

# DEIP

## Access & Pricing Reform Package

# Outcomes Report

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June 2020

Distributed Energy  
Integration Program



## **ABOUT DEIP**

The Distributed Energy Integration Program (**DEIP**) is a collaboration of government agencies, market bodies, industry associations and consumer associations aimed at maximising the value of customers' distributed energy resources (**DER**) for all energy users. DEIP is not an organisation and it does not have dedicated resources. Rather, it is a forum where organisations have come together to share insights and develop priorities.

A key element of DEIP is to facilitate workshops and targeted collaboration forums with key stakeholders across the sector that inform potential changes to fully integrate DER into Australia's energy market frameworks and operational processes. These forums are driven by the premise that collaborating on DER issues will more efficiently identify knowledge gaps and priorities, as well as accelerate reforms in the interest of customers.

For more information on DEIP, [visit our website](#).

## **DEIP ACCESS AND PRICING WORKING GROUP**

This report has been drafted by the DEIP Access and Pricing Working Group (the **Working Group**). The Working Group includes the Australian Council of Social Services (**ACOSS**), Total Environment Centre (**TEC**), Public Interest Advocacy Centre (**PIAC**) the Australian Renewable Energy Agency (**ARENA**), the Australian Energy Market Commission (**AEMC**), Energy Consumers Australia (**ECA**), the Australian Energy Regulator (**AER**) and Energy Networks Australia (**ENA**).

It has been informed by the DEIP Access and Pricing Work Package which involved a collaboration with a broad range of industry and consumer stakeholders, through multiple workshops and additional feedback provided by the DEIP Access and Pricing Reference Group. The workshop materials and reports can be found on the [DEIP website](#).

The DEIP Access and Pricing stakeholder workshop series was co-funded by ARENA, AEMC, ECA and ACOSS. ARENA has contributed funding to support this cross-industry collaboration and has supported the process as a Working Group member. ARENA has not endorsed the outcomes in this report.

## **DISCLAIMER**

This report was drafted in a collaborative co-authoring approach using inputs from stakeholders through the workshops and feedback provided by an Access and Pricing Reference Group.

The Working Group organisations have not officially endorsed the contents of this report, nor does the report necessarily represent the official views or opinions of the DEIP members. Rather the conclusions and findings contained within this report reflect the feedback of stakeholders and are intended to be used as guidance only to be considered when undertaking future distributed energy access and pricing reforms. While the findings reflect a strong alignment of stakeholder views, absolute consensus across a broad range of stakeholders is not always possible. It is envisaged that further consultation is likely required on how the findings should be implemented and how any impacts are to be addressed. The next steps reflect the intentions of a number of the Working Group members.

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## LIST OF ABBREVIATIONS

<b>ACOSS</b>	Australian Council of Social Services
<b>AEMC</b>	Australian Energy Market Commission
<b>AER</b>	Australian Energy Regulator
<b>ARENA</b>	Australian Renewable Energy Agency
<b>CEPA</b>	Cambridge Economic Policy Associates
<b>DEIP</b>	Distributed Energy Integration Program
<b>DER</b>	Distributed energy resources
<b>DNSP</b>	Distribution Network Service Provider
<b>ECA</b>	Energy Consumers Australia
<b>ENA</b>	Energy Networks Australia
<b>ESB</b>	Energy Security Board
<b>EVs</b>	Electric vehicles
<b>LV</b>	Low voltage
<b>NEM</b>	National Electricity Market
<b>NER</b>	National Electricity Rules
<b>PIAC</b>	Public Interest Advocacy Centre
<b>PV</b>	Photovoltaic
<b>Reference Group</b>	DEIP Access and Pricing Reference Group
<b>TEC</b>	Total Environment Centre
<b>TSS</b>	Tariff structure statement
<b>Working Group</b>	DEIP Access and Pricing Working Group

# EXECUTIVE SUMMARY

## Reforming access and pricing to optimise DER integration and maximise consumer benefits

Investment by households and businesses in Distributed Energy Resources (**DER**) – such as solar PV, batteries, electric vehicles (**EVs**) and smart appliances – is growing substantially and transforming the way Australian households produce, consume and manage electricity. People can now consume, generate, export and trade energy. The grid is transforming from a one-way system to a two-way system. This change has the potential for future benefits including avoiding significant infrastructure expenditure, improving system resilience and reliability, accelerating the decarbonisation of the grid, and making energy more affordable for everyone.

However, there are a range of challenges to efficient integration of DER in the energy system and maximising benefits for all energy users, including technical issues (i.e. voltage rise, phase balancing, thermal constraints), visibility limitations, pricing constraints (i.e. cost-reflective prices, export charges, recognising benefits of DER), network access and connection limits and developing DER enablement capability. The expectation is that distribution networks should optimise export capacity for system-wide 'net market benefits' – promoting DER where it provides the most value and lowers overall costs to consumers.

These challenges are expected to negatively impact customer outcomes and efforts to decarbonise the grid. This includes constraining solar exports, which reduces the benefits/value of this technology, and a lack of cost and benefit network signals for DER owners. Inefficient signals can in turn lead to distortions in network cost recovery which may also lead to equity issues where non-DER households pay disproportionately more for network costs.

While there are potential technology solutions that may address some of the challenges identified, there is broad acknowledgment that the current regulatory framework<sup>1</sup> and existing reforms, such as cost reflective consumption pricing, need to evolve further to support the shift to a two-way system and the equitable integration of more DER in the system.

