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Acting Chair
Australian Energy Market Commission (AEMC)
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Rule change proposal for access and pricing of distributed energy resources

SA Power Networks is pleased to provide the attached document which describes our proposed changes to the National Electricity Rules (NER) regarding the regulation of access and pricing for customers' Distributed Energy Resources (DER).

SA Power Networks is the primary electricity distribution network service provider in South Australia. We serve approximately 900,000 residential and business customers and 1.7 million people in communities across our vast state.

The national electricity sector is undergoing a major transformation, with DER such as solar panels and battery storage fundamentally changing the way that customers are seeking to engage with energy markets, either directly or via their agents.

Over the past 10 years we have been adapting our distribution network to enable significant customer-led change in the way that South Australians seek to source and share their energy. Solar capacity continues to grow strongly, and in the 12 months to end of June 2020, we approved a further 400 MW of solar PV being connected to our network. A third of our residential customers now have their own rooftop solar photo-voltaic (PV) generation and we are also seeing a major step-up in business investment in solar. With a total installed capacity of nearly 1,500 MW, taken together, they are now the largest single generator in our state. By 2023, the Australian Energy Market Operator is forecasting that there will be enough rooftop solar to supply the entire energy needs of South Australia during low demand periods.

This level of solar PV take-up places SA Power Networks at the forefront of the distributed energy transition, providing an imperative for us to consider how we might best support our customers new needs as the electricity industry continues to transform.

The national regulatory framework was largely written at a time when energy flows were not bi-directional, and now needs updating to ensure that customers can continue to connect, use and benefit from DER that they seek to invest in.

The AEMC set a challenge to all stakeholders in its 2019 electricity network economic regulatory framework review, for a whole-of-sector effort to consider reforms that it considered necessary to deliver best outcomes to customers in a high DER future. Subsequently, a collaboration of a broad group of stakeholders including government agencies, market bodies, industry and consumer associations, networks and retailers has been underway to consider reform options via the Distributed Energy Integration Program (DEIP) DER access and pricing review.

SA Power Networks has been an active participant in the DEIP access and pricing review that has led to this rule change proposal, along with the rule change proposals of other participants in the review. We seek to complement the work and overall objectives of these other rule change proponents, by providing our perspectives and experiences as the distribution network at the forefront of Australia's energy transition.

We look forward to continued engagement with customers and stakeholders as the AEMC considers and consults broadly on these important regulatory reforms.

If you would like to discuss the contents of this submission, please contact Bruno Coelho on 0419 666 389 or bruno.coelho@sapowernetworks.com.au

Yours Sincerely,



Mark Vincent
General Manager Strategy and Transformation



Rule change proposal for access and pricing of Distributed Energy Resources:

Enabling customer choice as we continue the transition to a distributed energy future

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Glossary

ACS	Alternative Control Services
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CESS	Capital Expenditure Savings Scheme
DCS	Direct Control Services
DMIAM	Demand Management Innovation Allowance Mechanism
DMIS	Demand Management Incentive Scheme
DNSP	Distribution Network Service Provider
DER	Distributed Energy Resources
EBSS	Efficiency Benefits Sharing Scheme
ESB	Energy Security Board
ESCOsA	Essential Services Commission of South Australia
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules
NERL	National Energy Retail Law
NERR	National Energy Retail Rules
NPO	Network Pricing Objective in the NER
PV	Photo-Voltaic
RPPs	Revenue and Pricing Principles in the NEL
SCS	Standard Control Services
STPIS	Service Target Performance Incentive Scheme
TSS	Tariff Structure Statement
VCR	Value of Customer Reliability
VPP	Virtual Power Plant

1. The rule proponent

This document is a submission by SA Power Networks to the Australian Energy Market Commission (AEMC) setting out our proposed changes to the National Electricity Rules (NER) regarding the regulation of access and pricing for customer’s Distributed Energy Resources (DER).

SA Power Networks is the primary electricity distribution network service provider in South Australia. We are licensed by the Essential Services Commission of South Australia to operate our network and we are regulated by jurisdictional and national legislation and regulation. As a regulated monopoly business, the regulated revenue that we are allowed to earn for each five year Regulatory Control Period (RCP) is set by the Australian Energy Regulator (AER) under processes and guidance set out in the National Electricity Rules (NER) and National Electricity Law (NEL).

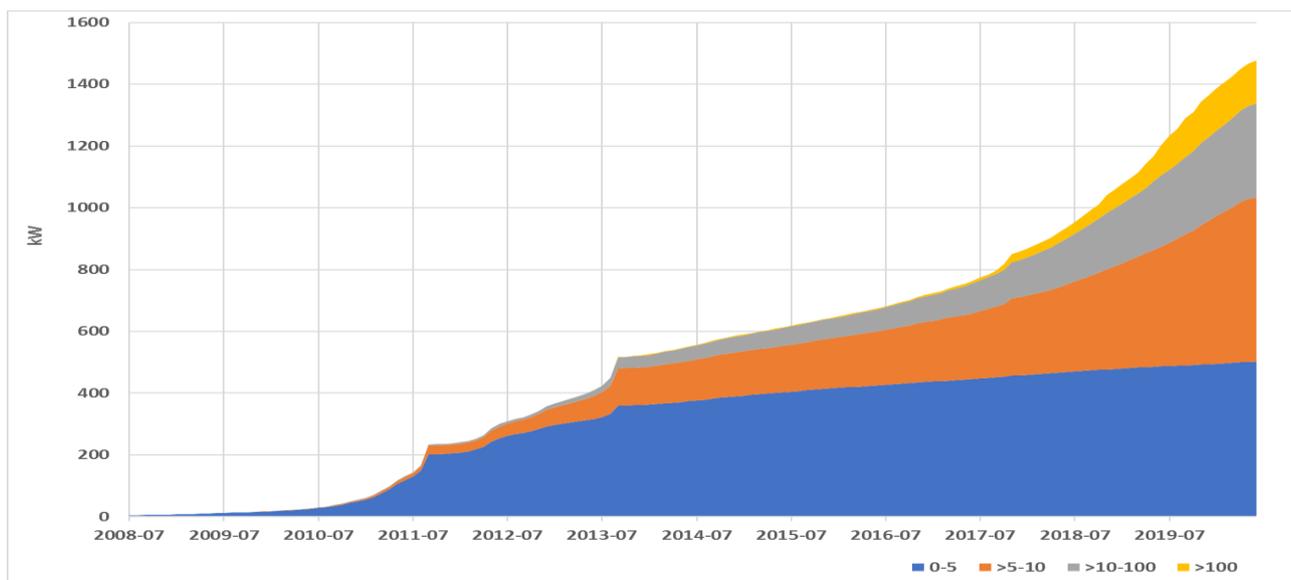
We serve around 900,000 residential and business customers and 1.7 million people in communities across South Australia. Our distribution network covers a vast area of approximately 178,000 square kilometres, comprising a route length of 81,000 kilometres, 670,000 Stobie poles, 400 zone substations and 70,000 transformers.

Much of our network was built in the 1950s to 1970s, and combined with a widely dispersed but relatively small population, our network is the oldest and has the least number of customers per kilometre of line of any distribution network in the National Electricity Market (NEM). Despite the challenges of a long, skinny and mainly radial network configuration, as well as extremes of weather and environment, we consistently deliver electricity reliably, safely and cost effectively to our customers. The 2019 AER benchmarking report recognises that we continue to provide the most efficient distribution services in the NEM on a state-wide basis.

Over the past 10 years, our distribution network has been adapting to enable significant customer-led change in the way that South Australians source and share energy. A third of residential customers in South Australia now has their own rooftop solar photo-voltaic (PV) generation and we are also seeing a major step-up in business investment in solar. With a total installed capacity of nearly 1,500 mega-watts, taken together, they are now the largest single generator in our State. Solar capacity continues to grow strongly, and in the 12 months to end of June 2020, we approved a further 400 MW of solar being connected to our network. By 2023, the Australian Energy Market Operator (AEMO) is forecasting that there will be enough rooftop solar to supply the entire energy needs of South Australia during low demand periods.¹

This level of solar PV take-up places SA Power Networks at the forefront of the distributed energy transition, providing an imperative for us to consider how we might best support our customers new needs as the electricity industry continues to transform.

Figure 1: Distributed generation in South Australia – PV approvals commissioned, by size (kW) and date of approval²



¹ AEMO, *Minimum operational demand thresholds in South Australia – Technical Report*, May 2020, p.20

² Data from SA Power Networks. Figure 1 displays total PV approvals for sites with metered National Metering Identifiers by date and size of approval (kW) – these are approvals that have already been commissioned / installed. Data does not include utility scale solar farms connected directly to the transmission network.

2. Executive summary

Nowhere in the world is the transition to a decarbonised electricity system being led so directly and strongly by customers as it is in Australia. Since 2010, Australian customers are estimated to have invested more than \$10 billion in installing their own rooftop solar PV generation, and they continue to invest in new renewable generation at a rate of more than \$1 billion per annum.³ As a result, the NEM has been transformed, and continues to transform, with large central generators giving way to a new normal in which millions of rooftop PV systems are now an integral part of the energy system, and meet an increasing portion of the nation’s energy needs.

As the growth in rooftop PV continues unabated, we are also now at the start of a new wave of community investment in home batteries. Aggregated in schemes such as Virtual Power Plants (VPPs), this new and growing resource of distributed storage is already becoming integrated with the power system as a whole, and will increasingly be relied upon to provide critical balancing services like Fast Frequency Response to help maintain system stability as the transition to renewable energy continues. In future, customers will look to new ways to create value from solar PV, battery storage, electric vehicles, and potentially new smart appliances, collectively referred to as Distributed Energy Resources (DER).

