (Section 4.4).

BOX 1: KEY POINTS – UPDATING THE REGULATORY FRAMEWORK

- The evolving nature of DER technologies (e.g. storage, EVs, communications, PV) and the rapid pace of change in these technologies means that the Rules will need to be flexible to accommodate change and continue to evolve with emerging technologies.
- While there is a well-established regulatory framework for the provision of services that involve the connection and supply of energy to customers, growth in DER has increasingly required DNSPs to manage the emergence of customers seeking to export energy to the market.
- How these 'export services' are treated within the existing regulatory framework is not explicit. Following on from this is the consideration that the NER do not provide direct obligations as to how DNSPs should incorporate export capacity in their general planning.
- On this basis, SAPN and TEC/ACOSS propose changes to the NER in order to ensure that the range of services provided by DNSPs to their customers are sufficiently recognised in the regulatory framework.
- SAPN considers that the existing definitions of key terms, such as 'distribution service' and 'retail customer', remain a barrier to explicitly recognising export services in the NER. Therefore, SAPN propose to amend the definition of terms applicable to 'distribution service', so that these terms explicitly recognise that the distribution network not only conveys electricity to customers but conveys electricity from customers. SAPN considers these amendments would ensure the effective application of the existing regulatory framework to export services. For example, exports services would then be more clearly

subject to the same regulatory incentive mechanisms as existing services that customers request and receive.

- TEC/ACOSS propose several new obligations on DNSPs to provide export services and support efficient investment, as well as a principle to guide DNSPs' decisions on how existing hosting capacity should be allocated – balancing fairness and equity considerations.

4.2 What is the current situation under the rules?

The proponents' rule changes propose the need to update key terms and service classifications to better recognise export services in the regulatory framework. To varying degrees, SAPN and TEC/ACOSS propose to amend key definitions in the NER to provide recognition of export services in regulation. SAPN suggests that amending terms of definitions applicable to 'distribution service' is important to align the treatment of export services with that of consumption services under the regulatory framework. TEC/ACOSS's proposal also considers the need for specific obligations to be set in the NER to support DNSPs in the provision of export services. This section provides an overview of existing arrangements under the regulatory framework in relation to how the services DNSPs provide, and to whom, are defined and classified.

4.2.1 Existing definitions in the regulatory framework

The regulatory framework contains a number of definitions that govern, amongst other things, a DNSP's provision of regulated services, its ability to recover the cost of providing such services, and its relationship with customers in relation to access and connections arrangement. Importantly, the approach taken to the classification of the activities and services associated with distribution services is directly linked to the definition of a distribution service discussed below.

The current regulatory framework defines 'distribution service' and related terms as follows:

BOX 2: DISTRIBUTION SERVICE AND DISTRIBUTION SYSTEM

- NER (chapter 10) defines a 'distribution service' as 'a service provided by means of, or in connection with, a distribution system'
- NEL section 2 contains a parallel definition: '**electricity network service** means a service provided by means of, or in connection with, a transmission system or distribution system'
- NEL section 2: '**distribution system** means the apparatus, electric lines, equipment, plant and buildings used to convey or control the conveyance of electricity that the Rules specify as, or as forming part of, a distribution system'

- NER (chapter 10) definitions relating to 'distribution service':
 - 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...'
 - a 'distribution network' is defined as 'a network which is not a transmission network'
 - a 'network' (used in the definitions of both transmission network and distribution network) is defined as the apparatus, equipment, plant and buildings used to convey, and control the conveyance of, electricity to customers (whether wholesale or retail) excluding any connection assets...'

Given that definition as a 'distribution service' forms the basis of the services that customers have a right to access from DNSPs, it will impact on DNSPs' ability to provide the services required by customers.

Definitions such as 'distribution system' and 'retail customer' affect how services are classified and subsequently form the basis for which regulatory mechanisms apply to services. In terms of the definition of 'retail customer', the application of incentive schemes, in some instances, is linked to the provision of services to a 'retail customer'.⁴⁹ Considered in the context of the provision of export services there are potential implications for the effective application of the existing framework to export services.

The current regulatory framework defines 'retail customer' and related terms as follows:

BOX 3: RETAIL CUSTOMER

- NEL section 2 defines a 'retail customer' as a person who purchases energy without specific reference to exporting energy: "means a person to whom electricity is sold by a retailer and supplied in respect of connection points, for the premises of the person, and includes a person (or a person who is a class of persons) prescribed by the Rules for the purposes of this definition".
- The NER and National Energy Retail Law (NERL) define 'retail customer' in the following ways:
 - NER (Chapter 5A) explicitly includes in the definition of 'retail customer', for the purposes of rules relating to connection agreements, a person who in addition to consuming also generates electricity (subject to certain thresholds): "...includes a non-registered embedded generator and micro-embedded generator". (A non-registered embedded generator may or may not also consume energy; a

⁴⁹ The NER provides guidance as to the specific incentive schemes that can be applied and how distribution pricing should be designed and applied. Some of the guidance in the NER on these matters refers to the provision of services to 'retail customers'. For example, NER clause 6.63 or NER clause 6.18.

micro-embedded generator is a sub-type of retail customer with very small generating equipment, such as a rooftop PV system.)

- NER (Chapter 10) defines a 'retail customer' as "a small customer or a large customer" and these customers are defined according to the NERL or jurisdictional electricity legislation.
- NERL (section 5) defines a 'small customer' as a "customer who is a residential customer; or who is a business customer who consumes energy at business premises below the upper consumption threshold".
- NERL (section 2) defines a 'residential customer' is "...a customer who purchases energy principally for personal, household or domestic use at premises."

4.2.2

Service classifications

Service classification defines the type of economic regulation, if any, that will apply to services provided by DNSPs. This includes whether or not a service is subject to economic regulation, the approach to cost recovery, and whether or not a service will need to be ring-fenced from other services offered by a DNSP. Service classification decisions are made by the AER and form the regulatory foundation of its distribution determinations for each DNSP. The classification process also signals the potential for network services to be provided in competitive markets. For example, services that have the potential to be provided competitively in future are generally classified as 'alternative control services' by the AER.⁵⁰

Distribution services may be classified by the AER or in accordance with the NER if the NER contains a requirement to assign a service to a specific classification.⁵¹ Typically the NER have not classified distribution services and, therefore, the AER has had to consider which distribution services provided by DNSPs should be classified. The AER undertakes distribution service classification during the 'framework and approach' stage of each DNSP's regulatory determination.⁵²

Distribution services can be classified as direct control services, negotiated distribution services, or left unclassified. The NER do not set out the specific characteristics of services that should fall within each classification category.⁵³ Instead, the NER define classifications in terms of the regulation that will apply to the services in each classification:

- a direct control service is regulated under a distribution determination, which sets out the control mechanism that applies to the relevant service (i.e. the price to be paid or revenue to be earned from the services)

⁵⁰ AER, Electricity distribution service classification guideline: Explanatory statement, September 2018, p. 1.

⁵¹ NER, clause 6.2.1(e).

⁵² NER, clause 6.8.1(b)(2)(i).

⁵³ The NER sets out the factors the AER needs to have regard to in classifying distribution services, as well as standard control services or alternative control services. See NER clauses 6.2.1(c) and 6.2.2(c).

- a negotiated service is a service that is subject to the DNSP's negotiating framework, which is approved by the AER in its distribution determination
- a distribution service falling outside the classifications of a direct control service or a negotiated distribution service is left unclassified and not subject to economic regulation.

Services classified as direct control services are then split into two sub-classes: standard control services and alternative control services. The NER defines these services by reference to how they are regulated once classified:

- standard control services are services subject to a control mechanism based on a DNSP's total revenue requirement
- all other direct control services are alternative control services, which are subject to a control mechanism to be specified in the DNSP's distribution determination.⁵⁴

In general, the service classification framework has important implications for determining the potential treatment of export services within the regulatory framework.

4.2.3

Obligations for distributors to provide export services

The NER do not provide any specific guidance – either in the form of obligations or incentives – as to how DNSPs should incorporate export capacity in their general planning. Rule 5.13 of the NER, which regulates the distribution annual planning process, requires DNSPs to identify network limitations based only on forecast maximum demand.