Although imperfect, a 'telco' approach has been used as an example of how the electricity industry could account for customer's two-way use of the system. For example, future customers could be given the option to choose a level of import and export capacity, and the network will be regulated to plan and manage the grid to meet customer preferences. Unfortunately, to date, there has been no clear consensus on the path forward.

## Collaboration and consultation – building support for reform options

The Distributed Energy Integration Program (**DEIP**) Access and Pricing Working Group (the **Working Group**) and Work Package, was established in August 2019 to develop a suite of customer centred, equitable, affordable and efficient access and pricing reform findings, to address the emerging challenges and optimise opportunities for the benefit of all energy users. Including changes to rules within the regulatory framework, non-rule change reforms and supporting initiatives.

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<sup>1</sup> See AEMC, Economic Regulatory Framework Review, 2019.

The bulk of the work was delivered through three workshops, which involved approximately 120 participants from governments, industry associations, market bodies and regulators, in addition to a cross-section of energy-user representative groups.

A DEIP Access and Pricing Reference Group (the **Reference Group**) consisting of 22 stakeholders from industry, consumer groups, market bodies and regulators, and researchers, was formed to provide ongoing advice to the Working Group.

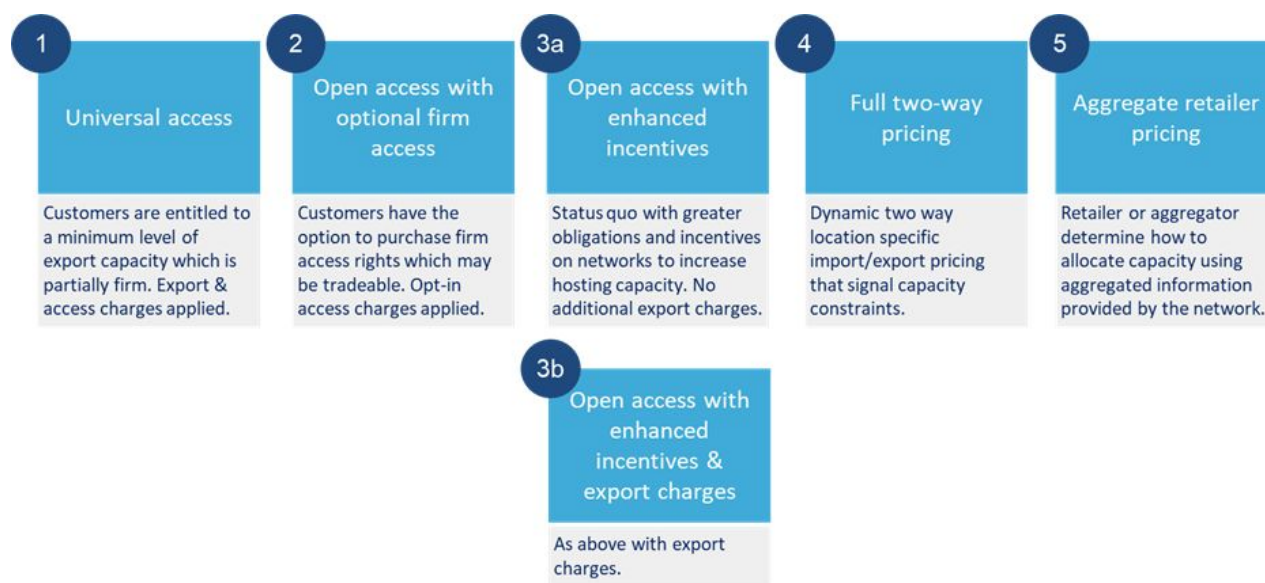
Workshop 1 established user-centred design principles to guide the reform process. Workshop 2 set the context including: identifying the specific problem this process aimed to address, reform objectives, and potential reform options.

Cambridge Economic Policy Associates (**CEPA**) was engaged to develop network access and pricing reform options (drawn from the outcomes from workshop 2) for workshop 3 participants, the Reference Group and the Working Group to consider. Workshop 3 also considered non-rule change reforms.

### Considering and prioritising reform options

The five options identified by CEPA (see summary in Figure 1) were reviewed and evaluated by workshop participants and the Reference Group.

Figure 1. Summary of CEPA options



In summary, no option was considered perfect, nevertheless the workshop participants used the options to consider plausible design elements and a transition pathway. Setting a minimum access standard (Option 1) and enabling customers to obtain a level of firm access (Option 2) were respectively seen as having the potential to adversely impact customer affordability and potentially create inequities in the energy users rights to the shared network.

There was general consensus among stakeholders that the design elements of reform Option 3a was the least regrets reform and should be considered as a first step in a transitional pathway to reform distribution access and pricing arrangements.

The export charging element of option 3b (i.e. 3a + export charging) was seen as desirable. However, stakeholders encouraged further consideration be given to how it is applied (i.e. locational vs. universal and existing vs. new DER owners), whether its introduction should be coupled with rules to reward

network benefits of exporting, and whether there is potential for distortion to the competitive neutrality of different transmission and distribution generation pricing regimes.

CEPA's full two-way pricing proposal (Option 4) was considered too complex and challenging to implement. However, some form of two-way pricing was perceived as having the most benefits in meeting the DEIP Access and Pricing reform objectives as it better reflects the nature of how the network is used, and considers how to reward DER benefits.

The focus on the retailer in CEPA Option 5 (aggregated retail pricing) was seen as a positive that could lead to greater simplicity for the customers and make a transition to cost reflective pricing easier. However, there were some major concerns and this model was seen as too complex to implement without further trials to explore the option further.