As the energy system continues to decentralise and decarbonise, the role of the distribution network has fundamentally changed. Customers no longer only rely on the network to supply energy, but are increasingly using the network to export their surplus energy back to the grid, supplying renewable energy for other homes and businesses and using their DER to engage in new markets.

Distribution networks, therefore, now provide two distinct services to customers: the traditional supply of energy downstream to customers’ homes and businesses, and the transport of energy generated by customers’ DER upstream to other customers or the market. In this document we refer to these as **‘consumption services’** and **‘export services’** respectively.

Distribution networks designed to support consumption services have an inherent, albeit finite, capacity to also deliver export services. While customers’ take-up of DER was relatively low, networks could accommodate additional DER at near zero marginal cost. However, the inherent DER ‘hosting capacity’ of networks is being rapidly approached at local and system-wide levels in many NEM regions. This means that either DER customers will no longer receive the service levels for export services they have historically enjoyed, or networks will need to invest to maintain service levels.

Why do networks need to invest to enable more DER?

As customers continue connecting DER, networks will need to invest to support increasing reverse power flows, expenditure that would not otherwise have been required.

The most immediate constraint in most areas is voltage management at customers’ premises. Networks were designed only to accommodate the drop in voltage that occurs as load increases, and hence have little headroom to absorb the rise in voltage that now occurs when customers’ inverters feed energy back into the grid.

Addressing this is not as simple as ‘lowering the voltage’ across the network, as this would cause under-voltage at peak demand times. Networks need to invest to upgrade their voltage management capabilities to operate over a much greater ‘dynamic range’ of power flows than they were originally designed for, to manage both positive and negative extremes. This in turn requires investment in improved monitoring of voltage performance across the network.

As local voltage regulation issues are resolved over time, the factor limiting export capacity will become the physical current-carrying capacity of upstream assets like transformers, breaching the ‘thermal limits’ of this equipment. In some residential areas with high solar penetration the local network now carries more current upstream at peak generation times than it supplies downstream at times of peak demand.

As DER penetration growth continues, networks will need targeted investments to improve voltage management and address capacity constraints as they arise. As well as ‘traditional’ grid solutions such as voltage regulators, transformer upgrades or substation voltage control systems, this will increasingly include non-network solutions such as procuring data or network support services from DER owners or their agents (e.g. reactive power support, or voluntarily reducing generation at peak times) via bilateral arrangements or new markets.

³ RBA, *Renewable Energy Investment in Australia, Bulletin – March 2020*, 19 March 2020.

In this context, the Distributed Energy Integration Program (DEIP) DER Access and Pricing review⁴ brought together a broad range of stakeholders to examine whether the regulations governing distribution networks, which were written at a time when the network’s only purpose was to supply energy to customers, are still serving the long-term interests of customers as we approach and exceed these hosting capacity thresholds.

At issue is the fact that, although there is a clear regulatory framework for consumption services, no such framework exists in relation to export services. As a consequence:

- **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 networks will increasingly impose ‘zero export’ requirements on new solar customers connecting in areas that are already congested;
- **network businesses** 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; and
- **the AEMC and ESB** are concerned that the current regulatory framework may not support efficient investment in the long term.

In simple terms, the DEIP Review considered three long-standing questions around distribution network access and pricing regulation:

1. Should DER customers have a right to export to the grid?
2. Should distribution networks be able to charge DER customers a tariff for energy exported to the grid?
3. Are DER customers appropriately rewarded when their systems help support the grid?

The DEIP review has recommended that changes to regulation in this area are warranted,⁵ and SA Power Networks supports this recommendation. We support changes in regulation that can:

- provide greater confidence to customers and their agents in respect of **service levels** for DER;
- encourage **efficient investment** by networks to support those services levels; and
- 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.

We consider that these outcomes can be achieved with minimal change to the existing regulatory framework in the areas of network access and pricing. The specific changes we propose are detailed in the remainder of this proposal and outlined at a high level below.

Symmetry between regulation of consumption and export services

We consider it generally desirable for a rule change to achieve its intended outcomes with the least possible change to existing rules. On that basis we propose, to the greatest extent possible, that existing regulatory controls and incentives should be applied to export services.

This is not to say that we consider export services to be ‘equivalent’ to consumption services, nor that the two should have equivalent service levels; the primary purpose of the network will remain the supply of energy, and the value of the export service to customers will be different from, and measured in different ways from, the value of the consumption service, reflective of the nature of these different uses of the network.

However, the current framework for consumption services is well understood, and has stood the test of time, and so mirroring these arrangements is considered likely to be highly efficient and reduce the risks of material regulatory change to all stakeholders.

⁴ The DEIP is a collaboration of government agencies, market bodies, industry and consumer associations aimed at maximizing the value of customers’ DER for all energy users. Led by a steering group, the forum is driven by the premise that exchanging information and collaboration on DER issues will more efficiently identify knowledge gaps and priorities, as well as accelerate reforms in the interests of customers. Further information can be accessed on the following site: <https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program>

⁵ DEIP, *Access and Pricing Reform Package – Outcomes Report*, June 2020.

Customers’ access to services

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. While most incentive schemes can apply simply, work is needed to adapt the Service Target Performance Incentive Scheme (STPIS) to export services. We propose that:

- distribution networks should have a regulated incentive that encourages them to deliver service levels for DER that match customers’ willingness to pay for these services;
- target performance levels would vary by jurisdiction and be informed by historical performance and customer preference, as per consumption reliability targets in the STPIS. This will require a technical measure of the level of ‘export capacity’ the network provides, similar to today’s System Average Interruption Duration Index and System Average Interruption Frequency Index measures of reliability, and a means to measure customers’ willingness to pay for a given service level, similar to today’s Value of Customer Reliability (VCR);
- in keeping with current service levels for consumption service reliability, export service levels should be defined as the average level of performance to maintain across all customers, or specific classes of customers, and should not reflect the performance received by any individual customer. Networks would not, therefore, be incentivised to invest to upgrade parts of the network to improve performance for specific customers, where this was not economically efficient. Put another way, such an incentive scheme would not imply any guaranteed level of performance or ‘firm access’ for any particular customer; and
- as there may be challenges with measuring export service levels initially, a transition period will likely be needed in introducing such a scheme.

In the case of reliability, some jurisdictions today, like South Australia, have a defined jurisdictional service standard as a backstop in addition to the performance levels inferred by the STPIS. This could also be the case for export service performance. Each jurisdiction could determine the merit in having such a defined service standard.

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.

We consider it fundamental that **where customers have a willingness to pay for a given export capacity and level of service, regulation should not deny customers from requesting that service** from their distribution network service provider.

Networks would, in their Regulatory Proposals to the AER, propose efficient investments at the level needed to meet target service levels based on forecast demand for service over each five year period. The AER would review proposals in its Distribution Determinations, and other regulatory controls and incentives governing network investment today would apply, to prevent over- or under-investment in export capacity.

What is to stop over-investment by networks?

Several checks and balances will prevent investments in network capacity that are not supported by customers:

- Customers’ demand and desired levels of service, for export services, will drive the need for network expenditure, and networks will be expected to engage closely with customers to understand these drivers. The main impetus for the value customers see in export services will be their view on how their surplus energy will be valued in the NEM wholesale and ancillary services markets, arising from their discussions with, and offers they receive from, their energy services providers and retailers.
- The AER will set a prudent and efficient level of network expenditure, as it does for other regulated services. The AER in its Distribution Determinations will test the reasonableness of networks’ forecasts of service demand, engagement with customers, and the costs and benefits of investment options.
- If distribution networks spend more on building assets than that afforded by the AER’s allowances, the AER can scrutinize these investments and determine if they were inefficient and if so, these costs can be removed from the Regulatory Asset Base.
- The AER’s operating and capital expenditure schemes and demand management schemes will incentivise distribution networks to find cost efficiencies and penalise spending more than allowances.
- Major proposed network upgrades would be subject to public testing via the Regulatory Investment Test for Distribution, allowing other parties to propose lower cost alternatives.
- Distribution networks’ expenditure and service performance would be subject to benchmarking and public reporting.

Pricing customer services

In coming years, as networks are increasingly used for the upstream transport of energy exported from customers’ solar PV, this use of the network will become a driver of new network investment. 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 tariffs such as SA Power Networks’ ‘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.

In practice, we propose that:

- The current rule preventing networks from proposing tariffs that include an export component should be removed, so that such tariffs could be considered in future.
- Any future tariffs applied to exports would principally seek to recover **incremental costs associated specifically with the provision of export capacity.**⁶ This is in recognition that: (a) the dominant purpose of the network remains to support consumption; and (b) networks designed for consumption have an inherent capacity to support exports also, which customers have ‘already paid for’ through the consumption component of their tariffs.
- **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. This could be 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 provided by the distribution network, where networks are able to offer this option.
- In line with current pricing principles, a **significant transition period** will be required for the introduction of any such tariffs, along with appropriate application of ‘grandfathering’, to minimise impacts on existing solar

Network tariffs

We refer here to network tariffs and not the retail tariffs paid by end customers. Network tariffs are paid by retailers and are regulated by the AER.

Network tariffs do not determine revenues. Distribution networks in the NEM operate under an annual revenue allowance set by the AER. Tariffs distribute the recovery of this fixed revenue across a network’s customers in a way that is fair and equitable and satisfies the Distribution Pricing Rules in the NER, most notably that variable pricing should be cost-reflective, i.e. provide a price signal to network users to encourage efficient use of the network.