DNSPs are required to offer a connection to retail customers, including for 'micro embedded generators',⁵⁵ but have discretion to set export limits within 'basic connection agreements' (as discussed above). Where there is high penetration of solar PV, some DNSPs have started to restrict the level of electricity that customers can export to the grid to manage technical issues caused by DER exports.⁵⁶ Some customers face very low or even zero export limits in areas of the network with high levels of solar penetration.

Nevertheless, the NEO requires DNSPs to consider wider system benefits and costs in their investment and operational decisions. This requirement is made explicit in the RIT-D requirements set out in the NER.⁵⁷ The AER states that it is consistent with the capital expenditure criteria for DNSPs to consider benefits in this way when assessing DER-related capital expenditure proposals.⁵⁸

4.3

What problems do the rule change requests seek to address?

In its rule change request, SAPN proposed that current definitions in the NER create ambiguity as to customers' rights to export services, and the status that regulation affords

⁵⁴ NER, clauses 6.2.5 and 6.2.6.

⁵⁵ NER chapter 5A.

⁵⁶ AEMO, Renewable Integration study Stage 1 Appendix A High Penetration of Distributed Solar PV, April 2020, p. 27.

⁵⁷ NER cl. 5.17.

⁵⁸ AER, Assessing DER integration expenditure: Consultation paper, November 2019, p. 12.

these services in the planning that DNSPs need to undertake. In its rule change request, SAPN states:⁵⁹

- there is ambiguity in the NER as to whether 'distribution services' only relate to the *consumption* of energy and the conveyance of electricity *to* customers
- guidance provided in the NER as to the provision of services to 'retail customers' is unclear. This is on the basis that there is some ambiguity in the meaning of the term stemming from different definitions in the NEL, NER and NERL.⁶⁰

SAPN highlights that the definition of 'distribution services' is foundational to the AER classifying export services, deciding the form of regulatory oversight and, where revenues/prices are to be directly controlled by the AER, the control mechanism to apply. SAPN notes this is also foundational to applying the NER capital expenditure and operating expenditure objectives, factors and criteria – which are used by the AER to assess network expenditures proposed for services that are classified as 'standard control services'.⁶¹

SAPN also notes that the AER must follow guidance provided in the NER as to the specific incentive schemes that can be applied, and how distribution pricing should be designed and applied to services.⁶² In the context of considering which regulatory mechanisms should apply to export services, SAPN indicates that the existing guidance in the NER refers to the provision of services to 'retail customers', a term which SAPN considers is inconsistent across the NEL, NER and NERL. SAPN considers this may have implications as to the specific incentive schemes that can be applied and how distribution pricing may be designed and applied.⁶³

In SAPN's view, if customer demand for export services continues to increase and DNSPs approach their intrinsic hosting capacities,⁶⁴ decisions will need to be made on whether and how much investment there should be to support provision of export services. SAPN says the effect of maintaining the status quo of an unclear mandate for DNSPs is that there is a risk that DNSPs may under-invest in network capacity to accommodate customers' desires for export services – that is, invest in a lower level than customers want and are willing to pay for. SAPN considers this would mean that:⁶⁵

- customers' ability to export energy to the network may progressively degrade over time, reducing the return (both for individual customers and the community) on their investment in DER

59 SAPN, Rule change request, p. 11.

60 SAPN notes that this is the case for rules relating to the Demand Management Incentive Scheme, the Value of Customer Reliability (VCR), and the distribution pricing rules. The Service Target Performance Incentive Scheme (STPIS) rules refer more generally to 'customers' and the Efficiency Benefit Sharing Scheme (EBSS) to 'network users'.

61 SAPN, Rule change request, p. 11.

62 SAPN, Rule change request, p. 11.

63 SAPN, Rule change request, p. 11.

64 Note that there is a base level of DER export capacity that all networks already provide, because network assets constructed to supply load have an inherent capacity to support reverse power flow without any additional investment.

65 SAPN, Rule change request, p. 13.

- customers will increasingly face barriers to exercising choice and participating in energy markets, such as by exporting energy to networks when this helps avoid network costs, or exporting energy into the NEM spot market or ancillary services markets
- competition barriers may arise for DER to participate in the NEM, potentially limiting market access to a cheaper source of generation, reducing the flow-on benefits of DER to other customers.

TEC/ACOSS propose amendments to the NER in order to optimise existing DER hosting capacity and incentivise additional hosting capacity. TEC/ACOSS consider:⁶⁶

- DNSPs are increasingly constraining DER exports using static export limits – noting DNSPs appear to be managing their constraints in different ways, and there is no clearly established set of principles for them to follow
- the existing regulatory framework remains inflexible, as existing access and pricing arrangements create barriers to efficient and equitable cost recovery.

4.4 What are the proponents' proposed solutions?

SAPN and TEC/ACOSS propose several changes to the definitions in the NER for a clearer mandate for DNSPs to provide export services. Following on from these definitions, the proponents also included recommended approaches to the regulatory treatment of export services in terms of classification and the establishment of obligations on DNSPs to provide export services.

This section outlines these proposed solutions and identifies points of overlap or divergence, which will continue to be considered through the course of this rule change process and as our understanding of the potential solutions develops.

4.4.1 Proposed definitional changes

TEC/ACOSS state definitions should be updated to recognise prosumers as the export equivalent of retail customers via amendments to chapter 5A (Part A) and Chapter 10 of the NER.⁶⁷

Similarly, SAPN wants to ensure recognition of all services that customers value.⁶⁸

We consider that the question of access can be addressed by definitional changes in the rules that will then enable export services to be recognised as a fundamental part of the service provided by distribution networks to customers. This change would mean that network businesses would have a new requirement to meet or manage customer demand for export services.

Once this change is made, the existing regulatory requirements, incentive schemes and controls that apply to distribution networks' provision of consumption services would apply and could be adapted to their provision of export services.

⁶⁶ TEC/ACOSS, Rule change request, p. 7.

⁶⁷ TEC/ACOSS, Rule change request, p. 14.

⁶⁸ SAPN, Rule change request, p. 6.

...

With definitional changes recognising export services in the services distribution networks provide, their key requirement to meet or manage customer demand and deliver service performance consistent with customers' willingness to pay would then directly apply to export services.

SAPN considers that addressing definitional changes is central to ensuring that export services are recognised under the NER as a distinct service provided by DNSPs. The implication of this is that export services could then be considered as an 'identified need'. This means that DNSPs would be able to incur expenditure on the network guided by the need to meet or manage expected demand for export services. SAPN suggests that this would provide a mandate for DNSPs to invest in and provide export services guided by the capital and operating expenditure objectives in the NER.⁶⁹

An additional aspect of this mandate that flows from SAPN's proposed definitional changes is the potential application of existing regulatory obligations and requirements to export services, such as incentives which consider service performance outcomes for export services over time. This aspect of the proposal is considered further in Chapter 5.

At a high level, SAPN proposes for the Commission to:⁷⁰

- amend the definition of terms applicable to 'distribution service', so that these terms explicitly recognise that the distribution network now not only conveys electricity to customers but also conveys electricity from customers
- make any such changes to the NER as required so that the regulatory framework explicitly recognises that customers who purchase electricity from retailers now not only consume energy but also export energy to the distribution network, so that the regulatory framework (including existing incentive schemes, distribution pricing rules and other guidance the NER provides to the AER) can apply to export services
- consider any other terms present in the NEM regulatory framework that may intersect with terms as to what comprises a customer and the services that a DNSP can provide.

QUESTION 2: DEFINITIONAL ISSUES

1. Should export services be recognised as part of the network services provided by DNSPs to customers?
2. Are the proposed definition changes necessary and appropriate to enable export services to be recognised as part of the services provided by DNSPs to customers?
3. Are there any unintended consequences that could arise from SAPN's proposed amendments to definitions?

⁶⁹ SAPN, Rule change request, pp. 11–12.

⁷⁰ SAPN, Rule change request, p. 17.

4. Are there more appropriate approaches to enable export services to be recognised under the framework that are not considered above?
5. Are there any other issues related to definitions that the Commission should consider?