In addition to CEPA options, stakeholders gave further consideration and expressed a desire to see mechanisms put in place for networks to recognise and provide rewards for the material benefits DER services provide to networks (and potentially more broadly). Building on the principle of seeking a fair outcome, the ability to equally recognise the costs and the benefits will likely further maximise the use of DER in the grid, which in turn further decarbonises the grid and reduces customer bills.

In addition, consideration was given to existing reforms already underway and a desire to accelerate existing reforms and adapt existing frameworks, without unnecessary duplication. Stakeholders particularly noted the role which cost reflective prices could have toward more equitable and efficient outcomes though greater network cost allocation to those contributing to the costs on the system (i.e. during peak times) – causer pays principle. However it was also acknowledged that despite the progress of cost reflective pricing at the network level, full price reform at the consumer level has proven to be difficult to implement effectively. There was support for more concerted efforts to continue to progress these reforms, whilst also acknowledging that additional work was required to continue to address community concerns.

Given the timeframe to implement a rule change and the implications on jurisdictions framework, many also highlighted that much could be done by industry and the AER through amendments to its guidelines to further consider the role DER can play in managing and augmenting the network.

### **Summary of findings and next steps**

The findings in this report reflect broad stakeholder support for CEPA's option 3a and a desire to move towards a model of two-way access and pricing that would enable customers to capture the multiple value streams of DER to networks and the wholesale market as well as improve price efficiency (canvassed in other CEPA models such as 3b, 4 and 5).

They also reflect what stakeholders considered to be important including rule changes to recognise and reward consumers for the benefits their DER provides to the network, as well as non-rule change reforms such as accelerating implementation of cost reflective consumption prices, and rolling out smart metering and other complementary technologies.

The findings are intended to be used as guidance for governments, market bodies, regulators and industry to consider when undertaking future distributed energy access and pricing reforms.

It is envisaged that further consultation is likely required on how these reform stages should be implemented and how any impacts are to be addressed. For example, any rule changes submitted will require further consideration and consultation by the AEMC.

It should be noted that these findings are expected to complement and leverage existing consultations underway, and should be considered within the context of the other reforms.

Collaboration has been key to the Access and Pricing Work Package and should continue through future AEMC and AER processes – with priority given to consumer views and preferences.

The findings and actions embedded in this report are summarised from observations made by the Working Group and are included in the table below. Further details are available in [Chapter 5](#).

Table 1. Summary table of findings and actions

Immediate reform findings observed by the Working Group
<p><b>FINDING 1:</b> Review the regulatory framework to <u>update service definitions and classifications</u> to acknowledge the role of distribution networks as a platform to connect, manage and enable DER.</p>
<p><b>FINDING 2:</b> Introduce a <u>requirement on distributors to optimise export capacity for system-wide net market benefits</u>, which would require changes to their planning obligations in the NER.</p>
<p><b>FINDING 3:</b> Create <u>additional obligations and/or incentives for networks</u> to provide hosting capacity to a level valued by users and to maximise the net market benefits.</p>
<p><b>FINDING 4:</b> Consider <u>enabling network export prices to send efficient price signals</u> to retailers, other energy service providers, and customers to allocate network hosting capacity costs associated with DER in an efficient, affordable and equitable way.</p>
<p><b>FINDING 5:</b> Further <u>reflect the value of the services DER could provide to networks</u>, such as in relation to reducing peak demand or improving power quality. This can be connected to, or separate from, the procurement of specific network support services by networks (e.g. load reduction at critical times).</p>
<p><b>FINDING 6:</b> Consider how <u>access services, incentives, network planning, and pricing interact and complement one another</u>.</p>
<p><b>FINDING 7:</b> <u>Greater regulatory flexibility</u> would allow regulators and the energy sector to maintain a focus on future options and enable continued innovation in access, pricing and operational solutions.</p>
Next steps
<p>To progress the above findings:</p> <ul style="list-style-type: none"> <li>● AEMC has initiated a study into the CEPA proposed financial incentive scheme under Options 3a and 3b to test feasibility/practical implementation in response to stakeholder feedback (due June 2020). This study is expected to identify data requirements to measure and implement a possible incentive scheme and, therefore, the AER will closely engage in this study and consider possible changes to regulatory information notices and benchmarking.</li> <li>● Members of the Working Group, TEC and ACROSS, propose to submit a rule change request to the AEMC by June 2020, that reflects some of the findings discussed above.</li> <li>● AEMC to subsequently undertake a rule change process on the above distribution access and pricing reforms within 6-9 months. Any amendments to the Rules should be implemented in time for the</li> </ul>



upcoming regulatory electricity distribution determinations - starting with NSW, ACT, NT, TAS networks' proposals for which are due to the AER in January 2023.

- AER, with support from ARENA, to undertake a Value of DER study to inform AER assessment of DER expenditure proposals (underway and is due by October 2020)

### Two-way/sided framework observed by the Working Group

**FINDING 8:** Future reforms should consider implementation of a full two-way access and pricing model to enable customers to capture the multiple value streams of DER to networks and wholesale markets.

### Next Steps

To progress the above findings:

- Pending the outcome of the rule change request referred to in the immediate reforms section above, and the Energy Security Board's Post 2025 Review, members of the Working Group, TEC and ACOSS, will consider submitting a rule change request to the AEMC to implement a full two-way access and pricing model.

### Other reform considerations observed by Working Group

**FINDING 9:** Further focus should be on accelerating the transition toward cost reflective consumption price in a way that addresses broad community concerns.

**FINDING 10:** Accelerate roll out of smart metering and other complementary technologies as key enablers to ongoing price reform and to support two-way communication and measurement of a two-way power system.