As tariffs have no bearing on the amount of money networks make each year, networks cannot lose money when customers consume less energy during a regulatory period, nor do they stand to make more money through export tariffs. Any revenue recovered through an export price is revenue that will not need to be recovered from consumption pricing. For a residential solar customer who is both a consumer and an exporter of energy, the effect of export pricing in practice would be that they would pay a small portion of their network costs through an export price, and see a reduction in their import tariff.

As network revenues are not affected by tariffs, it could be argued that SA Power Networks should be ambivalent on the question of export pricing. We support the principle of cost-reflective pricing as it enables customers to make informed decisions on the services they desire, which then ensures that network investment to meet those desires is efficient, and it provides for equitable cost allocation, all of which is in the long-term interest of all consumers of electricity. We consider that the current rule preventing networks from considering exports when setting tariffs is an impediment to the future application of the cost-reflective pricing principle as networks begin to transition to much higher levels of distributed generation.

⁶ In practice, consistent with the NER pricing rules, any export charges could, in addition to recovering the costs of incremental investments to enable DER (both Long Run Marginal Costs and fixed costs that do not vary with the number of DER units installed on the network), also contain a component to recover costs of enabling DER which may have already been incurred (i.e sunk costs) at the time when reforms are introduced. As discussed later in this document, these costs have been largely immaterial up to now.

customers. The required transition period would be considered by each distribution network together with their customers and stakeholders including their respective governments who would also retain their existing ability to impose obligations on how any tariffs apply in their respective jurisdictions.

- Future tariffs could **reward DER customers** for exporting energy at times that benefit the grid, e.g. times of peak consumption demand, through ‘negative pricing’. As with other aspects of tariff structures, we see this as an option that individual networks could explore, if appropriate to their respective circumstances, with their stakeholders and the AER through the Tariff Structure Statement (TSS) process, as an alternative to more traditional non-tariff reward schemes such as demand-response payments.

We recognise that tariff reform has a long lead time. A distribution network’s tariffs must align with the structures in its public TSS, approved by the AER every five years in its Distribution Determinations. No new tariff structure can be introduced unless it is supported by the community and the AER via this process, which requires extensive stakeholder engagement. It has been six years since the requirement for network tariffs to be cost-reflective was added to the rules, and almost 10 years since the AEMC commenced considering the need for those reforms, and we are only now seeing networks start to require residential and small business customers (with enabling metering) to move from flat tariffs to more cost-reflective tariff structures like Time of Use and demand tariffs.

While we see amending the rules as a necessary foundational step, we recognise that it is just the first step on what may be a long journey. How network tariffs evolve in future and over what timeframe will be a matter for each network to work through in coming years with their respective customers, community, governments and the AER, through future rounds of the TSS process.

Summary of proposed changes

In summary, we propose changes to the rules in order to:

- amend existing definitions relating to ‘distribution services’ and any other amendments to the rules as necessary to recognise that customers now not only consume but also export energy, and that services distribution networks provide now also include export services – this is to allow for effective application of the existing NEM regulatory framework; and
- remove the current rule that prevents networks from proposing tariffs that include an export component, to allow such tariffs to be considered through the TSS process in future, and amend the Distribution Pricing Rules to provide specific guidance on the application of such tariffs.

With these enabling reforms, we propose that:

- the AER would apply its existing approaches to determine the form of regulation that should apply to export services, and to determine required regulatory allowances;
- the existing rules and objectives for network expenditure would apply directly to export services, providing a clear framework within which customers’ demand and desired service levels for these services can be directly considered by distribution networks; and
- the AER would also apply all of its existing incentive schemes to promote efficient outcomes in expenditure and service performance. This includes adapting the STPIS in order to introduce a new incentive to encourage networks to invest in export capacity to a level that meets community expectations and willingness to pay.

We consider that these changes align with the findings and recommendations of the DEIP DER Access and Pricing Review insofar as they are sufficient, with minimal changes to the current regulatory framework, to:

- provide greater confidence to customers and their agents in respect of service levels for DER;
- encourage efficient investment by networks to support those services levels; and
- enable efficient price signals and rewards to be provided to customers upon which to base their DER investment and operations decisions, and improve equity in allocating the costs and benefits of DER.

These changes will lead to improved outcomes for all customers in the long term, as Australia’s energy system continues its world-leading community-led transition to distributed renewable energy.

3. The case for change

3.1 The context

Distribution networks provide a range of services to their customers. The predominant service has been connecting customers and supplying them with energy, with other key services including energy metering and public lighting. Being services provided by monopoly businesses, these services have a clearly defined regulatory framework for their provision to customers.

However, distribution networks now provide a further distinct service, being connecting customers’ DER and enabling DER customers to export energy to the market. We refer to this service herein as the ‘**export service**’ to distinguish it from the traditional ‘**consumption service**’ associated with the supply of energy from the grid. The proportion of customers that use this export service is ever increasing and in some states has already reached a quarter of the network’s overall customer base. Forecasts by AEMO and others indicate that this will only continue to increase further.

However, regulation has not kept pace with the rapid emergence of this service and there is currently no clear regulatory framework specifically applying to its provision - as there is for other services. We consider that this service is of sufficient importance and magnitude to now require direct recognition and consideration in regulation and that the current lack of a clear framework will increasingly lead to outcomes that are not in customers’ best interests.

In assessing the status quo reflected in current NEM legislation and regulation, we have been guided by the National Electricity Objective (NEO)⁷ and the Revenue and Pricing Principles (RPPs)⁸ in the National Electricity Law (NEL) which further guide how the NEO applies to the regulation of services provided by distribution networks.

Our broad guiding interpretation of the NEO and RPPs in the context of export services provided by distribution networks is that:

Regulation should provide distribution networks with the means to invest to provide export services, up to a level that is commensurate with customers’ informed demand for these services, their expectations as to the performance of these services, and ultimately the price that they are willing to pay for these services.

To further explain our interpretation we have developed a list of specific regulatory objectives which we have used to assess the status quo as it pertains to the regulation of export services. These are outlined below.

National electricity objective

“The objective of this Law is to provide 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.*

Revenue and pricing principles (most relevant clauses listed)

- (2) *A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in –*
 - (a) *providing direct control network services; and*
 - (b) *complying with a regulatory obligation or requirement or making a regulatory payment*
- (3) *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. The economic efficiency that should be promoted includes –*
 - (a) *efficient investment in a distribution system or transmission system with which the operator provides direct control network services; and*
 - (b) *the efficient provision of electricity network services; and*
 - (c) *the efficient use of the distribution system or transmission system with which the operator provides direct control network services.*
- (6) *Regard should be had to the economic costs and risks of the potential for under and over investment by a regulated network service provider in, as the case requires, a distribution system or transmission system with which the operator provides direct control network services.*
- (7) *Regard should be had to the economic costs and risks of the potential for under and over utilisation of a distribution system or transmission system with which a regulated network service provider provides direct control network services.*

⁷ Section 7 of the NEL.

⁸ Section 7A of the NEL.

We define three overall objectives, and some with sub-objectives, for distribution network regulation in an energy system characterised by high levels of DER:

1. Ensuring recognition of all services that customers value –

Ensure that the National Electricity Market (NEM) regulatory framework recognises that distribution networks provide two distinct energy services to customers – use of the network by customers to consume energy, and use of the network to export energy they generate.

2. Encouraging efficient network investment –

Encourage efficient investment, and prevent potential over-investment, by distribution networks to support the service levels that customers desire:

- a. Ensure distribution networks have a clear mandate to directly consider customers’ demand to use the distribution network to export energy from their DER, and can invest in a level of network capacity that customers desire and support.
- b. Provide incentives for distribution networks to minimise the costs of service provision to customers while achieving service performance outcomes that customers desire.

3. Enabling informed customer choices –

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:

- a. Allow customers the right to continue to connect DER. Customers should have a right to request and be granted a connection offer by distribution networks for fair and non-discriminatory access to use the distribution network to export energy they generate.
- b. Provide customers with choices on the level of access and service performance that they desire. Where customers have a willingness to pay for a given service and / or service level, regulation should not deny their ability to request this service from distribution networks.
- c. Provide confidence to customers on the level of service performance they can expect from the distribution network.
- d. Provide efficient price signals to customers which reflect the costs and benefits arising from customers’ use of DER, in order to guide their DER investment, operation and usage decisions.
- e. Where a customer’s desire to use the network to export increases network costs, that customer should contribute a fair share toward these costs rather than these costs being charged to customers that do not wish to use this service – unless there is support of all customers for this to occur in some circumstances. Equally, customers should benefit where their use of the network for exports reduces network costs.

3.2 Our assessment of the status quo

Objective 1 – Ensuring recognition of all services that customers value

Ensure that the NEM regulatory framework recognises that distribution networks provide two distinct energy services to customers – use of the network by customers to consume energy, and use of the network to export energy they generate.

To provide a clear framework that informs customers of their rights to services and provides distribution networks with clear direction to invest efficiently to provide these services, services need explicit recognition in regulation.

However, current definitions of key terms in NEM legislation and regulation are unclear. These terms create ambiguity as to customers’ rights to export services and the status that regulation affords these services in the planning that distribution networks need to undertake. In particular, we identify that:

- To enable the AER to decide the form of regulation to apply to export services provided by distribution networks, these must first be considered to be ‘distribution services’.⁹ However, 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.¹⁰
- In deciding which regulatory mechanisms should apply to export services, 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. Some of the guidance in the NER on these matters refers to the provision of services to ‘retail customers’.¹¹ However, there is some ambiguity in the meaning of this term arising from differing definitions as appearing between the NEL, NER and NERL.