4.4.2 Proposed changes to service classifications

TEC/ACOSS state that service classifications should be amended to recognise the export of DER as a distribution service via amendments to Chapter 10 (glossary) of the NER.⁷¹

SAPN considers with export services being linked to 'distribution services', the AER would be able to classify these services in its framework and approach and distribution determination processes.⁷² In SAPN's view, as export services involve the use of the grid to export energy, these are natural monopoly services that should be regulated and provided for in DNSPs' regulated revenue allowances as 'standard control services', in accordance with the AER's current approach to service classification. SAPN states that the costs of all network augmentations used to provide export services best reside in a single 'regulatory asset base' – given the commonality of assets used to provide export and consumption services, which renders an 'alternative control services' pricing approach impractical. Further, SAPN consider that network augmentations driven by small customers will most practically be planned and funded on an ex-ante basis. This is intended to mirror the approach taken to the treatment of augmentations driven by small customers' consumption demand.⁷³

QUESTION 3: PROPOSED CHANGES TO DEFINITIONS

1. Are the proposed approaches to the classification of export services necessary and appropriate?
2. Are there more appropriate approaches to enable DNSP expenditure on export services to be economically regulated that are not discussed above?
3. Are there any other issues related to service classification that the Commission should consider?

4.4.3 Possible new distributor obligations

A fundamental difference between SAPN and TEC/ACOSS' proposals relates to the proposed need for strengthened obligations on DNSPs to provide export services and the treatment of expenditure assessment.

SAPN considers the mandate for DNSPs to provide export services can be made simply by updating the definitions in the NER of a 'distribution service', which would clarify the need for

⁷¹ TEC/ACOSS, Rule change request, p. 15.

⁷² SAPN note that it does not seek to mandate the classification decision in the NER. (SAPN, Rule change request, p.18)

⁷³ SAPN, Rule change request, p. 18.

the AER to classify and regulate (if required) export services. SAPN suggests that if export services are classified as a standard control service, DNSPs will be required to meet or manage demand for export services, comply with any regulatory obligations or requirements (if they exist for export services), and if there are no obligations or requirements, maintain the quality, reliability, safety and security of standard control services and the distribution system, which would include export services to a level that customers support. It is suggested that the target baseline of service performance to maintain would be guided by an adapted STPIS for exports.⁷⁴

On expenditure proposals and assessment, SAPN proposes that these should not be limited to market benefit assessments, and should consider customer views and the extent to which they support particular levels of network investment. Here, SAPN highlights that the requirement would be for distribution networks to consider the least-cost way of meeting customer demand for export services and invest to meet that demand. As such, distribution businesses cases to the AER for investment would not be limited meeting this goal based solely on market benefits analysis.⁷⁵

On the other hand, TEC/ACOSS propose that obligations should be introduced in the NER for DNSPs to provide export services and that augmentation to provide capacity for export services would be assessed via a net market benefit test.⁷⁶ TEC/ACOSS' proposal is discussed further below. Further options for introducing new DER integration obligations in the NER are also explored by CEPA in its report to the Commission.⁷⁷

Establishing a planning and investment strategy for DER integration

TEC/ACOSS consider that a new obligation on DNSPs is appropriate to encourage them to think strategically about the role of DER exports in their future planning. To this end, TEC/ACOSS suggest the introduction of a requirement for DNSPs to prepare a comprehensive DER integration strategy (DERIS).⁷⁸

TEC/ACOSS propose that the DERIS could work on a five yearly basis and alongside other regulatory obligations, such as the Distribution Annual Planning Report (DAPR). The proposed content of the DERIS may include an outline of the current and projected DER uptake, network challenges and opportunities, and proposed investments and other actions over the coming five years and beyond. A DNSP's proposed DERIS would then be considered by the AER and incorporated into its assessment of the individual elements of the regulatory proposal (connections, pricing, and expenditure).⁷⁹

74 SAPN, Rule change request, p. 18.

75 SAPN, Rule change request, p. 19.

76 The DEIP consultation process also considered the appropriateness of establishing an obligation to provide export services. (DEIP Access and Pricing Reform Package: Outcomes report, June 2020)

77 CEPA, Feasibility of export capacity obligations and incentives, 3 July 2020.

78 TEC/ACOSS, Rule change request, p. 11.

79 TEC/ACOSS, Rule change request, p. 11.

Optimising existing hosting capacity

TEC/ACOSS also suggest the introduction of an obligation that requires DNSPs to optimise the use of existing infrastructure to maximise DER hosting capacity.⁸⁰

As part of this, TEC/ACOSS consider that the existing STPIS should be amended to include a component related to export services. This issue, as it relates to STPIS, is considered further in Chapter 5.

Investment in hosting capacity to benefit all customers

TEC/ACOSS suggest imposing a further obligation on DNSPs to invest in additional DER hosting capacity, when it benefits all consumers, by introducing a net market benefit test explicitly relating to the role of DER as a guiding principle of network planning and investment.⁸¹

According to TEC/ACOSS, this could be achieved by extending the principles set out in the RIT-D to all network planning decisions.⁸² To this end, TEC/ACOSS propose amending NER clause 5.13.1 to expand the scope of the distribution annual planning review such that 'The distribution annual planning review must explain how the DNSP will optimise additional DER export capacity for system-wide net market benefits'.⁸³

Allowing customers to purchase additional access or capacity

Where augmentation to add hosting capacity passes the net market benefit test, TEC/ACOSS propose it should be mandated that DNSPs must offer some level of export. Where augmentation to add hosting capacity does not pass the net market benefit test, prosumers should be given the option of paying for it themselves.⁸⁴

TEC/ACOSS propose this issue could be addressed in one of two ways. Firstly, by allowing DNSPs to negotiate export capacity agreements in a form similar to a connection agreement under NER clause 5A.B.2.⁸⁵ Secondly, by amending clause 6.1.4 to allow for export charging.⁸⁶ This second aspect of TEC/ACOSS' proposal is discussed further in Chapter 6.

Offering a base level of service for DER exports

As complementary to the proposed access considerations raised above, TEC/ACOSS suggest the introduction of a requirement for DNSPs to offer prosumers a base level of service for DER exports.

This would involve mandating that networks offer customers some level of export at no additional cost to the individual customer where any augmentation to provide hosting capacity at this level passes the net market benefit test. Where an augmentation does not

80 TEC/ACOSS, Rule change request, p. 11

81 TEC/ACOSS, Rule change request, pp. 11–12.

82 TEC/ACOSS developed this position based on the findings developed in CEPA's report: Distributed Energy Resources Integration Program – Access and pricing: Reform options, 9 April 2020.

83 TEC/ACOSS, Rule change request, pp. 11–12.

84 TEC/ACOSS, Rule change request, p. 12.

85 TEC/ACOSS, Rule change request, pp. 13–14.

86 It is important to note that TEC/ACOSS identified this option as a less preferred option.

pass the net market benefit test, TEC/ACOSS say prosumers should be given the opportunity to pay for hosting capacity themselves.⁸⁷ This issue is also considered in greater detail in chapter 6.

Establishing a pricing principle to guide the allocation of existing and planned export capacity
Finally, TEC/ACOSS propose the introduction of a new pricing principle to guide the allocation of existing and planned export capacity between prosumers.⁸⁸

This, TEC/ACOSS consider, could be implemented by an amendment to the distribution pricing principles in NER clause 6.18.5 with the intention to ensure that 'whatever the level of DER export hosting capacity, it is allocated fairly rather than on the basis of "first come, first served" or by auctioning it off to the highest bidder.'⁸⁹

QUESTION 4: OBLIGATIONS ON DNSPS

1. Should the NER be amended to impose obligations on DNSPs to provide export services as proposed?
2. Would it be appropriate to impose obligations on DNSPs to consider network planning solutions in relation to DER integration?
 - a. Is there a need for the introduction of specific arrangements to guide network planning and investment decisions around additional DER hosting capacity?
 - b. Do you consider that a net market benefit test is a useful way to guide DNSP network planning and investment for export services?
3. Should a principle for the allocation of export capacity in the NER be introduced? If so, what principle should be included?

⁸⁷ TEC/ACOSS, Rule change request, p. 14.