**FINDING 11:** The regulatory framework should, where possible, promote innovation that enables improvement in DER operation within network technical limits, particularly where networks can demonstrate improved economic benefits of DER for customers.

**FINDING 12:** Distribution businesses, ARENA and the AER continue to consider business cases to enable DER through improved low voltage networks models, integration tools and monitoring capability, this should include the quantification of costs and benefits of alternative approaches.

### Next Steps

To progress the above findings:

- To accelerate cost reflective consumption price reform:
  - AER to consider developing a 'statement of expectations' to guide DNSPs' development of third round tariff structure statement (TSS) proposals (similar to the AER's 'future direction' commentary published ahead of the second round TSS proposals).
  - Retailers could create new offers that represent the costs and benefits DER can offer the shared network.
  - AEMC could consider initiating a review (In collaboration with consumer groups, networks, retailers and the AER), of the impact of consumption tariff reform on customers, in particular

vulnerable consumers within the next 12 months. This would identify additional actions needed to be undertaken by retailers, improve consumer protections and support improving choice and control via complementary measures.

- Continued revision of guidances by AER on DER enabling network expenditure.
- As planned, AEMC will undertake a review of competitive metering arrangements in late 2020, including identification of potential barriers to the roll out of smart metering and other complementary technologies to deliver the maximum possible benefits to customers.
- ARENA continues to support innovative trials that explore alternative approaches to tariffs, non-network solutions, development of customer insights and complementary measures. These trials should also facilitate a collaborative approach between regulators, retailers, aggregators, networks and customers.

# 1 INTRODUCTION

## 1.1 Purpose and objectives

The role of grid and network service providers is evolving as the electricity system continues to transform from a one-way system to a two-way system with the uptake of distributed energy resources (**DER**) such as rooftop solar, batteries and electric vehicles. This means people are not just using the electricity grid to consume energy, but also to generate, export and trade energy. This change has the potential for enormous benefits including accelerating the decarbonisation of the grid, improving reliability and making energy more affordable for everyone.

There is broad acknowledgment that the current regulatory framework and existing reforms (such as cost reflective pricing), needs to evolve further to support efficient and equitable integration of more DER in the system.<sup>2</sup> However, there has been no clear consensus on the path forward. The Working Group has sought to develop and test reform options using a highly collaborative approach – promoting robust thinking and to pave the way for change. The aim has been to identify consensus on needed reforms and principles, and to inform the policy debate and potential rule change proposals. Consumer views have been central to this consultation process.

Consideration has been given to the desire of customers to maintain the value of their past DER investments, to continue to install DER, and to ensure costs and benefits are allocated efficiently and equitably to maximise the benefits of DER to the wider community – leaving nobody behind. The findings in this report include both rule change and non-rule change considerations and seek to strike a balance between efficient outcomes and community expectations.

This document outlines findings which reflect stakeholder feedback to reform the current network access and pricing arrangements in order to support investment in and operation of distributed energy services, with the aim of more equitable, affordable and efficient outcomes for all energy users. The findings have been developed by the Distributed Energy Integration Program (**DEIP**) Access and Pricing Working Group (the **Working Group**), for government agencies, market bodies, regulators, industry and consumer associations to consider. It is a synthesis of feedback obtained from a series of stakeholder workshops and inter-organisational dialogue from June 2019 to May 2020. These reforms do not intend to deter non-access and pricing solutions such as technology solutions such as product standards, but instead aim to complement and support them.

The DEIP Access and Pricing Work Package focuses on a specific set of challenges and opportunities, and acknowledges there are a range of other reforms and consultations under way across the sector that aim to support the transition to a more decentralised energy system. This broader work program is highlighted in [Appendix A](#).

## 1.2 DEIP overview

DEIP is a collaboration of government agencies, market bodies, industry and consumer associations aimed at maximising the value of customers' DER for all energy users. DEIP members and participants have a shared interest in *supporting our evolution toward a secure, reliable, resilient, affordable electricity system that efficiently integrates and utilises customer's DER, for the benefit of all energy users.*

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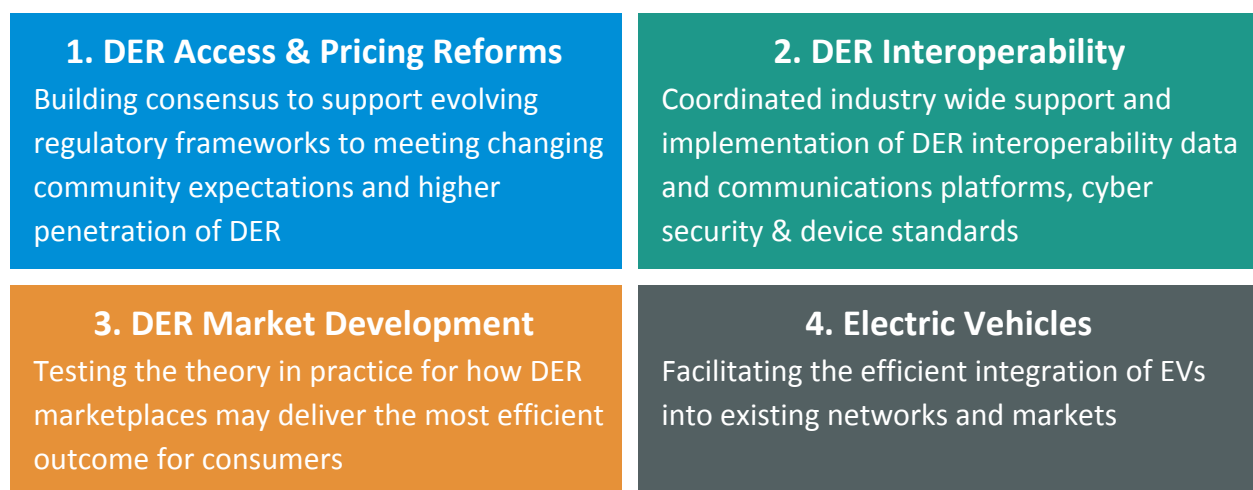
<sup>2</sup> See AEMC, Economic Regulatory Framework Review, 2019.