There may also be a need for the AEMC to consider the existence of other key terms that may link or interact with those mentioned here.

Definitions of ‘Distribution service’:

- NER (Ch.10) defines a ‘distribution service’ as *“a service provided by means of, or in connection with a distribution system”* which would accommodate export services.
- But, NER (Ch.10) sub-definitions to ‘distribution service’ define:
 - a ‘distribution system’ as *“a distribution network together with the connection assets associated with the distribution network...”*;
 - a distribution network is defined as *“a network which is not a transmission network”*; and
 - a ‘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...”*

Definitions of ‘retail customer’:

- NEL (definitions) defines a ‘retail customer’ as a person who consumes energy rather than exports 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 NERL define ‘retail customer’ differently:
 - NER (Ch5A) defines a ‘retail customer’ as a person who in addition to consuming also generates electricity (subject to certain thresholds): *“...includes a non-registered embedded generator and micro-embedded generator”*.
 - NER (Ch10) 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 a ‘business customer’ who consumes energy at premises below the upper consumption threshold”*.
 - NERL (Part 1) a ‘residential customer’ is *“...a customer who purchases energy principally for personal, household or domestic use at premises.”*

⁹ This is foundational to the AER classifying export services, deciding the form of required regulatory oversight and, where revenues / prices are to be directly controlled by the AER, the control mechanism to apply. This is also foundational to applying the NER capital expenditure and operating expenditure objectives, factors and criteria that are used by the AER to assess network expenditures proposed for services which are classified as Standard Control Services (SCS).

¹⁰ In its recent Service Classification Guideline and Distribution Determinations, the AER has reworded the core monopoly SCS of ‘common distribution service’ to refer to the *“...use of the distribution network for the conveyance / flow of electricity”*. The Guideline further describes this as relating to *“...the conveyance or flow of electricity through the network for customers”*. While this might be interpreted as catering for consumption and export services, export services were not considered by the AER in its decision documents in arriving at this definition. Further, the AER’s Explanatory Statement refers to this service in the context of transporting electricity to customers. Refer: AER, *Electricity Distribution Service Classification Guideline*, September 2018, p.1 & p.9; AER, *Explanatory Statement, Electricity distribution service classification guideline*, September 2018, p.12.

¹¹ This is the case for the rules pertaining to the DMIS, the VCR, and the distribution pricing rules. The STPIIS rules refer more generally to ‘customers’ and the EBSS to ‘network users’.

Objective 2 – Encouraging efficient network investment

Encourage efficient investment and prevent potential over-investment, by distribution networks to support the service levels that customers desire:

- a. Ensure that distribution networks have a clear mandate to directly consider customers’ demand to use the distribution network to export energy from their DER, and can invest in a level of network capacity that customers desire and support.
- b. Provide incentives for distribution networks to minimise the costs of service provision to customers while achieving service performance outcomes that customers desire over time.

Investment in the distribution network to enable the provision of services to customers will be efficient, in accordance with the RPPs and NEO, if this investment is commensurate with the price / cost and service performance that customers support.¹² For this to occur, regulation must provide distribution networks with a clear mandate and investment framework to guide their provision of services to customers.

The mandate for providing consumption services is clear:

- Consumption services are explicitly classified by the AER as Standard Control Services;
- the mandate to invest to provide these services is guided by the capital and operating expenditure objectives in the NER; and
- there are several regulatory tools for considering the service performance that customers desire and that distribution networks should provide and be incentivised to maintain.¹³

In simple terms, for consumption services, distribution networks operate within a framework that supports and encourages investment up to a level of network capacity that meets customers’ demand and maintains levels of service that customers support and are willing to pay for and complies with any applicable standards. In specific regulatory terms, this means that the ‘identified need’ to incur expenditure on the network is guided by a desire for the following (paraphrased from the existing expenditure objectives in NER 6.5.6(a) and 6.5.7(a)):

- meet or manage expected demand for consumption services;
- comply with all applicable regulatory obligations or requirements pertaining to consumption services. In some jurisdictions such as South Australia, this includes compliance with reliability and safety standards as set by jurisdictional regulators; and
- to the extent that there are no applicable regulatory obligations or requirements, otherwise maintain the quality, reliability, security and safety of consumption services and the distribution system. This requirement links to the application of the AER’s STPIS which aims to maintain service performance to customers and incentivise improvements over time where these can be undertaken efficiently. The NER and AER further specify that efficiency is to be considered with respect to customers’ willingness to pay, which is the key guiding principle for deciding on the level of incentives and penalties to apply.¹⁴

However, as export services have an ambiguous linkage to ‘distribution services’ these services have to date:

- not been explicitly considered in service classification;
- not benefited from direct application of the capital and operating expenditure objectives and criteria; and
- not been subject to regulatory mechanisms such as incentives which consider the service performance outcomes that should be achieved over time.

¹² This is providing that customers can make informed choices when deciding to use network services. The point was demonstrated by AEMC statements when introducing rules for cost reflective distribution pricing, that the intent was not to drive lower network costs per se, but to ensure any costs incurred by networks are driven by customers’ informed choices on when and how much energy to consume – if customers exercising their informed choice results in further incremental network costs then this is efficient.

¹³ This includes the STPIS and the use of the VCR. VCR is a proxy for understanding how much customers value services and is an input to the STPIS and considered in assessing proposals for increasing service performance above incentive levels and in other aspects of regulatory proposals. In some jurisdictions such as South Australia there are also service performance standards operating together with the STPIS, and which are set with consideration to VCRs and other proxies.

¹⁴ The AER states: “...rewards and penalties should mimic customers’ marginal willingness to pay for improved service performance. This allows a DNSP to change its service performance up to the point where the optimal level of service performance is attained, that is, the marginal cost of improving performance equals the reward for doing so...”. See, AER, *Final Decision, Electricity Distribution Network Service Providers – Service Target Performance Incentive Scheme (STPIS)*, June 2008, P.6

The combined effect is that distribution networks are inhibited from directly considering investing to a level that meets customers’ demand for export services and customers’ desired service performance at a cost or price that they support. This is not to say that efficient expenditure proposals relating to export capacity cannot currently be brought before or approved by the AER. Rather, that we see merit for all stakeholders in having a clearer and more readily understood framework that more directly applies to export services. This is noting that:

- Consideration currently given to export services is typically expected to be framed as a ‘problem to solve’ based on there firstly being an ‘identified need’ to preserve the performance of consumption services, rather than a task of providing services customers desire. Regulation should present service provision more positively for customers. Rather than a problem to solve, we want to enable customers to exercise choices on services they value.
- The issue we identify is observed in the AER’s approach to considering the ‘identified need’ in assessing recent Regulatory Proposals relating to DER enablement such as from SA Power Networks, as well as the AER’s recent consultation paper on how such expenditure should be framed and assessed under current regulation.

As customer demand for export services continues to increase and distribution networks approach their intrinsic hosting capacities, decisions will need to be made on whether and how much investment there should be to support service provision. As this occurs, the effect of maintaining the status quo and an unclear mandate for distribution networks is that there is a risk that distribution networks may underinvest 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. This would mean that:

- 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;
- 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;¹⁵ and
- 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.¹⁶

AER paper – Assessing DER integration expenditure

In outlining its assessment of a recent DER integration proposal from a distributor, the AER stated its initial consideration as:

“Is there evidence of a problem that needs to be addressed?”

Evidence demonstrated that the growth in customer high-voltage complaints corresponded with the growth in solar PV where PV penetration rates are high relative to the base load on LV feeders. That is, there was evidence of growing voltage non-compliance problems that is likely caused by the growth in installed PV.”

The AER also outlines its draft position on how DER enablement proposals should be framed, based on the current RIT-D:

*“Identifying and defining the need – **identifying and evidencing the impact of DER on the demand for standard control services and hence on maintaining the quality, reliability and security of supply of standard control services should be the starting point for an investment proposal**”.* (emphasis added)

SA Power Networks 2020-25 Distribution Determination

We proposed a program, ‘LV management’, for systems, capabilities and data to manage DER penetration. The ‘identified need’ was framed as to maintain service performance of consumption services, principally, quality of supply (voltages), via an option that maximises the benefits to customers.

We compared our proposal against credible alternatives: augmenting network capacity, or imposing a zero export limit to deny customer exports. Our proposal had the highest net benefit of all credible options.

In its Draft Decision, the AER approved the ‘LV Management’ program as prudent and efficient, indicating that among its various considerations:

“SA Power Networks has demonstrated the need and that it is the least cost option; and...

“On balance, the proposed costs are reasonable, and SA Power Networks’ proposed DSO solution program is likely to be the least cost solution to maintain voltage compliance as solar PV installations increase.

¹⁵ The latter is particularly relevant to customers who may subscribe to their DER being part of a Virtual Power Plant.

¹⁶ That is, if regulatory barriers result in underinvestment in network capacity to enable exports, distribution network connected generation, no matter how efficient, will be limited in its access to the NEM.

Objective 3 – Enabling informed customer choices

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:

- a. Allow customers the right to continue to connect DER. Customers should have a right to request and be granted a connection offer by distribution networks for fair and non-discriminatory access to use the distribution network to export energy they generate.
- b. Provide customers with choices on the level of access and service performance that they desire.
- c. Provide confidence to customers on the level of service performance they can expect from the distribution network.
- d. Provide efficient price signals to customers which reflect the costs and benefits arising from customers’ use of DER, in order to guide their DER investment, operation and usage decisions.
- e. Where a customer’s desire to use the network to export increases network costs, that customer should contribute a fair share toward these costs rather than these costs being charged to customers that do not wish to use this service – unless there is support of all customers for this to occur in some circumstances. Equally, customers should benefit where their use of the network for exports reduces network costs.