⁸⁸ Similarly, CEPA highlighted there are no principles for the allocation of export capacity in the NER, and available headroom for retail customers to export is largely allocated on a first-in first-served basis. CEPA recommended a principle around the allocation of export capacity should be introduced to provide a better balance for fairness and equity – utilising smart inverters to allocate available export capacity equally across prosumers. (CEPA, Distributed Energy Resources Integration Program – Access and pricing: Reform options, 9 April 2020, p. 16)

⁸⁹ TEC/ACOSS, Rule change request, p. 14.

5 PROVIDING INCENTIVES FOR EFFICIENT NETWORK EXPENDITURE

5.1 Overview and issues for discussion

The previous chapter outlined proposals to update service definitions and classifications, and consider obligations, to acknowledge the changing role of DNSPs. This chapter discusses proposals to align incentive schemes under the current regulatory framework to promote efficient investment in, and operation and use of, export services.

This chapter outlines:

- the incentive regulation framework and incentive schemes currently applied by the AER (Section 5.2)
- the problems with the current regulatory framework the rule change proponents seek to address, including consideration of whether current schemes would apply to export services (Section 5.3)
- the proponents' proposed solutions to these issues, including adapting current schemes so DNSPs are incentivised to provide efficient levels of service quality for export services (Section 5.4).

BOX 4: KEY POINTS – INCENTIVES FOR EFFICIENT NETWORK EXPENDITURE

- The incentive regulation framework set out in chapter 6 of the NER is designed to encourage DNSPs to spend efficiently and to share the benefits of efficiency gains with consumers.
- Incentive schemes implemented by the AER provide a mechanism to create financial incentives for the DNSPs to become more efficient over time – while maintaining or improving service standards.
- If DNSPs are required to provide export services as proposed, most of the current incentive schemes could apply without amendments – except for the scheme for service quality. If this 'gap' is not addressed, there is a risk DNSPs may seek to cut costs by reducing service levels rather than through efficiency gains.
- To address this issue, SAPN and TEC/ACOSS propose to adapt the AER's service target performance incentive scheme (STPIS) to export services. This, SAPN says, would introduce an appropriate incentive to encourage DNSPs to invest in export capacity to a level that meets community expectations and willingness to pay.
- However, extending the STPIS to export services may be challenging – the performance measures and data may need to be developed over time.

5.2 What is the current situation under the rules?

A key feature of economic regulation in the NEM is that it is based on incentivising DNSPs to provide standard control services as efficiently as possible.⁹⁰ It does so by locking in DNSPs' total revenue requirement prior to the start of each regulatory control period. With revenue locked in, DNSPs' profits are determined by their actual costs of providing services. DNSPs are provided with discretion to choose how they provide the regulated services – such as operating solutions or capital investments.

This high-level incentive regulatory framework is then enhanced through specific incentive schemes for operating expenditure, capital expenditure, service standards and demand management.

The AER applies the efficiency benefit sharing scheme (EBSS) and capital efficiency sharing scheme (CESS) to provide networks with a continuous incentive to improve their efficiency in supplying electricity services. For example, if a DNSP reduces its costs, it will retain the benefits of those efficiency gains during the regulatory control period, and then share the benefits with consumers through lower charges in the next regulatory control period.

To discourage DNSPs from cutting costs by inefficiently reducing service levels, the AER applies the STPIS, which rewards or penalises DNSPs based on their outage performance. The STPIS aims to maintain service performance to customers and incentivise improvements over time when these can be undertaken efficiently – and if valued by customers, accounting for their willingness-to-pay.

To promote non-network options, the AER also applies the demand management incentive scheme (DMIS) and demand management innovation allowance mechanism (DMIA). The DMIS provides for incentive payments to undertake efficient expenditure on non-network options. The DMIA provides funding for research and development on demand management projects that have the potential to reduce long term network costs.

DNSPs must also satisfy the regulatory investment test for distribution (RIT-D) prior to making significant network investments. The purpose of the RIT-D is to identify the distribution investment option that maximises NEM-wide net economic benefits and, where applicable, meets the relevant jurisdictional or rule-based reliability standards.

The NER currently specify the range of incentive schemes that the AER can apply and provide high-level guidance on their development through guidelines that the AER must publish.

5.3 What problems do the rule change requests seek to address?

If the AER approves DER-related expenditure in a distribution determination, under the current regulatory framework, the DNSP would have an incentive to outperform this allowance and be rewarded for efficiency gains – including through the EBSS and/or CESS.

⁹⁰ Clause 6.2.6(a) of the NER states that for standard control services, the control mechanism must be of the prospective 'CPI minus X form', or some incentive-based variant of the prospective CPI minus X form, in accordance with Part C of NER chapter 6 (Building Block Determinations for standard control services). Further, the revenue and pricing principles in section 7A of the NEL state a regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to direct control network services the operator provides.

However, if the provision of export services is recognised as part of the DNSPs' role, the proponents consider there are currently mixed financial incentives for DNSPs to maintain or improve export service standards – potentially leading to service levels below those expected by customers. The STPIS applies to the control mechanism for standard control services. SAPN says as export services have an ambiguous linkage to 'distribution services', they have not been subject to incentive mechanisms (such as the STPIS) that consider the service performance outcomes that should be achieved over time.⁹¹

5.4 What are the proponents' proposed solutions?

SAPN considers export services should be subject to financial incentive schemes that promote efficiency in their delivery and outcomes that customers support – consistent with the revenue and pricing principles and NEO (Section 5.4.1).⁹²

TEC/ACOSS' proposal seeks to encourage networks to make the best use of existing infrastructure to maximise DER exports (Section 5.4.2).⁹³

Options to strengthen incentives are explored by CEPA in its report to the Commission, including reputational incentives through information disclosure.⁹⁴

5.4.1 SA Power Networks' proposal

SAPN considers export services should be subject to incentive schemes that promote efficiency in their delivery and outcomes that customers support, and there is no apparent barrier to applying the majority of existing incentive schemes (providing it is clear that 'distribution services' include export services). SAPN says the STPIS is the principal incentive scheme requiring work to adapt it to apply to export services. It does not propose for the NER to mandate the approach that the AER should take.⁹⁵

In developing service performance measures for export services under the STPIS, SAPN states the aim would be to incentivise DNSPs to maintain the performance of export services at a level that customers value. By establishing a baseline level of service performance that DNSPs are incentivised to maintain and improve upon, on average across some (to be determined) group(s) of customers, SAPN says the STPIS would avoid systemic poor outcomes to some customers without creating incentives to augment specific parts of the network to improve individual customer performance where this would be inefficient.⁹⁶ SAPN notes these measures should not imply any level of firm access – which is consistent with stakeholder feedback as part of the DEIP consultation process.⁹⁷

There is likely to be challenges in extending the STPIS to export services. For example, SAPN highlights the need to consider how to measure and express service performance, and

91 SAPN, Rule change request, p. 12.

92 SAPN, Rule change request, p. 19.

93 TEC/ACOSS, Rule change request, p. 11.

94 CEPA, Feasibility of export capacity obligations and incentives, 3 July 2020.

95 SAPN, Rule change request, pp. 19–20.

96 SAPN, Rule change request, p. 20.

97 DEIP Access and Pricing Reform Package: Outcomes report, June 2020, p. 25.

whether incentives should be applied to improve export capacity on average for applicable customers or in aggregate across all customers (or both). SAPN states an adapted STPIS for export services would ideally be established progressively over time to build confidence in requisite measurement processes, systems and datasets, and a reporting regime could be applied to encourage effective management of performance and 'intrinsic incentives' in the interim.⁹⁸ Similarly, CEPA found:⁹⁹

Our research and discussion with stakeholders, indicates that while there is a range of metrics available these currently lack accuracy and robustness. Many of the metrics can vary significantly without intervention from the DNSPs. For example, a period of wet weather could reduce the number of times exporters are constrained off or demand increases during the middle of the day could increase export capacity on that part of the network.

Our current view is that a mechanistic financial incentive scheme is not feasible due to relative immaturity of the measures available. Instead, in the same way the STPIS was introduced, we consider that a period of developing methods to produce robust and comprehensive metrics is required. The outputs from this should be monitored for a number of years to assess and improve their accuracy and robustness.