The DEIP Access and Pricing Work Package was established to develop a holistic suite of customer centred, equitable and efficient network access and pricing solutions and supporting initiatives, to address emerging challenges and optimise opportunities for the benefit of all energy users.

The DEIP Access and Pricing Work Package is being delivered collaboratively through a Working Group which includes representatives from the Australian Council of Social Services (**ACOSS**), Total Environment Centre (**TEC**), Public Interest Advocacy Centre (**PIAC**) the Australian Renewable Energy Agency (**ARENA**), the Australian Energy Market Commission (**AEMC**), Energy Consumers Australia (**ECA**), the Australian Energy Regulator (**AER**) and Energy Networks Australia (**ENA**).

This Work Package is one of four main priorities identified by DEIP as illustrated below. Regular updates between these work packages are shared through DEIP governance meetings. DEIP does not have any authority over any of its members. It is a collaboration forum for knowledge sharing, consensus building, debate and priority setting to support Australia’s energy decentralisation transition.

Figure 2. DEIP Work Packages



### 1.3 Access and Pricing Package overview

The Working Group first formed in August 2019 following the Regulatory DEIP Dive workshop convened by AEMC and ARENA, held in Adelaide on 7 June 2019. This workshop identified access and pricing reform as a key priority for the industry.

The Working Group developed a series of activities to engage with industry to define customer centric principles, to guide and build consensus through consideration of alternative DER access and pricing models and support the creation of momentum for any necessary reforms.

The bulk of the work was delivered through three workshops, which involved approximately 120 participants from governments, industry, associations, market bodies and regulators, in addition to a cross-section of energy-user customer representative groups.

A DEIP Access and Pricing Reference Group (the **Reference Group**) was formed after workshop 2 to provide ongoing advice to the Working Group. It consists of 22 stakeholders from industry, consumer groups, mark bodies and regulators, and researchers.

The final workshop was informed by a Reform Options Report developed by CEPA. The CEPA Reform Options Report drew on the outcomes from workshop 2, to identify possible access and pricing options for workshop 3 participants, the Reference Group and the Working Group to consider.

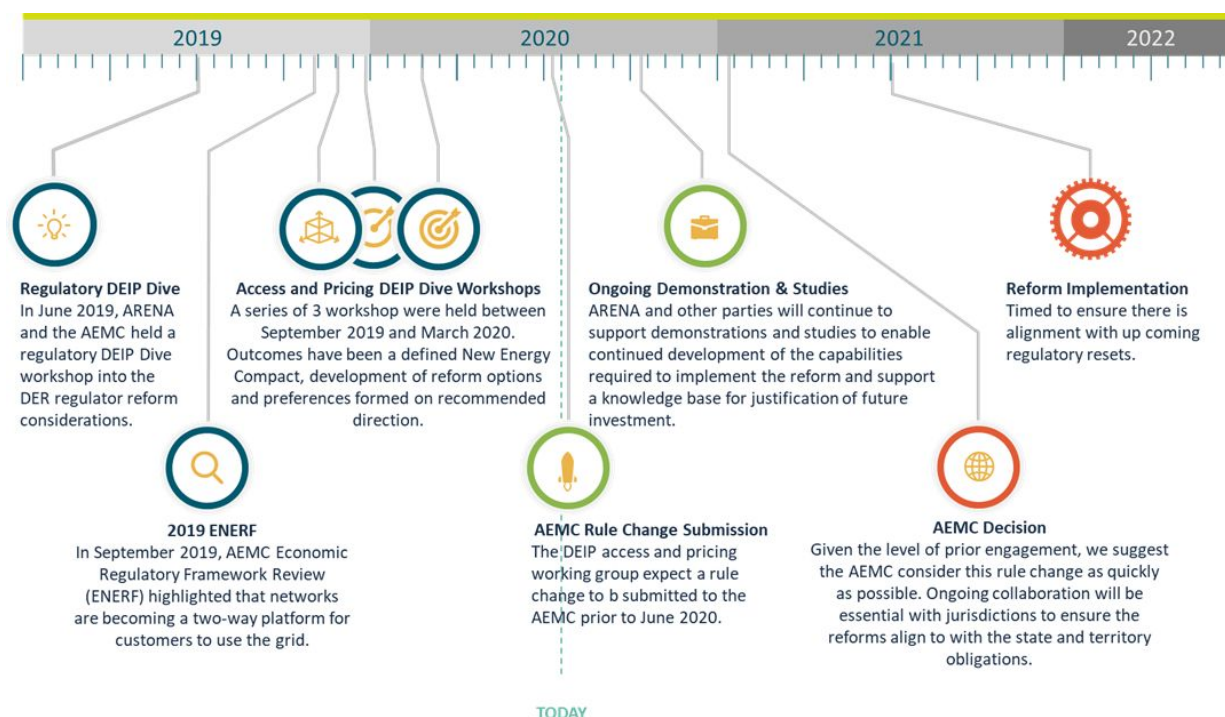
Table 3 outlines the general stages, purpose and timeframes of the workshops.