Access rights to services

Distribution networks provide regulated services to customers by means of, or in connection with, their monopoly infrastructure. A foundation of regulation and law is that customers should not be unfairly denied access to services that can only be provided by monopoly infrastructure.

For consumption services, access to the network is clear. Distribution networks have obligations to provide customers with offers to connect to consume energy. Depending on the nature of the connection, the customer may or may not be required to pay certain costs. Conditions can be imposed via these offers, typically involving technical or safety requirements. However, providing these are met, customers can connect and consume.

However, rights to access the network for export services are unclear. Distribution networks have obligations to provide a connection offer to customers who want to connect DER to the network, and can impose reasonable conditions on customers to maintain the integrity of the network. In the absence of a clear framework enabling investment to support export services, some networks have had to actively consider (as we did in our Regulatory Proposal for the 2020-25 period) and in some cases enact, static limits of zero exports for some customers as networks have approached constraints.¹⁷

Unless access rights for customers are clarified, increasingly there is the risk that access to the distribution network will not be fairly distributed, particularly between existing customers of export services and new customers.¹⁸

Service performance

For customers who do access the distribution network to receive export services, the actual performance of the service they receive is also unclear. As discussed, for export services, regulation does not provide means for distribution networks to directly consider the service performance that customers desire, and there are no standards nor service targets and incentives in regulation. This impedes customers from making informed service choices.

Service choices and charges

Key to promoting customers’ long term interests with respect to energy services 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 / prices that may result from these choices. This was the fundamental premise of the AEMC’s Power of Choice reforms.¹⁹

¹⁷ DEIP, *Access and Pricing Reform Package – Outcomes Report*, June 2020, p.14.

¹⁸ The AEMC notes that many customers in the NEM who were early adopters are able to export energy to the grid with high export limits (e.g. 10 kw) but as DER uptake increases and technical issues such as voltage limits are reached, some new DER customers face very low or zero export limits. The AEMC noted that these ‘first in, best dressed’ approaches create equity issues between customers who connect at different times and that this is increasingly unacceptable to customers who invest in solar. *AEMC, Economic Regulatory Framework Review – Integrating Distributed Energy Resources for the grid of the future*, pp. vi, 10, & 22.

¹⁹ AEMC, *Final Report – Power of Choice review: giving customers options in the way they use electricity*, 30 November 2012. Accessible on the AEMC website: [<https://www.aemc.gov.au>].

For the provision of consumption services, regulation provides the AER and distribution networks with a suite of options for how price signals can be passed on to customers to enable their informed choices on the services to request and use. This includes the following:

- Distribution Use of System (DUoS) charges for core monopoly Standard Control Services (SCS) which are paid for by customers in their regular retail electricity bills. These increasingly include different tariff components that charge higher rates at certain times so that customers can decide when they consume energy having regard to the costs of service provision at peak congestion times and their willingness to pay for these costs;
- Connection charges that recover the cost of a customer’s connection to the network via an upfront fee, with options to negotiate aspects of the connection service where customers have specific needs; and / or
- Alternative Control Services (ACS) charges, where a customer requests a specific service, typically involving assets for which the costs can be directly attributed to a particular customer (in contrast to assets for which usage is shared between customers).²⁰ This might include for example, to allow customers to choose to obtain a higher level of reliability to their premises by paying for a duplicate supply arrangement or back-up feeder.

However, for the provision and use of export services, there are limitations in the potential to use connection charges and ACS charges, particularly for small customers, noting that:

- connection charges aim to influence a location investment decision, which for small customers is unlikely to be effective (we discuss below), and nor is it practical to allocate costs of shared network augmentations to small customers as connection charges (as discussed above). Further, upfront connection charges cannot signal the operation of DER; and
- 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 renders an ACS pricing approach also impractical.

Further, regulation explicitly denies the use of DUoS tariffs for exports.²¹ This creates several sources of inefficiency for customers as without the ability to apply a DUoS tariff, no pricing signal can be provided to customers with respect to their **operation** of DER. This means that distribution networks cannot:

- obtain a direct signal from customers as to their desire to utilise export services, that is, by actually utilising the service;²²
- 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 these service features;
- allocate incremental and other 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. This issue will increase in significance in future as networks approach their intrinsic capacity limits and may have to incur material costs to allow more export services; nor

Enabling customer choice

DER customers may have different needs when it comes to the use of the network to export energy, and should ideally be able to choose the level of service that suits them, without their choices imposing costs on other customers.

Some customers may be concerned primarily with using solar to supply their household needs, and may prefer to limit their exports in order to receive a lower export tariff. Other customers with a large system relative to their daytime consumption may want to export more energy in the middle of the day and be willing to pay for this.

Customers who are enrolled in schemes such as Virtual Power Plants (VPPs) may have access to additional value streams from their DER that rely on the ability to export at high power, e.g. so that their batteries can be dispatched for FCAS, and may prefer to pay more for a premium service that allows greater export capacity, or preferential access to available capacity, compared to the standard service.

As customers become more actively engaged in the market and have more choice as to how and when they consume and export energy, networks should be able to offer options on service levels and prices that enable customer choice and encourage efficient use of the shared network.

²⁰ The cost of shared assets are typically and appropriately recovered via SCS and DUoS tariffs.

²¹ NER clause 6.1.4.

²² Particularly relevant as export services will be optional for customers, unlike consumption services which all customers require.

- 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,²³ and rewarding customers of export services for the value that their export provides in mitigating consumption driven congestion on the network.

In contrast, current connection charging²⁴ arrangements already recognise export services and are fit-for-purpose for these services, noting that:

- small customers, with Micro-Embedded Generators who qualify for a ‘basic connection’, do not currently contribute to the costs of augmenting network assets resulting from their connection, and only contribute to the more direct costs of connecting their premises.²⁵ These arrangements are considered appropriate to remain, noting that:
 - the large number of small customers and their connection at downstream locations of the network renders it impractical to assign specific upfront costs of assets that they use on the shared network;
 - requiring individual small customers to pay for network asset augmentations upfront may result in large upfront and lumpy charges between customers and may create inequities between customers, with the potential for some customers to ‘free-ride’ on the network assets that other customers have had to pay for upfront; and
 - for small customers, there is little price signalling benefit to trying to influence customers’ investment location decision. In practice, in deciding where to purchase a home or small business, small customers are unlikely to actively consider if their location will support a cheap connection of a solar inverter as a major determinant.
- large customers, which for export services means large embedded generators, can in contrast, be required to contribute to the costs of network asset augmentations.²⁶ This remains appropriate as the location decision may be more flexible. This is particularly the case for large businesses with several premises who can decide on which premises they install generators, and for stand-alone generators where the location decision is fully flexible. This is also true for transmission network connected generators who face equivalent connection charging arrangements requiring them to pay for network augmentations driven by their connection.

²³ This currently leaves a sole option of sending price signals to consumers to motivate them to shift their consumption to times of peak export congestion to mitigate potential costs. This option, which some distribution networks such as SA Power Networks are introducing (i.e. the ‘solar sponge’ tariff), help address immediate issues of export congestion, but do not address the root cause. It is not possible to influence demand for export services by price signals to customers who are not users of that service.

²⁴ DUoS and connection charges are two mechanisms to recover costs driven by customers’ connection and usage decisions. Deciding which costs to recover by either mechanism reflects a balancing of the potential to: reflect specific customer driven costs; reflect how usage drives costs; and the potential to guide a customer’s investment location decision (i.e. their connection to the network).

²⁵ Small customers who do not qualify for a ‘basic connection’, may be required to pay a connection charge to cover the cost of extending the network to their premises, and may pay toward some network augmentation costs (‘negotiated connections’). The majority of small customers across the NEM qualify for ‘basic connections’.

²⁶ That is, any augmentations as required to ensure the safe and reliable operation of the network.

4. Our proposal for regulatory reform

To consider how to address the concerns with the status quo that we have identified, our guiding approach has been to aim for a symmetric regulatory framework between consumption and export. That is, to borrow as much from existing regulatory processes and mechanisms used to regulate consumption services as possible, and to consider how these may need to be adapted to export services. This does not mean that the value customers see in both services will be equivalent, or that service levels that distribution networks should aim to provide and maintain will be equivalent. Rather, our desire for symmetry in regulatory approaches is driven by our concern to:

- minimise the extent of and costs of any regulatory changes required;
- avoid the creation of fundamentally different planning frameworks for recovering investments between consumption and export services, particularly as the network assets involved are common to both services; and
- use approaches that have been proven to work already in other service contexts.

Below, we set out our proposal and reference specific aspects against the key regulatory objectives we identified. Our proposal depends on very few changes to the NEM regulatory framework. The majority of new regulatory work will potentially fall to the AER in adapting its existing methods and incentive schemes, and to distribution networks in how they structure and engage with customers on their five-yearly Regulatory Proposals to the AER.

Objective 1 – Ensuring recognition of all services that customers value

Relevant regulation

NER (Ch.5A; Ch.6; Ch.10)

Proposed change to regulation

Amend existing terms in the rules or make other amendments as necessary to clearly recognise export services in the services that customers can request and receive, and that distribution networks provide, to thereby ensure effective application of the existing regulatory framework to export services.