SAPN also considers the following implementation issues and options in its rule change proposal.

Payments to customers

SAPN explores the option of introducing 'inconvenience payments':¹⁰⁰

A Guaranteed Service Level (GSL) inconvenience payment should apply to customers of export services who experience service performance well outside of average levels. We consider this to be a payment for inconvenience, mirroring the payments made on the consumption side. We do not propose or consider it justified to use a GSL to compensate for lost income due to service interruptions (e.g. lost Feed-In-Tariff revenue), or any other form of financially firm access to the distribution network.

Explicit service standards may not be necessary

SAPN considers it might not be necessary to apply explicit service standards to export services:¹⁰¹

In some jurisdictions the operation of the STPIS for consumption services is complemented by defined service standards. These serve as a back-stop to regional service performance deterioration, and as a mechanism for regularly reviewing how much customers value varying service performance levels.

98 SAPN, Rule change request, p. 20.

99 CEPA, Feasibility of export capacity obligations and incentives, 3 July 2020, p. 8.

100 SAPN, Rule change request, p. 20.

101 SAPN, Rule change request, p. 21.

There may be merit in defining service standards to set the baseline level of service that customers want distributors to provide and maintain for export services. However, an adapted STPIS may serve the same purpose. Therefore, it remains appropriate that the setting of defined service standards should remain optional for either jurisdictional governments / regulators or the AER to apply.

AER to develop a VCR equivalent for export services

SAPN considers DNSPs' planning decisions should be based on the value customers place on particular service levels. SAPN notes that a direct way of understanding how much customers value a particular service level is to observe their response to a price. However, SAPN considers that network planning for the provision of export services, particularly augmentations for small customers, needs to be planned and funded on an ex-ante basis – which means that the value customers place in particular service levels needs to be understood upfront. As such, SAPN sees merit in the AER being tasked to develop a 'value of customer reliability' equivalent for export services as an input to:¹⁰²

- adapting the STPIS to export services, and helping to inform the setting of the service performance baseline that DNSPs should maintain
- the setting of any service standards if and where these are implemented
- DNSPs' evaluation of the benefits of network expenditure that they may seek to propose in order to increase service performance above that reflected in the STPIS baseline.

5.4.2

Total Environment Centre / Australian Council of Social Service proposal

TEC/ACOSS propose the current STPIS in Chapter 6, Part C, clause 6.6.2 of the NER, should be amended to include a component related to exports:¹⁰³

This incentive would need to be based on a metric for the value of customer exports and coupled with a reliability standard for exports. CEPA [in its report to the DEIP consultation process] discussed several design options, including "A financial reward/penalty around a target level of headroom" and "A financial reward/penalty to ensure that export capacity is highly utilised".

¹⁰² SAPN, Rule change request, p. 21.

¹⁰³ TEC/ACOSS, rule change request, p. 11.

QUESTION 5: EFFICIENCY INCENTIVES

1. If 'distribution services' expressly include export services, are there any regulatory barriers to adapting existing incentive schemes to export services?
2. Should the STPIS be extended to export services or is a new incentive scheme required?
3. If the STPIS or a new incentive scheme is to apply to export services:
 - a. What are the practical challenges of designing relevant performance measures and collecting robust data? Can these challenges be overcome over time?
 - b. Should the details of the scheme be prescribed in the NER or is it appropriate for the AER to design the scheme?
 - c. Are there any additional factors the AER should be required to take into account (eg, under NER clause 6.6.2 relating to the STPIS)?
 - d. Do export service standards (to meet customer expectations) need to be established to set a performance 'baseline' for the incentive scheme?

6 PRICING OF EXPORT SERVICES

6.1 Overview and issues for discussion

The previous chapters outlined proposals to update the regulatory framework so DNSPs efficiently provide export services to support DER. This chapter discusses the proponents' proposals to change the way future DER-related investments by the DNSPs can be recovered, and raises the question of whether cost reflective pricing principles, which currently apply to consumption, should also apply to export services.

This chapter outlines:

- The current pricing arrangements and progress of previous reforms to introduce cost reflective pricing (Section 6.2).
- The proposed problems with the current regulatory framework the rule change proponents seek to address, including efficiency and equity concerns (Section 6.3).
- The proponents' proposed solutions to these issues, including allowing for greater regulatory flexibility to create greater customer choice and 'tools' for the AER (Section 6.4).

BOX 5: KEY POINTS – PRICING FOR EXPORT SERVICES

- Charges for the use of a network for exporting electricity (export charges) are prohibited under the current regulatory framework (NER clause 6.1.4). All network costs, including for export services, are recovered through connection and consumption charges only.
- Increase DER penetration is expected to create new drivers of network expenditure. A timely question is whether and how these export-related costs should be recovered from customers of export services. Also, consideration is given to whether cost reflective pricing signals for efficient investment should apply to export services – as they do now for consumption services.
- We have heard some stakeholders are concerned that the prospect of export charges could potentially undermine important environmental policy objectives, and the value of households' DER investments to date. Others are concerned about potential cross-subsidies benefiting DER owners at the expense of those who cannot afford to make these investments.
- SAPN and SVDP propose removal of NER clause 6.1.4, which SAPN considers would enable consultation between the customers, jurisdictional governments, DNSP and AER on options for fair and efficient pricing structures of *all* network services.
- If this rule change is made as proposed and a DNSP is subsequently allowed to include export charges in its pricing structure, this is not intended to change the DNSP's total revenue allowance (it would be 'revenue neutral'). That is, an increase in one part of a tariff structure would need to be offset by a reduction in other parts of the tariff, for a given level and type of service

- Further, SAPN and TEC/ACOSS consider the regulatory framework could better recognise and reward customers for the benefits their DER can provide to the grid. SAPN proposes that distribution use of system charges should allow negative prices to reward customers for benefits distribution-level exports provide the DNSPs in managing consumption driven network congestion.
- TEC/ACOSS propose the NER be amended to allow for a 'supplementary' connection agreement for a DNSP and its customer to negotiate additional capacity, if that investment is not otherwise justified under a 'net market benefits' test. This, TEC/ACOSS say, will allow more equitable allocation of DER-related costs.

6.2 What is the current situation under the rules?

Access and pricing are inherently interlinked. Retail customers have a connection agreement with their DNSP to gain access to the network. This connection agreement may involve the customer paying a connection fee. The retail customer will then be charged an ongoing fee (a distribution use of system charge) for the use of the 'poles and wires' to transport electricity to their home.

6.2.1 Prohibition of export charges

Distribution use of system charges currently do not apply to export services. It is explicitly prohibited under the NER (clause 6.1.4). However, as with consumption services, solar PV customers pay an initial connection fee, and any ongoing operating and capital costs relating to the provision of export services are recovered through ongoing consumption charges.

6.2.2 Connection charges for micro embedded generation

Currently, retail customers that connect micro embedded generation, such as rooftop solar PV, may be charged a 'shallow', one-off connection charge. Under a basic connection service,¹⁰⁴ customers may only be charged for works related to the connection between their property and the distribution network. The connection charge principles set out in Chapter 5A of the NER prohibit retail customers who are seeking a basic connection service from being required to make a capital contribution towards the cost of augmenting the shared network.¹⁰⁵

The current rules provide more flexibility for charging for connection services that are not basic connection services – for example, when a DER owner wants a larger export capacity connection from a DNSP than what the DNSP offered as part of the basic connection

¹⁰⁴ A basic connection service means a connection service related to a connection (or a proposed connection) between a distribution system and a retail customer's premises (excluding a non-registered embedded generator's premises) in circumstances outlined in NER cl. 5A.A.1.

¹⁰⁵ NER, cl. 5A.E.1(b).

service.¹⁰⁶ The AER's connection charging guidelines were published in 2012 and only relate to retail consumption customers. Some DNSPs have indicated that the embedded generator will be responsible for meeting the costs of any augmentation to the shared network. This implies a 'deep connection' charge.¹⁰⁷

6.2.3 Network pricing principles

In November 2014, the Commission made rules setting out pricing principles for ongoing consumption charges (as discussed further below).