Table 3. Outline of workshops

Stage	Purpose	Objective	Outputs
<b>Workshop 1</b> 5 Sept 19	To initiate the development of a new energy user-centred vision and principles to guide energy reform processes in a higher DER energy system	<ul style="list-style-type: none"> <li>Explore needs of energy users in high DER world</li> <li>Draft user centred design principles to guide policy and regulatory reform</li> <li>Commit to new paradigm of energy user centric thinking</li> </ul>	<a href="#">Workshop 1 materials</a>  <a href="#">New Energy Compact</a>
<b>Workshop 2</b> 28 Nov 19	To identify energy user-centred options for reform to DER access and pricing that will better integrate DER into the energy system to optimise outcomes for energy users	<ul style="list-style-type: none"> <li>Agree objectives and principles to guide options</li> <li>Discuss range of access and pricing options for consultant and Reference Group to progress</li> <li>Initiate a Reference Group for further development of the access and pricing options</li> </ul>	<a href="#">Workshop 2 materials</a>
<b>Workshop 3</b> 11 Mar 20	To provide feedback and input into the proposed 'future state' options and consider reform next steps	<ul style="list-style-type: none"> <li>Agreement on the problem definition &amp; evaluation criteria</li> <li>Evaluate &amp; agree the preferred design elements of potential access and pricing reforms</li> <li>Identify considerations to implement access and pricing reforms</li> </ul>	<a href="#">Workshop 3 materials</a>

## 1.4 Project progress and implementation timelines

Figure 3. History of events and suggested implementation timeline



[Figure 3](#) (above) outlines the outcomes from the Working Group’s engagements over the last nine months, and suggested reform implementation timeline. Thus far, the Access and Pricing Reform package has achieved the following outcomes:

- Identified a broad range of distribution access and pricing reform options to better integrate DER into the energy system.
- Commissioned a report by an independent consultant (**CEPA**) to progress these and other reform options and identify regulatory impacts and pros/cons.
- Sought stakeholder feedback on these reform options through a series of three one-day workshops and the establishment of a Reference Group comprising industry-wide representation.
- Through this report, recommended distribution network access and pricing reform options to better integrate DER into the energy system, which are expected to be considered as part of rule change proposals to be submitted to the AEMC.
- Identified broader DER-related issues that require further consideration and possible reform actions - which can be progressed in parallel with the access and pricing reforms.
- The first workshop instigated the development of a new paradigm of energy user centric thinking articulated in the draft [New Energy Compact](#) and formed the basis of the principles and criteria used to evaluate alternative reform options.

## 1.5 Report structure

This report is structured in the following sections:

- [Chapter 1: Introduction](#)
- [Chapter 2: The need for change](#)
- [Chapter 3: Reform considerations](#)
- [Chapter 4: Summary of feedback](#)
- [Chapter 5: Next steps and reform actions](#)

## 2 THE NEED FOR CHANGE

### 2.1 Concerns with current access and pricing arrangements

Investment by households and businesses in DER – such as solar PV, batteries, electric vehicles (EVs) and smart appliances – is growing substantially and transforming the way Australia produces, consumes and manages electricity. DER technologies and services (see [Table 4](#)) offer many benefits and opportunities if harnessed efficiently, including providing energy users with more agency, improving efficiency of the grid, reliability and resilience of the energy system, and cheaper energy for all.

Table 4. Definition of DER and DER Services

DER services are defined as services to the market or grid and are connected to a distribution network.

DER includes:

- Non-registered generation and storage connected to a distribution network, other than where it is large enough to be registered with AEMO. Generation or storage can be ‘behind-the-meter’ (e.g. rooftop solar PV or household batteries) or in-front-of-the-meter (e.g. a community battery or generation smaller than 5MW).
- EV charging infrastructure and related technology. All charging points for EVs are included even if they cannot export energy to the grid.
- Technology used to manage a consumer’s electricity demand or loads (e.g. hot water load control, pool pumps or smart appliances). Demand response is only included where load is controlled by technology or by a person other than the consumer.

For the purposes of this report, DER does not include:

- Energy efficiency or demand response due to consumer behavioural change without some form of technological control.
- Scheduled load registered with AEMO or larger scale in front of the meter distribution network connected technology (e.g. a community battery or generation smaller than 5MW).

Despite the benefits DER offers, higher DER penetration is also creating new challenges and the regulatory framework needs further reform to adequately recognise that DER is now an integral part of the electricity system. DER management is now an important part of network services. Stakeholders recognised that network regulation could be improved to support more efficient outcomes:

- **Technical issues:** Some networks are currently experiencing and/or forecast increased challenges (i.e. voltage rise, phase balancing, thermal constraints) in managing the network<sup>3</sup> as a result of the increased uptake of DER. Where there is high penetration of solar PV, some distributors have started to restrict the level of electricity that DER can export to the grid to manage technical issues caused by DER exports. These restrictions are being imposed as basic connection size or export limits, with some customers facing very low or even zero export limits in areas of the network with high levels of solar penetration. There are a range of ways to deal with the technical issues including technical solutions or building out or “augmenting” the network. Programs such as ENA’s harmonisation of low voltage (LV) connection standards and the update of AS4777

<sup>3</sup> AEMO has also warned of the risks to the bulk supply system from high levels of distributed PV, but they are not the focus of this reform: see AEMO, Renewable Integration Study: Stage 1 report, 2020, Ch. 3.

(inverter standards) are important foundational work to facilitate technical integration. Many of the solutions come at a cost to networks.