To explicitly recognise and provide a clearly understood status for the provision of export services to customers, the regulatory framework needs to recognise that the services customers can request and receive, and that distribution networks provide, now involve bi-directional flows of energy. As discussed above, the application to export services to much of the existing network regulatory framework that applies to consumption services appears to depend on terms that define the customer and what is a ‘distribution service’. We therefore propose that the AEMC should:

- 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; and
- consider any other terms present in the NEM regulatory framework which may intersect with terms as to what comprises a customer and the services that a distribution network can provide.

Objective 2 – Encouraging efficient network investment

Relevant regulation

NER (Ch.5; Ch.6; Ch.8)

Proposed change to regulation

No change proposed.

This aspect of our proposal requires no apparent change to regulation. That is, as discussed in the previous section, other than being dependent on amending key terms or making other such amendments as required to enable effective application of the existing regulatory framework to export services. Below we outline how we consider the processes and mechanisms in the existing regulatory framework should apply / be adapted to export services.

Service classification

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. We do not seek to mandate in the NER the classification decision that should be made. However, our views are that:

- as export services involve the use of the distribution network to export energy, these are natural monopoly services that should be regulated and provided for in networks’ regulated revenue allowances;
- different aspects of export services may require a combination of SCS and ACS classification;²⁷
- network augmentations driven by small customers will most practically be planned and funded on an ex-ante basis via SCS. This will mirror the approach taken (for the same practicality reasons) to the treatment of augmentations driven by small customers’ consumption demand; and
- all network augmentations driven by any customer and recovered in SCS must be included in the same RAB as network assets used for consumption services, as the assets used to provide either service will be common.

Form of regulatory control

Once classified, the AER would determine the form of regulatory control to apply to export services (i.e. a form of price cap or revenue cap). We do not seek to mandate in the NER the decision that should be made. However, our view is that the same form of control that applies to consumption services should also apply to export services.

Network expenditure objectives

The mandate for distribution networks to provide export services would be made clear, by being equivalent to that for consumption services. That is, the same provisions in the NER which guide the objectives for network expenditure in support of consumption services would apply.²⁸

For components of export services classified as SCS and requiring an ex-ante regulatory allowance, the capital and operating expenditure objectives in the NER would apply and guide the ‘identified need’ for expenditure to enable export services. The ‘identified need’ can then be directly tied to customer demand for export services, and their desired levels of service. In regulatory terms, distribution networks would plan and propose expenditure as required to:

- meet or manage demand for SCS, which would now directly include the demand for export services by customers;
- comply with any regulatory obligations or requirements, that may apply directly or indirectly to export services; and
- if there are no obligations or requirements, otherwise maintain the quality, reliability, safety and security of SCS and the distribution system, which would directly include the performance of export services. The target baseline of service performance to maintain would be guided by an adapted STPIS for exports.

²⁷ Noting currently, connection services are a combination of SCS (augmentations and extensions for small customers) and ACS (premises connections for all customers in most jurisdictions, augmentations and extensions for large embedded generators).

²⁸ The capital and operating expenditure objectives in sections 6.5.6 and 6.5.7 of the NER

Expenditure assessment

Expenditure proposals from distribution networks to provide export services would be evaluated against the capital and operating expenditure objectives, the criteria and factors currently in the NER.

The AER would test, as it does for other aspects of Regulatory Proposals:

- the reasonableness of the distribution network’s forecast of expected customer demand for export services, and sensitivity and scenario analyses around these forecasts;
- if all credible options to meet the ‘identified need’ have been explored by the distribution network, such as network and non-network options, network augmentation, and dynamic management capabilities; and
- the relative merits of available credible options, including:
 - the relative project costs of implementing each credible option, such as the costs of network augmentation, payments to procure demand-side responses, or information technology systems; and
 - potential differences in respective market benefits presented by each credible option, being benefits that arise via parts of the NEM supply chain upstream from the distribution network. For example, leveraging a local response from customers’ batteries to address voltage issues may offer less market benefit than a network augmentation; and
- The perspectives of customers and stakeholders.

The direct requirement would be for distribution networks to consider the least-cost means of meeting customer demand for export services and to invest at a level that meets that demand while maintaining the performance of export services to a level that customers support. We do not envisage that distribution networks in their business cases to the AER would be limited to justifying this goal solely on the basis of market benefits analysis. Networks should, consistent with other areas of Regulatory Proposals, undertake analysis and seek the views of their customers and stakeholders on their desires and the trade-offs in spending more or less on the network. Typically, such discussions with customers would incorporate consideration of market benefits, but these should not be the sole determinant. If customers support a given level of network spend, regulation should not deny this occurring.²⁹

Distribution networks would also be permitted to propose to the AER expenditure to achieve service performance above that implied by the baseline level of performance in a STPIS, or above that reflected in any defined service standards if and where these exist. However, as is the case for consumption, such proposals would need to be subject to support from customers, evidenced by a willingness to pay and/or other economic justification.

Ultimately, the AER would determine an efficient level of network expenditure, and therefore a regulatory allowance, for a five-year Regulatory Control Period.

Expenditure and service incentives

Export services should also be subject to incentive schemes which promote efficiency in their delivery and outcomes that customers support, consistent with the RPPs and NEO.³⁰

The NER currently specify the range of incentive schemes that the AER can apply and provide guidance on their development. Providing that issues of terminology are addressed as discussed above, there is no apparent barrier to adapting these existing incentive schemes to export services. In our view, there is a role for all existing schemes and these should all apply to export services, that is:

- The Efficiency Benefit Sharing Scheme (EBSS) and Capital Expenditure Sharing Scheme (CESS) – in order to promote least cost outcomes. These should encourage distribution networks to find efficiencies / spend less than AER regulatory allowances, providing that this does not come at the expense of service performance.³¹

²⁹ It should be noted that this discussion only concerns ex-ante network planning and expenditure forecasts, and not the question of pricing and who pays for particular service options.

³⁰ Application of the RPPs depends on export services being ‘distribution services’ and ‘Direct Control Network Services’. Further, application of the incentive schemes specified in the NER depend on export services being recognised in the definitions of ‘retail customers’ and ‘distribution services’, or any other such amendments that enable these schemes to be applied to export services.

³¹ Distribution networks may be able to unlock additional capacity in the network to accommodate more exports without initiating a capacity upgrade. Application of the CESS could also involve an ex-post review mechanism equivalent to that which the AER can currently apply to investigate the reasons for any overspend in capital expenditure allowances.

- The Demand Management Incentive Scheme (DMIS) and Demand Management Innovation Allowance Mechanism (DMIAM) – in order to promote innovation and utilisation of demand management, in this case, to manage demand for export services.³²
- The STPIS – in order to incentivise distribution networks to maintain the performance of export services at a level that customers value. This is the principal incentive scheme requiring work to adapt it to export services. We do not propose that the NER mandate the approach that the AER should take. However, we recommend:
 - the STPIS would work together with any defined service standards if these are developed by jurisdictions. As is the case for consumption services, any such defined jurisdictional service standards may act as a backstop to the STPIS to avoid the risk of regional service performance deterioration;
 - with or without any service standards, the STPIS should motivate networks to improve service performance for customers of export services on average across some (to be determined) group(s) of customers consistent with customer expectations and willingness to pay as per the current NER principles for the STPIS;³³
 - the STPIS would need to establish a baseline level of service performance that networks are incentivised to maintain and improve upon. This should be determined via stakeholder consultation in the AEMC rule change process and subsequent AER guideline consultation process. Key considerations likely include:
 - the need to derive service performance measures that, mirroring the approach to consumption, apply as averages across all customers, or across broad classes of customers, or regions, rather than in respect of any individual customer’s service level. The aim would be to avoid systemic poor outcomes to some customers without creating incentives to augment specific parts of the network to improve individual customer performance where this is inefficient. That is, these measures should not imply any level of firm access. Consistent with the recommendations of the DEIP Access and Pricing Review,³⁴ we do not support firm access as the costs and issues this may create between customers are problematic;
 - how to measure and express service performance, such as referring to average annual hours of availability of a certain level of export capacity for a given customer group; and
 - determining exactly what distribution networks should be incentivised to do for customers. For example, consideration would need to be given as to whether incentives should be applied to improve export capacity on average for applicable customers, in aggregate across all customers, or both. It will also be important to consider which approach will provide the most confidence to customers on service levels they will experience, in keeping with our objective 3(c).³⁵
 - as occurred when the STPIS was first applied to consumption services, an adapted STPIS for export services would ideally be established progressively over a period of time, to build confidence in requisite measurement processes, systems and datasets. In that interim period, until the STPIS is operational, a reporting regime could be applied to encourage effective management of performance. As with any other service, there is also an intrinsic incentive for networks to manage performance so as to minimise customer complaints; and
 - 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. Our

³² With an identified need to meet or manage demand for export services as we propose, a demand management incentive would encourage the finding of opportunities for procuring services (e.g. reactive power support) from owners of DER if these services can be used to increase hosting capacity for other customers at times of constraint – thereby helping to defer the need for export capacity augmentation, and minimising the costs / price of export services.

³³ NER clause 6.6.2(b)(vi).

³⁴ DEIP, *Access and Pricing Reform Package – Outcomes report*, July 2020, pp.5, & 25.