Some of the key elements of the pricing principles are:

- Each tariff must be based on the long run marginal cost of providing the service to which it relates to the retail customers assigned to that tariff¹⁰⁸
- The revenue expected to be recovered from each tariff must reflect the DNSP's total efficient costs of serving the retail customers that are assigned to that tariff – in a way that minimises distortions to the price signals for efficient usage¹⁰⁹
- A DNSP must consider the impact on retail customers of changes in tariffs from the previous regulatory year, and the structure of each tariff must be reasonably capable of being understood by retail customers.¹¹⁰

The objective (network pricing objective) of the pricing principles is to ensure 'the tariffs that a DNSP charges in respect of its provision of direct control services to a retail customer should reflect the DNSP's efficient costs of providing those services to the retail customer.'¹¹¹

The network pricing objective and pricing principles together mean that for a given level of service to a group of customers, the revenue earned by a DNSP from the introduction of a new tariff (or new tariff components), such as charges for export services, will need to be offset by a reduction of revenue from another tariff(s) so that the result is 'revenue neutral'. That is, a DNSP is not earning more revenue from customers if the level and/or type of services have not changed.

6.2.4 Tariff structures

DNSPs' tariff structures differ, although they largely reflect a three-part structure for cost-reflectivity. A three-part tariff structure, for example, combines:

- a fixed charge (\$/day) reflecting costs that the DNSP incurs to serve its customers regardless of their usage of the network – such as general overheads, metering and customer service

¹⁰⁶ Large embedded generators can currently be asked to contribute to the costs of network augmentation via connection charges. This includes both those who are standalone (pure generators) and those that are not standalone and therefore also consume energy (load). Charging arrangements for both generators are set out in DNSP connection policies. These policies are reviewed and approved by the AER.

¹⁰⁷ CEPA, Distributed Energy Resources Integration Program – Access and pricing: Reform options, 9 April 2020, p. 28.

¹⁰⁸ NER, cl. 6.18.5(f).

¹⁰⁹ NER, cl. 6.18.5(g).

¹¹⁰ NER, cl. 6.18.5(h) and (i).

¹¹¹ NER, cl. 6.18.5(a).

- an actual or agreed capacity tariff (\$/kW or \$/kVA) capturing the customer's contribution to the system peak (i.e., highest half-hourly use during peak times), which drives future network investment (this can also be scaled to ensure the efficient recovery of the DNSP's revenue requirements)
- a time-of-use (TOU) tariff (\$/kWh) reflecting the variable cost of using the network – this element may support the capacity tariff to reflect higher costs at peak times.¹¹²

This tariff structure, if passed on by retailers, means that retail customers can reduce their electricity charges by using less, and they can reduce their charges even more by using less electricity at DNSP-identified peak times.¹¹³ It is noted that for customers without an advanced meter (or interval meter), prices cannot vary by time of use. These customers typically face a fixed daily supply charge and a volumetric charge (\$/kWh) for electricity usage.

Currently, retail customers may not directly face the DNSPs' pricing structures. In situations where the retailers do not pass on the DNSPs' pricing structures, they bear the risks/rewards of the customers' behaviour if the retailers' pricing signals differ in structure from the DNSPs'.

6.2.5

Consumption pricing reforms

The requirement for DNSPs to develop cost reflective network prices was introduced by the Commission's *Distribution network pricing arrangement* rule change in 2014.¹¹⁴ This rule change also requires DNSPs to develop a tariff structure statement that outlines the proposed pricing structure for the next regulatory period – which the AER examines within the distribution revenue determination process. The AER sets the total amount of revenue that a DNSP may recover in each regulatory period. Tariff structure design is about how this revenue is recovered, not how much revenue should be recovered.

The NER require a DNSP to describe the approach it will take in setting each tariff in a tariff structure statement, which must be submitted to the AER for approval each regulatory period. DNSPs must consider the network's circumstances, the expected impact on consumers within the network and their ability to respond, when outlining the approach to setting tariffs each regulatory period. The AER expects DNSPs to outline how they will approach trialling more complex, innovative trials in their tariff structure statements and explain how the learning from previous trials was used to inform their strategy.¹¹⁵

Retailers pay the new network charges, then decide how to recover these costs and their other costs as part of their overall retail charges to consumers. Retailers are currently free to manage network price signals how they choose.

The DEIP Outcomes Report also notes that despite some progress at the network level, full cost reflective and socially accepted tariff reform at the consumer level has proven to be difficult to implement effectively. Challenges in analysing the impact on various consumer

112 CEPA, Distributed Energy Resources Integration Program – Access and pricing: Reform options, 9 April 2020, pp. 9–10.

113 CEPA, Distributed Energy Resources Integration Program – Access and pricing: Reform options, 9 April 2020, p. 10.

114 AEMC, Distribution Network Pricing Arrangements: www.aemc.gov.au/rule-changes/distribution-networkpricingarrangements

115 See: www.aer.gov.au/networks-pipelines/network-tariff-reform

groups, lack of clarity as to how network tariffs could play out through retailers, how retailers will translate tariffs to customers, and what protections and support will be put in place for vulnerable consumers, are all contributing to delays and concerns. Additionally, there is a lack of consistent messaging to explain the benefits of cost reflective tariffs to all consumers, and a lack of tools to enable consumers to assess the impact of different retail tariff structures for their individual circumstances.¹¹⁶

6.3 What problems do the rule change requests seek to address?

6.3.1 SA Power Networks

SAPN considers the key to promoting customers' long term interests in any energy service is for regulation to enable customers to make informed choices on the energy services they want to use, and when and how much they use these services, with access to information on the performance they can expect, and signals on the costs. SAPN explains there are several tools that regulation provides to enable choice for consumption services – including ongoing charges, connection charges and 'alternative control service' charges. However, export charges are prohibited and, in SAPN's view, the other tools have limitations for the provision of export services (particularly for small customers). SAPN notes:¹¹⁷

- connection charges aim to influence a location investment decision, which for small customers is unlikely to be effective and it is not practical to allocate costs of shared network augmentations to small customers as connection charges
- upfront connection charges cannot signal the operation of DER
- the costs of shared network assets used to provide export services best reside in a single regulatory asset base (RAB), given the commonality of assets used to provide export and consumption services, which means an alternative control service pricing approach is impractical.

To manage higher DER penetration, SAPN considers the current rule preventing networks from proposing tariffs that include an export component (NER clause 6.1.4) should be removed, so that such tariffs can be considered in the future:¹¹⁸

The principle of cost-reflective pricing requires that networks should, over time, provide price signals for both consumption and export, if we are to ensure that future expenditure on export capacity is efficient and that customers are incentivised to invest in, and operate, their DER in ways that are efficient. This implies that future network tariffs may require an export component as well as a consumption component.

Stakeholders, in particular vulnerable customer advocates, are also concerned that the current practice of recovering network costs via tariffs only on energy consumed from the grid will in future lead to cross-subsidies from non-DER customers, including vulnerable and disadvantaged customers, to DER customers over time. While new

116 DEIP Access and Pricing Reform Package: Outcomes report, June 2020, p. 36.

117 SAPN, Rule change request, pp. 14–15.

118 SAPN, Rule change request, p. 7.

tariffs such as SAPN's 'Solar Sponge' Time of Use tariff help to address this, some stakeholders consider that more symmetrical pricing will be necessary in the long term to avoid undesirable cross-subsidies, particularly as investment to support customer exports increases in the future.

Furthermore, we observe that influencing customer behaviour in respect of a particular service (exports) by virtue of pricing another service (consumption) is unlikely to be highly effective in the long term.

SAPN considers the restriction on export charges creates several sources of inefficiency for customers, as DNSPs cannot:¹¹⁹

- obtain a direct signal from customers as to their desire to utilise export services – that is, by actually utilising the service
- tailor the export service offer with features that particular customers may desire and be willing to pay for, without this imposing higher costs on other customers who may not desire such service features
- allocate incremental / forward looking costs driven by export services to those that use these services
 - this means that under current regulation, customers who only consume energy will pay for the costs driven by export services that they do not use – an issue that will increase in significance in future as networks approach their intrinsic capacity limits and may have to incur material costs to allow more exports
- send price signals to customers of export services to provide choices on when they export, both as a means of managing longer-term export driven congestion on the network, and rewarding customers of export services for the value that their export provides in mitigating consumption driven congestion on the network.