- **Visibility constraints:** Historically LV networks did not require detailed network models and monitoring and therefore visibility is limited. To effectively engage with the customer-owned DER market and plan for future constraints, networks will need to invest in tools to monitor where capacity constraints exist and inform the market.
- **Constraints to pricing reform:** Currently there are limited price signals for import (consumption) and export (generation) available to the customers. Reforms to import (consumption) price signals are underway but the pace of reform differs between states/territories (see [Table 5](#)). There are barriers to implement true cost-reflective tariffs, such as resistance from some consumer advocates, governments and energy companies – which have hindered pricing reform since the 2014 Power of Choice reforms (see [Appendix B](#) for further discussion). There are also constraints in the regulatory framework to enable energy users to pay for benefits and costs of a two-way grid or system. Without ongoing pricing reforms, existing network cost recovery pricing framework will create inequity<sup>4</sup>, where non-DER households pay disproportionately more – affecting vulnerable customers or those on low incomes most.
- **Constraints to network access and connection arrangements:** Networks are constraining DER exports using export limits to manage impacts on the physical limits of the infrastructure and minimise the need for investing in increased DER hosting capacity. From a total system perspective, it is likely to be inefficient for distributors to apply zero export limits or to build out the network to provide additional DER hosting capacity. Networks appear to be managing network limits in different ways and there is no clearly established set of principles for them to follow. The regulatory framework could better facilitate networks to achieve the customer supported outcomes, define equitable capacity allocation policies and ensure greater transparency requirements so customers can know how much can be connected or exported.
- **Limited DER enablement leading to negative outcomes:** Much of the DER installed is passive (not controllable) and this trend is expected to continue given there are limited incentives to customers, or third parties on their behalf, and networks to maximise DER services. This is expected to create a legacy of customer-owned DER infrastructure which if uncontrolled, faces increasing network constraints, resulting in loss of value for DER owners and will likely create inequity for new entrants who may face greater constraints. This could create a general loss of value for all energy users and a potential negative impact of DER on emission reduction. The regulatory framework should guide industry on the principles to consider when deciding to constrain or enable DER or augment the network.

Customers who have invested in DER will need to have the option to play a more active role in the electricity system in the future. As the electricity system evolves, network regulation should guide how to navigate future technical constraints as energy users continue to adopt DER electricity, so their expectations, costs and standard of service are efficiently balanced. As the trend of increasing network constraints worsens over time, DER customers are likely to be negatively impacted and this further highlights the need to evolve access arrangements and DER enablement capability. Without reform, we

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<sup>4</sup> Noting that implementation of cost reflective tariff reforms is expected to help address some of the cost issues caused by higher penetrations of DER as well as signal the infrastructure investments costs required to support peak demand events.



may create an unfair first mover advantage access regime as network capacity limitations impact future connections.

## 2.2 Current access and pricing arrangements

Some networks are considering innovative and efficient approaches to manage higher DER penetration and meet customer expectations, such as dynamic export constraints to maximise the use of the grid. However, efficient, affordable and equitable integration of DER is not necessarily incentivised under the current regulatory framework.

Further, the current access and pricing arrangements (see [Table 5](#)) were designed under a different paradigm, where the large majority of generation was centralised. Reforms are needed to update the regulatory framework and re-align network incentives and obligations to promote the new role of distribution networks as a platform for multiple services, and better integrate DER into the energy system.

Tariffs are a key tool in encouraging customers to reduce peak demand, however, there are currently no network pricing signals for export of their energy (see [Appendix B](#)). As DER such as solar PV and EV increase, changes to energy flows will result in a wider range of low to high demand/supply events on the network which will have associated costs. Given the right signals it is expected that DER owners will be encouraged to adapt their behaviours and the technologies operation to reduce network costs.

Many Australians either cannot afford or cannot access DER (for example if they rent or are in apartments) and are therefore unable to capture the financial benefits from these technologies. Customers who do not own DER may still benefit from lower wholesale prices as a result of the increasing uptake of DER. However, they may be continuing to pay disproportionately for the network system costs or to support DER owners gain access to capital (e.g. Small-Scale Renewable Energy Scheme or SRES) and revenue (e.g. Feed-in-Tariffs or FIT) schemes which create cross-subsidies.<sup>5</sup> Many stakeholders acknowledged this as an equity issue, particularly for people on low incomes who are already paying proportionally more of their income on energy bills.

Table 5. Current access and pricing arrangements

### ***Access and connection arrangements***

Under the current arrangements, distribution (and transmission) networks in the National Electricity Market (NEM) operate under an open access regime for the connection of generation. This means generators, whether they are grid-scale renewable generators or small customers with roof-top solar systems, do not pay for their ongoing use of distribution or transmission networks in exporting energy. It also means these customers do not receive firm (or guaranteed) access to the network.

Distribution network service providers have an obligation to offer a connection to retail customers. The connection charge varies with the type of connection service.

Network services are currently largely defined in relation to reliability of supply of energy to consumers. Also, there are inconsistencies in the definition of retail customers in the NER. For example, Chapter 5A of the NER specifies that micro embedded generators are also considered to be retail customers for the purposes of receiving a connection offer. Whilst in other parts of the NER, retail customers are only considered to consume electricity.

<sup>5</sup> Disparities are impacted by various consumption profiles, retail offers, government programs, and network tariff structures. Despite the majority of the distribution network being recovered through consumption based tariffs, the Working Group acknowledges the trends by many networks toward cost reflective tariffs on an 'opt out' or mandatory basis to overcome some of these issues, as required by the AER's assessment of the distribution pricing principles and included within the AER's "future directions" commentary to industry in 2017.