³⁵ Concerns may result for customers if the incentive over the course of a 5 year RCP was only to maintain the total amount of solar that can be installed on the distribution system, then if more customers connect solar than anticipated, this goal could be simply maintained by lowering the standard inverter size limit below historic levels.

position here is also consistent with the stakeholder recommendations from the DEIP access and pricing review, where firm and financially firm access models were not supported.³⁶

Service standards

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.³⁷

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. If and where standards are to be defined, our guidance is that these should:

- be reviewable on a regular basis, such as ahead of each Regulatory Control Period;
- be set giving consideration to how much customers value the performance of export services; such as by using an equivalent to the VCR but for export services, or another suitable proxy;
- define service performance levels to maintain on average across customers. As discussed above in relation to the STPIS, the aim should be to prevent systemic poor customer service without encouraging augmentation to resolve localised issues where this is inefficient.

Valuing customer service levels

A direct way of understanding how much customers value a particular level of service is to observe their response to a price. However, as we have described, network planning for the provision of export services, particularly for network augmentations for small customers, needs to be planned and subject to an allowance provided on an ex-ante basis – which is the case for SCS. This means that the value customers place in particular service levels needs to be understood upfront, and for consumption services this is informed by applying a VCR.

Mirroring the approach used for consumption, we see merit in the AER being tasked to develop a VCR equivalent for export services (VCR-E). This would then serve as an input to:

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

Avoiding over-investment in networks

To mitigate against any potential for distribution networks to over-invest in network capacity for export services, as required by the RPPs, the AER could draw on several mechanisms, including:

- testing the case for network expenditure in its Distribution Determinations (as described) and ex-post review of spending above the AER’s capital expenditure allowances;
- applying incentive schemes that discourage over-investment;
- applying incentive schemes that only motivate increasing service performance where this is valued by customers using a VCR-E or another suitable proxy;
- applying the RIT-D using the AER’s existing application thresholds of costs. We do not see justification for the thresholds currently set by the AER to change, and to do so would introduce significant and unjustified administrative cost; and
- applying benchmarking of appropriate metrics, for example tracking network utilisation for export services.

³⁶ DEIP, *Access and Pricing Reform Package – Outcomes report*, June 2020, p.5.

³⁷ For consumption services, while some distribution networks have jurisdictional service standards (e.g. South Australia), and some do not (e.g. Victoria), both approaches are accommodated under the same expenditure objectives, factors and criteria in the NER.

Objective 3 – Enabling informed customer choices

Relevant regulation

NER (Ch.5 Part B; Ch.5A; Ch.6)

Proposed change to regulation

Review need for NER to provide greater clarity on access rights to export services.

Remove NER clause 6.1.4.

Amend NER Distribution Pricing Rules to:

Introduce new rule to explicitly allow DUoS charges to reward customers for benefits that their DER provide to the network.

Introduce new rule with general guiding principles for cost allocation between consumption and export services.

Introduce new rule to explicitly exclude large embedded generators who are standalone generators from DUoS charges.

This aspect of our proposal depends on specific changes to the NER. However, consideration of the service options that may be provided, and how fees should be set for these options, will be determined by each distribution network together with their customers and stakeholders.

Access rights and confidence in service levels

Through the DEIP DER Access and Pricing Review, various models were considered for providing customers with clear access rights and confidence in the service levels they will receive if they elect to take up an export service. These models ranged from providing universally firm access, optional firm access and variants on physically or financially firm access.

Our view is that a measured approach is required, in order to not drive excessive cost nor create inequities between customers depending on the date on which they request an export service. It is also impractical to assign a small customer an exclusive right to use assets that comprise a shared distribution network. Therefore, our proposed model is one which provides the following:

- Clear rights to all customers to request and be granted an offer to access the distribution network to export energy, on a fair and non-discriminatory basis.³⁸ 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 a static export limit of zero. This would mirror access arrangements for consumption services, and be in keeping with the underlying intent of regulation of access to monopoly infrastructure services.
- For small customers, a defined standard capacity level that customers can request and receive a connection offer for. This could then be expressed as a ‘base service’ that customers request, or request a service in excess of. This could be implemented by governments, the NER and or the AER’s Connection Guidelines. This keeps with the current approach used to define a ‘basic connection’ offer.³⁹ 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. As discussed above, service standards would be defined on the basis of averages, not as a guarantee for individual customers.
- A clear regulatory mandate for distribution networks to plan for and invest in providing export services commensurate with customer demand and their desired service levels, and incentive schemes which motivate distributors to maintain service levels at averages that customers value and improve these over time if supported – these aspects have been discussed above.

For the avoidance of doubt, this does not infer that all parts of the network will be augmented to meet the ‘base service’. As discussed, we propose an average service level applicable across all customers, just as for consumption services. Some customers will receive higher grades of service and others lower grades of service. Further, just as for consumption services, networks may (in their regulatory proposals) propose service improvements to worst served customers that the AER may approve if supported by stakeholders and appropriate economic analysis.

³⁸ This should not be interpreted as inhibiting the allocation of export driven costs to customers. Access would only be discriminatory, if two new customers facing the same network constraint and imposing the same requirements on the network were charged different fees for the costs of augmenting the network to support their exports.

³⁹ This is noting currently the NER definition of a ‘Basic Connection’, which the AER uses to classify as the base connection offer that customers can request and pay no augmentation costs for, links via Australian Standard AS4777 and various applicable instruments to a fixed capacity level for some networks. In South Australia, a ‘Basic Connection’ is defined in SA Power Networks’ connection policy as including connection of a micro-embedded generator connecting up to 5kw single phase and 30 kw three phase.

Pricing to enable informed customer choices

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 distribution networks the option to decide on the appropriate combination of charging arrangements with all options available including connection charges, DUoS charges and ACS charges. Distribution networks could then consider the design, circumstances and timeframe for any export charges in consultation⁴⁰ with their customers and stakeholders, particularly their respective jurisdictional governments who also retain rights under the current NER to impose obligations on distribution networks as to how DUoS charges should be structured and applied.⁴¹

Our proposal is as follows:

- The design and approach to introducing any DUoS charges for export services would accord with the existing Distribution Pricing Rules in Chapter 6 of the NER and be determined via each distribution networks’ respective TSS, both of which are largely fit-for-purpose.
- The introduction of any DUoS charges to export services must be carefully considered by distribution networks, 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. In particular:
 - 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 DUoS charges to date;⁴²
 - distribution networks 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 systems earlier, and may require costs that would otherwise be recovered from export customers to be recovered from all customers; and
 - the customer impact pricing principles in the NER require consideration of the need for transitions and afford distribution networks discretion in this regard. However, we request the AEMC to consult with stakeholders on whether more specification in the NER is desirable.
- The design of any DUoS charges would aim to comply with the current Network Pricing Objective in the NER, which is already sufficiently broad and refers to charges for directly regulated services to customers reflecting efficient costs of providing services to those customers. This means that consistent with the existing Distribution Pricing Rules:
 - The primary purpose of DUoS charges would be to reflect Long Run Marginal Costs of export services. This remains an appropriate guiding theory for efficient forward-looking cost reflective price signals. In practice, this would mean that charges (when introduced) would aim to focus on signalling the marginal costs driven by enabling export services, such as future network augmentations or network remediation.

⁴⁰ Deciding on the design and timeframe for application of any tariffs, including for export, necessarily require distribution networks to engage with their customers and stakeholders on how balance considerations such as efficiency, complexity, fairness and compliance. As an example, SA Power Networks has used a set of customer principles to guide our TSS proposals, first developed in 2016 via a deliberative process with our customers and stakeholders. When we asked our customers stakeholders what the impacts are that we need to consider in deciding on network charges, we were told that there should be four key principles: (1) simplicity to inform decision making, (2) fairness and equity, (3) empower the consumer, and (4) comply with regulation. SAPN, *Revised Tariff Structure Statement 2017-2020 – Part B*, pp.56-57.

⁴¹ Clause 6.18.5(j) requires tariffs to comply with all applicable regulatory instruments, including jurisdictional instruments.

⁴² This could include by considering appropriate triggers, such as only applying any new export charges to existing customers when their inverters need to be replaced, or these customers otherwise trigger a connection upgrade. These triggers would likely be accompanied with a stipulated timeframe for when they would start to be in effect, so as to not apply immediately to existing customers whose inverters may fail at an early stage of introducing these regulatory reforms. Decisions in this regard would be subject to consultation with customers and stakeholders.

- DUoS charges would be permitted to enable a distribution network to recover its total efficient costs of serving customers of export services, providing that this is done in a way that does not distort price signals for efficient use (i.e. the LRMC component). In practice, this may mean that charges could include a fixed component to recover costs of enabling export services that may already have been incurred / sunk at the time in which these reforms are introduced or are largely fixed, independent of the number of DER systems installed. These have largely been immaterial up to now, and networks have not been materially augmented specifically for providing export services.
- Tariff design, assignment to customers, and transition would be left to networks to consider and customise according to their circumstances, in consultation with customers, stakeholders, jurisdictional governments and with AER oversight, via the TSS process.

We consider that three minor amendments to the Distribution Pricing Rules are required for more specific objectives, as follows:

1. A new rule should make it explicit that any DUoS 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; and
 - not charging these generators for DUoS maintains regulatory symmetry with dedicated generators who are connected to transmission networks and which do not currently pay Transmission Use of System (TUoS) charges, only transmission connection charges.
2. A new rule should make it explicit that any cost reflective DUoS charges can also include negative prices to reward customers for any benefits that their exports provide in managing consumption driven network congestion. The NER are seemingly not definitive on whether this is permitted. 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 services. However, negative pricing should be optional for distribution networks to consider in their circumstances via their TSS, noting that networks also have non-tariff options to reward customers such as demand response payments to customers.
3. A new rule should provide guiding principles for distribution networks 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 distribution networks 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 DUoS applied to consumption, noting that the primary purpose of the network is to support consumption services; and
 - provide flexibility for distribution networks to consider their individual circumstances.