6.3.2

The St Vincent de Paul Society Victoria

SVDP considers NER clause 6.1.4 conflicts with the network pricing objective that tariffs should reflect the DNSPs' efficient costs of providing direct control services to retail customers. SVDP considers:¹²⁰

... the circumstances in distribution networks are significantly different today than they were when NER 6.1.4 was included in the Rules. When there was very little use of rooftop photovoltaic generation (PV) and government policy was to stimulate the uptake of PV with subsidised feed-in-tariffs there was both no cost to be recovered by DNSPs and DNSP charges would conflict with policy objectives.

This is no longer the case and DNSPs are facing the prospect of additional investment to support the export of electricity by Distribution Network Users. The prohibition on any charge for export also precludes the network for rewarding customers who choose

119 SAPN, Rule change request, pp. 15–16.

120 SVDP, Rule change request, pp. 1–2.

to store energy and export it at a later time.

The National Energy Objective seeks to promote efficient investment in, and operation and use of, energy services for the long-term interests of consumers. Economic efficiency is generally promoted when individuals who incur a cost that is borne by society bear that cost themselves – that is what ‘cost reflective pricing’ is about.

SVDP states that while there are many low-income consumers that are direct DER participants, there are also many low-income consumers that are unable to be direct DER participants and, therefore, are unable to reduce their energy costs or afford additional costs. SVDP considers that additional costs on consumers arising from DER integration may be lower when smeared across all consumers, but this does not mean it is more equitable or affordable than allocating costs directly to those participating and benefiting from DER.¹²¹ According to SVDP, non-DER participants have already subsidised this initial shift to a DER future and while this has incentivised the DER uptake, largely in the form of rooftop solar, this does not justify ongoing subsidies from non-DER participants to DER participants into the future.¹²²

SVDP recognises that connection charges can recover costs from active DER participants, but says this is a ‘blunt instrument’.¹²³

A connection charge does not give DER participants options, or incentives, to change self-consumption, install batteries or engage third parties in managing electricity export. Similar to the traditional fixed supply charge, a connection charge can work as a simple cost recovery tool but it does not provide the price signals required for an efficient DER future.

6.3.3

Total Environment Centre / Australian Council of Social Service

TEC/ACOSS say, from a total system perspective, it is inefficient for networks to either apply zero export limits or to build out the network to provide additional DER hosting capacity.¹²⁴ But TEC/ACOSS acknowledge DNSPs will need to incur additional DER-related costs to maintain current service levels:¹²⁵

There are a variety of technical solutions (some of them relatively inexpensive) available for overvoltage, including transformer tap changes and the use of smart inverters. However, there is little doubt that the higher the PV penetration, the greater the impacts and the greater the need for network investment to overcome them.

TEC/ACOSS state the current inflexible pricing arrangements create hurdles to efficient and equitable cost recovery when the costs exceed the benefits to everyone. TEC/ACOSS say DER

121 SVDP, Rule change request, p. 5.

122 SVDP, Rule change request, p. 9.

123 SVDP, Rule change request, p. 5.

124 TEC/ACOSS, Rule change request, p. 7.

125 TEC/ACOSS, Rule change request, p. 6.

owners do not pay for the service of exporting energy to the grid, nor for any extra costs that DER may cause networks – except via DER connection charges, which TEC/ACOSS also consider are a ‘one-off blunt instrument’ that cannot respond to changing conditions over time. TEC/ACOSS are concerned that non-DER users are paying a greater share of all network costs:¹²⁶

The current consumption-only network cost recovery pricing framework will create inequities where some people can reduce consumption and others can’t. This will be further exacerbated where the costs to increase DER hosting capacity on the grid outweigh the benefits to all consumers of having more DER in the grid, and there is no way to recover the cost.

Additionally, TEC/ACOSS consider that aside from the various government subsidies most prosumers have received, they are not always rewarded for the benefits they bring to networks and other consumers:¹²⁷

Some of these benefits relate to self-consumption and storage – e.g., when PV powers air-conditioners, or when home batteries reduce evening peak demand on the grid. Others relate to the type and quality of technology installed behind the meter – e.g. when smart inverters help to balance local voltage fluctuations – or where aggregated rooftop PV and batteries reduce network constraints and/or wholesale prices.

While networks are already allowed to pay for the benefits of DER exports, they have rarely done so. We are not convinced that existing tariff structures and incentive schemes are working adequately in this regard (as evidenced, for instance, by the infrequency of non-network solutions being chosen as the preferred solution in RIT-D processes). Indeed, even in locations where DER penetration is high, there are currently disincentives to networks investing in measures to optimise or increase DER exports.

6.4 What are the proponents’ proposed solutions?

Proposed solutions put forward by the three rule change proponents are discussed below.

SVDP and SAPN’s rule change requests call for removal of the restriction on ongoing export charges. TEC/ACOSS’ proposal also relates to connection charging arrangements.

6.4.1 SA Power Networks proposal

SAPN proposes removal of NER clause 6.1.4 and amendments to the NER distribution pricing rules to introduce new rules:¹²⁸

- to explicitly allow ongoing distribution use of system charges to reward customers for benefits that their DER provide to the network

¹²⁶ TEC/ACOSS, Rule change request, pp. 7–8.

¹²⁷ TEC/ACOSS, Rule change request, p. 8.

¹²⁸ SAPN, Rule change request, p. 22.

- with general guiding principles for cost allocation between consumption and export services
- to explicitly exclude large embedded generators who are standalone generators from ongoing distribution charges.

SAPN states:¹²⁹

To enable customers to make informed choices in requesting export services and to provide for efficient outcomes, we propose removing an explicit regulatory barrier in the NER, clause 6.1.4. This would then allow the AER and DNSPs the option to decide on the appropriate combination of charging arrangements with all options available including connection charges, DUoS charges and ACS charges. DNSPs could then consider the design, circumstances and timeframe for any export charges in consultation with their customers and stakeholders, particularly their respective jurisdictional governments who also retain rights under the current NER to impose obligations on DNSPs as to how DUoS charges should be structured and applied.

SAPN outlines how it considers this would work in practice:¹³⁰

- The design and approach to introducing any ongoing export charges would accord with the existing Distribution Pricing Rules in Chapter 6 of the NER and be determined via each DNSP's respective tariff structure statement, both of which are largely fit-for-purpose
- The introduction of any export charges must be carefully considered by DNSPs, under a timeframe and approach that is supported by their customers and stakeholders, as has occurred to date with respect to the introduction of cost reflective tariffs for consumption – whereby:
 - Any such tariffs should preferably apply prospectively and not retrospectively, to avoid negative impacts on existing customers who have invested in good faith on the basis of facing no export charges to date.
 - DNSPs should be able to employ a broad range of transition approaches, such as introducing charges over a period of years which may extend beyond a regulatory control period, having shadow pricing for a period of time, slowly increasing rates over time, or deciding that certain costs should not be allocated to these charges (e.g. because of benefits accruing to all customers) where this is supported by customers / stakeholders.
 - The approach to transition needs to be determined via engagement with customers and stakeholders based on a clear understanding of the trade-offs in faster or slower transitions to introducing new export charges.
 - For example, although a slower transition would enable more time for existing customers to adapt to new tariffs through choices they make as their systems require replacement, a faster transition would encourage efficient operation of

129 SAPN, Rule change request, p. 23.

130 SAPN, Rule change request, p. 23.

systems earlier, and may require costs that would otherwise be recovered from export customers to be recovered from all customers.

- The design of any export charges would aim to comply with the current Network Pricing Objective in the NER, which SAPN says is already sufficiently broad and refers to charges for directly regulated services to customers reflecting efficient costs of providing services to those customers.¹³¹

SAPN envisages small customers can request and receive a connection offer for a defined standard capacity level.¹³² This, SAPN says, could then be expressed as a 'base service' that customers request. A defined base service could be implemented by governments, the NER and/or the AER's Connection Guidelines – consistent with the current approach used to define a 'basic connection' offer (which links to the size of the inverter).¹³³ Other service options contemplated by SAPN are outlined in Section 2.1.2.

SAPN states the customer impact pricing principles in the NER require consideration of the need for transitions and afford distribution networks discretion in this regard.¹³⁴

SAPN proposes the following three minor amendments:¹³⁵

1. A new rule should make it explicit that any ongoing distribution use of system charges introduced must not be applied to large embedded generator customers who are stand-alone generators, on the basis that:
 - the primary purpose of these generators is to provide energy to the NEM, rather than generating for a mix of self-consumption and export and they currently already pay connection charges for network augmentations
 - not charging these generators maintains regulatory symmetry with dedicated generators who are connected to transmission networks and which do not currently pay ongoing transmission charges (only connection charges)
2. A new rule should make it explicit that any cost reflective distribution charges can also include negative prices to reward customers for any benefits that their exports provide in managing consumption driven network congestion
 - This would allow for tariffs that explicitly consider not only the costs caused by serving a customer, but also the costs avoided for other customers, and would serve as an enabler for DER network support services¹³⁶

131 Consistent with the existing pricing rules, SAPN considers the primary purpose of ongoing distribution charges would be to reflect long run marginal costs of export services – which, it says, remains an appropriate guiding theory for efficient forward-looking cost reflective price signals. (SAPN, rule change request, pp. 23–24)

132 SAPN notes this does not imply firm access to export as although a base level of service would be defined, the availability of that service at all times is not guaranteed.

133 SAPN, Rule change request, p. 22.

134 SAPN, Rule change request, p. 23.

135 SAPN, Rule change request, p. 24.

136 However, SAPN considers negative pricing should be optional for DNSPs to consider in their circumstances via their tariff structure statement, and notes networks also have non-tariff options to reward customers such as demand response payments to customers. (SAPN, Rule change request, p. 25)

- SAPN says negative pricing should be optional for DNSPs to consider in their circumstances via their tariff structure statement – DNSPs also have non-tariff options to reward customers, such as demand response payments to customers
3. A new rule should provide guiding principles for DNSPs on how costs should be allocated between consumption and export services and potentially between different tariff charging parameters of export services. This would aim to:
- provide transparency to customers, and guidance to DNSPs to minimise administrative burden in their respective distribution determinations
 - make it explicit that tariffs applied specifically to export services should not be allowed to recover the costs of the intrinsic capacity in the network to host exports. It is appropriate that the costs of this intrinsic capacity continue to be recovered via ongoing distribution charges applied to consumption, noting that the primary purpose of the network is to support consumption services
 - provide flexibility for DNSPs to consider their individual circumstances.

SAPN considers the removal of NER clause 6.1.4 will allow DNSPs to, if they choose, provide options to customers on the level of export service they desire and are willing to pay for – with the choice of options to be left to DNSPs to determine together with their customers and stakeholders, and may depend on their specific network capabilities. SAPN requests for the Commission to review if there are any other regulatory barriers to customising export service offers should DNSPs seek to do so, or any regulatory barriers to customers being able to move between offers over time.¹³⁷

6.4.2

The St Vincent de Paul Society Victoria proposal

SVDP proposes to amend NER Clause 6.1.4(a) to allow DNSPs to charge DER participants (per kWh) for DER exported back via the grid – the revenue for which could be used to upgrade networks to limit constraints and enable future DER penetration. SVDP explains:¹³⁸

For example, if a network experiences congestion on a specific line/substation it can set a DER export price for that specific line/substation. The generating consumer would then determine whether they would a) accept constraints, b) accept the cost of export or c) explore other options such as batteries and coordinated export reductions (including the involvement of 3rd party services).

SVDP considers a high DER future is likely to operate more efficiently if there are opportunities for energy management services to develop solutions that can benefit DER participants as well as the networks, and an export charge will produce a price signal that can incentivise DER participants to engage with such energy management services and be potentially rewarded for their services.¹³⁹ SVDP states its proposed solution is not aimed at penalising households with rooftop solar, but consecutive governments' policies promoting

¹³⁷ SAPN, Rule change request, p. 25.

¹³⁸ SVDP, Rule change request, p. 7.

¹³⁹ SVDP, Rule change request, p. 8.

the uptake of rooftop solar have created an imbalance in favour of solar and, potentially, at the disadvantage of other technologies, such as storage.¹⁴⁰

6.4.3 Total Environment Centre / Australian Council of Social Service proposal

To give prosumers subject to export constraints access to additional capacity, TEC/ACOSS propose either:¹⁴¹

1. A rule change to allow DNSPs to negotiate an export capacity agreement akin to a supplementary connection agreement.
 - TEC/ACOSS say this option would allow networks to recover the costs associated with augmenting local hosting capacity upfront from prosumers.
 - Specifically, TEC/ACOSS propose amendments to NER clause 5.3A and/or 5A.B.2 to allow for a second connection agreement to increase DER export capacity.
2. Amendment of NER clause 6.1.4, if it involves cost recovery via ongoing volumetric or demand-based charges for exported energy.
 - However, TEC/ACOSS consider this option is less preferable because it would create uncertainty, risk and potential ongoing costs for prosumers.
 - TEC/ACOSS outline the detailed amendments in their rule change request.

TEC/ACOSS consider the above reform options would ensure that other consumers do not pay for the direct benefit accrued primarily to prosumers from related network expenditure, and the added revenue would allow DNSPs to invest to optimise existing hosting capacity and/or to augment the network to increase hosting capacity (by enabling them to recover the associated deep connection costs). TEC/ACOSS state:¹⁴²

Importantly, this reform should be adopted on an opt-in basis for prosumers. We expect that many would take it up because cost-reflective network export tariffs are likely to be more than offset by the additional income from retailer feed-in tariffs. It would be implemented as an option for existing connections which are already export limited or for new connections which are proposed to be export limited.

TEC/ACOSS say that while this reform does not include guaranteed (firm) access rights for DER exports, it would be appropriate to include a requirement for DNSPs to actually deliver the increase in capacity that prosumers are paying for – which could take the form of a guaranteed service level (GSL) obligation.¹⁴³

¹⁴⁰ SVDP, Rule change request, p. 9.

¹⁴¹ TEC/ACOSS, Rule change request, pp. 13–14.

¹⁴² TEC/ACOSS, Rule change request, p. 13.

¹⁴³ TEC/ACOSS, Rule change request, p. 13.

QUESTION 6: PRICING ARRANGEMENTS

1. Should DNSPs have the option to propose to the AER charges for export services?
2. What are the potential benefits and costs of enabling export charges?
3. If customers can already negotiate 'deeper' connection agreements, is a 'supplementary' connection arrangement required to allocate DER-related costs – as proposed by TEC/ACOSS?
4. If NER clause 6.1.4 is removed, and DNSPs are able to develop tariffs for export services:
 - a. What are the implementation issues?
 - b. Should the existing tariff structure statement process and pricing principles apply? For example, is a principle required to guide DNSP decisions on cost allocation between consumption and export services – as proposed by SAPN?
 - c. Are transitional or 'grandfathering' arrangements needed and, if so, should they be prescribed in the NER?
5. Should the regulatory framework better recognise the benefits DER services provide to DNSPs? For example, does SAPN's proposal to allow for negative prices address the issue?
6. Should these reforms only apply to small customers?

ABBREVIATIONS

ACOSS	Australian Council of Social Service
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CESS	Capital Efficiency Sharing Scheme
Commission	See AEMC
DAPR	Distribution Annual Planning Report
DER	Distributed Energy Resources
DEIP	Distributed Energy Integration Program
DMIA	Demand Management Innovation Allowance Mechanism
DMIS	Demand Management Incentives Scheme
DNSP	Distribution network service providers
EBSS	Efficiency Benefit Sharing Scheme
ESB	Energy Security Board
EV	Electric Vehicle
GSL	Guaranteed Service Level
MCE	Ministerial Council on Energy
NEL	National Electricity Law
NEO	National electricity objective
NERL	National Energy Retail Law
NERO	National energy retail objective
PV	Photovoltaic
RAB	Regulated Asset Base
RIT-D	Regulatory Investment Test for Distribution
SA Power Networks	SAPN
STPIS	Service Target Performance Incentive Scheme
SVDP	St Vincent De Paul Society Victoria
TEC	Total Environment Centre