Options to enable customer service choices

Over time, we envisage distribution networks may provide options to customers on the level of export service they desire and are willing to pay for. The choice of options should be left to distribution networks to determine together with their customers and stakeholders, and may depend on their specific network capabilities. We envisage there could be three principal offerings with corresponding fees, including:

1. The option for a ‘base’ level of capacity and reliability (that is, the average reliability across customers as set in an adapted STPIS). The merit of this service being charged a tariff reflective of long run marginal cost⁴³ would need consideration. This is particularly noting that customer exports may drive benefits for all customers, that may warrant some costs being recovered across all customers. Such decisions should be subject distribution networks engaging broadly with their customers.
2. The option to receive a ‘premium’ service with features above those in the base service, such as higher than average export capacity. This might be enabled by distribution networks who have capabilities to dynamically manage their distribution networks, to allow a customer to export more at times when the distribution network permits and / or to have preferential treatment in terms of when the customer might receive a reduced export limit compared to other customers in the same congested area of the network who do not wish to pay for this premium service.
3. An option to receive 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.

Distribution networks’ ability to offer service choices will be enabled by the removal of NER clause 6.1.4. We do not observe any other required rule changes, but request the AEMC to review if there are any other regulatory barriers to customising export service offers should distribution networks seek to do so, or any regulatory barriers to customers being able to move between offers over time.

⁴³ This does not include the recovery of the costs of a networks’ intrinsic hosting capacity which we propose would not be allocated to export services in any case.

5. Impacts on parties likely to be affected by our proposal

Table 1 below summarises the anticipated effects for the various parties likely to be affected by our proposal.

Table 1: Summary of effects on parties in the NEM.

Affected party	Effect
Customers with DER	<p>All DER customers will have the right to request and receive an offer to connect DER and be provided with an export service, and small customers with ‘basic connections’ will not pay any network augmentation costs at the time of connection, as is the case today. Distribution networks will have a clear mandate to invest to support ongoing provision of export services to customers in line with forecast customer demand and willingness to pay.</p> <p>Export customers will have greater visibility of the level of service that they can expect from the network, and confidence that levels of service will be maintained, on average, to the level that customers support, and distribution networks will have incentives to ensure this occurs. Any customers who experience service performance well below average levels on a repeated basis will have access to an inconvenience payment. However, an individual customer’s actual export performance will not be guaranteed (i.e. it is not firm), and individual customers will not be compensated for lost income at times when exports need to be constrained to manage congestion on the network.</p> <p>Export customers’ tariffs may include a charge applied in relation to exported energy. Any such charge will be set at a level that principally recovers the incremental costs to the network driven by export services and will not recover the costs of the network’s inherent capacity to support export services. Customers may be paid, via negative export charges, where their exports contribute to reducing congestion from consumption services.</p>
Existing	<p>Existing customers will have assurance that impacts of any new export charges will only be introduced gradually, over several years, under a timeframe and approach that will be agreed with distribution networks, customers and stakeholders including governments.</p> <p>Over time, as their old inverters are due for replacement, these customers will be able to consider new service options with associated tariffs.</p>
New	<p>New customers will have the same rights to access export services as existing customers, and will not be denied a service, as distribution networks will have a clear mandate to plan required investment to support additional customers electing to take up an export service.</p> <p>Any export charges will be expected to be introduced gradually to provide customers with a period of notice in which they can consider the investments in DER they wish to make.</p>
Customers without DER	<p>As charges for export services are gradually introduced, the costs and charges that consumers face in future for use of the distribution network will be lower and more efficient than they otherwise would be. Consumers would not pay for export services that they do not use, other than to the extent that there is broad support by customers and stakeholders for some costs of export services to be recovered from all customers.</p>
All customers	<p>For most customers, the decision to invest in solar and request an export service will be dominantly a financial decision, based on how much payment they will receive for the NEM value of their exported energy or ancillary services.</p> <p>As customers take up the export service, their exported energy will drive market benefits, such as reduced losses, displacement of higher fuel cost generation dispatched, and potentially, provision of ancillary services to the NEM. By exposing customers to the net network costs (or benefits) associated with providing this service, customers will be enabled to make more informed choices to take up this service, thereby providing a greater likelihood that NEM energy costs to all consumers will be lower, over time, than they might otherwise have been. In this regard, we note that customers may have greater visibility of payment streams and forecasts than do distribution networks or regulators, and are thus best placed to make such decisions.</p>

<p>Distribution networks</p>	<p>Distribution networks will have a clearly defined regulatory framework, enabling them to consider and put forward proposals for investment in the network to support expected customer demand for export services and levels of services that customers expect.</p> <p>Removal of regulatory barriers to export charging will provide distribution networks with a means of enabling and customising service choices to their customers – using means that are currently available for other regulated services. This will allow networks to consider using price signals to customers of export services to influence the times in which customers export, to both manage export congestion on the network, and reward customers for exports that help manage consumption congestion on the network.</p>
<p>Transmission connected generation and competitive neutrality</p>	<p>This framework substantively preserves competitive neutrality between upstream and downstream sources of generation in the NEM.</p> <p>Large stand-alone generators connected to the distribution network will be treated equivalently to similar generation connected to the transmission network, by continuing to pay for network augmentations via connection charges but no ongoing charges for use of the distribution network.</p> <p>Large embedded generators who are <u>not</u> stand-alone generators (and are therefore also consumers) connected to the distribution network may pay for incremental network asset augmentations driven by their need to export, but only if their export capacity is greater than the inherent export capacity associated with their load connection. This recognises that they have already contributed towards export capacity in the connection charges relating their load. In future, these generators may also pay a DUoS charge for use of the distribution network to export – however the decision on whether to use a DUoS tariff or connection charge to recover augmentation costs would need to be determined in consultation with these customers.</p> <p>Small customers may in future be subject to DUoS charges for use of the distribution network to export (not including the network’s inherent capacity to host exports), but will not be expected to pay upfront connection charges for network augmentation costs.</p> <p>As a result of the proposed reforms, all generators, large and small, will pay for relevant costs associated with the export services they are provided, however, some will pay by virtue of up-front charges whereas others will pay via on-going DUOS charges. Charges for each customer group will be designed in the manner to best signal economic efficiency in the location and operation of their DER.</p>
<p>Customer energy service providers / agents</p>	<p>Energy services providers and agents will have greater certainty that the customers they work for (and future customers) will continue to have a right to access export services, and greater assurance as to the average levels of service that distribution networks will provide.</p> <p>These parties will also be provided with clear incentives to optimise the operation of customers’ systems so as to maximise the net benefit to customers, taking into account network export tariff structures and the costs and benefits of exporting at particular times, balanced against the benefits that may be achieved by providing NEM services.</p>
<p>AER</p>	<p>We anticipate that this framework will be relatively easy for the AER to implement. It uses and adapts existing established regulatory mechanisms for assessing network expenditure, incentive schemes, and existing rules for pricing services. Therefore, the administrative costs of introducing this framework to achieve the objectives set out in this framework are minimised.</p>

6. Timeframes and process for introducing reforms

The proposal that we have outlined is largely future focussed. Therefore, our intent is that required regulatory reforms be carefully considered and be introduced over a suitable timeframe that permits thorough consultation between market bodies, networks and their customers and stakeholders.

Once changes are made to regulation, which we anticipate could be early in 2021, we would envisage the following implementation timeframes:

Adapting AER mechanisms:

The AER would follow the distribution consultation procedures in seeking to adapt its existing incentive schemes, expenditure assessment guidelines and instruments such as its VCR. This might take up to 12 months.

Regulatory proposals:

We consider that nothing in this proposal should, or could, feasibly apply to distribution networks in their current regulatory control periods or who are currently in the process of having their regulatory proposals considered by the AER, as this would not afford due process nor permit effective engagement. While TSS documents can be reopened during a Regulatory Control Period if distribution networks apply for this to occur in response to significant unforeseen circumstances, we consider this approach is infeasible given the significance and complexity of the engagement required with customers on this topic. Further, engagement will be facilitated by customers and stakeholders being able to examine tariff approaches together with all price and non-price measures to manage the network that distribution networks may be considering in their Regulatory Proposals – it is for this reason that the TSS was brought into the Regulatory Proposal and Distribution Determination process.

In respect of future regulatory control periods, we note that:

- Application of the proposed reforms could only feasibly be considered for the Regulatory Proposals which are due to the AER in 2023, being for the Tasmanian, New South Wales and Australian Capital Territory distribution networks.
- For other distribution networks consideration would be given according to the timeframes for their subsequent Regulatory Proposals.
- An adapted STPIS will need to be introduced gradually over a period of time that suits each distribution network’s circumstances, in order to permit the effective collection of, and build confidence in, the data required to support measurement of service performance targets. As occurred when the STPIS was first introduced for consumption, this may require data collection over a period of years.
- Decisions by distribution networks on the design and timeframe over which to apply / transition to any tariffs for export services would be considered by each distribution network in their respective TSS proposals due with their five yearly Regulatory Proposals to the AER. These matters would be determined in engagement / agreement with their respective customers and stakeholders including jurisdictional governments who also retain their ability to impose obligations on distributors under the current drafting of the Distribution Pricing Rules in the NER as to how tariffs should be structured and applied. Further, as set out in our proposal, we expect the introduction of new tariffs may occur gradually over a period of years which may extend longer than one Regulatory Control Period as was the case for introduction of cost reflective consumption tariffs.