### ***Pricing arrangements***

Currently, retail customers that connect micro-embedded generation or DER, such as rooftop solar PV, are charged a shallow, one off connection charge under a basic connection service - i.e. they are only charged for works related to the connection between their property and the distribution network. The connection charge principles set out in Chapter 5A of the National Electricity Rules (**NER**) prohibit retail customers from being *required* to make a capital contribution towards the cost of augmenting (or upgrading) the shared network.

In 2014, the AEMC changed the principles and process under which network tariff structures are determined. Distributors are now required to propose strategies to progress network tariff reform within each regulatory period to the AER for approval in a TSS. The Distribution Pricing Principles balance cost reflectivity and customer impact considerations. These reforms relate to tariffs for the energy that customers take (import) from the grid.

Clause 6.1.4 of the NER prohibits a distributor from charging a distribution network user (such as an owner of a distributed energy resource) distribution use of system charges for the export of electricity by that user to the distribution network.

## **2.3 Future vision: two-way access and pricing**

In the telecommunications industry, consumers have choices in the products and services to weigh against the cost/benefits of changing their behavioral patterns. In that sector, consumers understand that they have both a download and upload capacity limits on their internet plans. Capacity is managed by customers, and retailers on behalf of customers, within the limits of the physical network. Consumers also make a trade-off between cost and the levels of service they receive, with a range of options for reliability and quality from different providers.

Although imperfect, a ‘telco’ approach has been used as an example of how the electricity industry could account for customer’s two-way use of the system. For example, future customers could be given the option to choose a level of import and export capacity, and the network will be regulated to plan and manage the grid to meet customer preferences. Unfortunately, there is no clear consensus on the path forward.

It should be noted that the grid already has an inherent DER hosting capacity for reverse flow power today (typically 1-3kW/customer) without the need for material additional investment. A telco type two way pricing model would better reflect the change in customer behaviour and enable a more efficient, equitable and cost reflective approach.

## 3 REFORM CONSIDERATIONS

### 3.1 Problem definition

To build consensus for a reform package, the Working Group set out to build understanding amongst stakeholders on the problem we are trying to solve and build consensus on the objectives and principles necessary to guide the development of access and pricing reforms.

To address the challenges identified and develop shared solutions, the following problem definition was developed in workshop 2, further refined by the Working Group, and tested in workshop 3:

**“Current pricing and access arrangements do not support investment and operation of distributed energy services for equitable and efficient outcomes for all energy users.”**

### 3.2 Objectives to guide reform options

The following objectives were used to guide the development of options to *reform current pricing and access arrangements*. These were developed by the participants in workshop 2, and further refined by the Working Group and tested in workshop 3:

- Support access to energy as an essential services
- Meet the needs of and optimise the outcomes for all energy users
- Reflect the systems costs and benefits of the two-way flow of distributed energy services
- Deliver equitable distribution of costs and benefits
- Incentivise more efficient network and DER investment and operations
- Be responsive and flexible to new distributed energy products and services
- Support the transition to zero emissions
- Be developed with energy users and seeks to be accepted by all

### 3.3 Principles to guide reform options

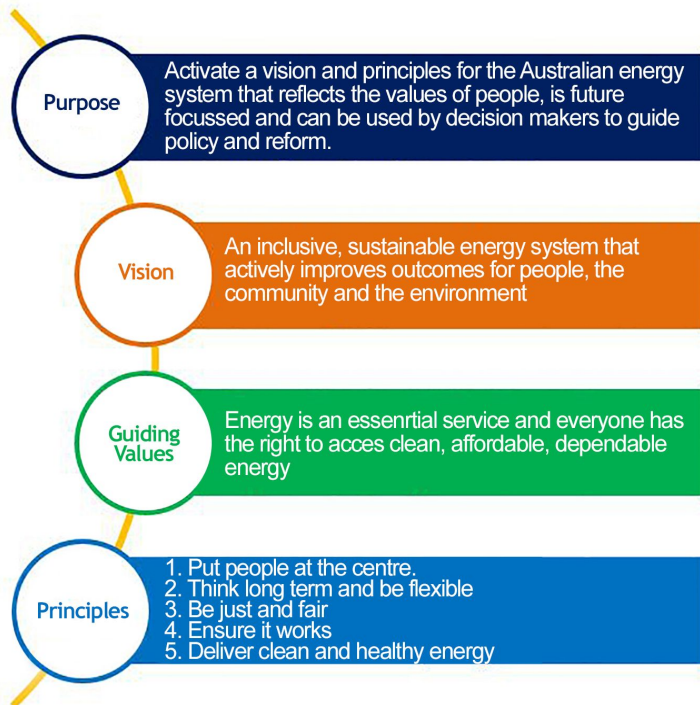
The first DEIP Access and Pricing workshop drafted the initial user centred design principles. These were further refined through a series of targeted workshops in October 2019 to develop a draft [New Energy Compact](#) published in February 2020.<sup>6</sup>

The purpose of the New Energy Compact is to instill a new vision and principles for the Australian energy system that reflects the values of people, is future focused and is used by decision makers to guide policy and reform for an inclusive, affordable, dependable and clean energy system.

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<sup>6</sup> A final version of the New Energy Compact will be launched in the second half of 2020, after a series of public consultations in the first half of 2020.

Figure 4. New Energy Compact Overview



The New Energy Compact sets out five principles to meet the vision for the energy system developed by stakeholders. They are focused on fostering a mindset about how we deliver energy to people, grounded in values, a win-win mentality, and reciprocity between participants based on trust. The guiding values help the decision maker identify what’s most important when making choices.

Figure 5 outlines how the New Energy Compact principles can be applied to guide DER access and pricing reform.

Figure 5. Applying New Energy Compact principles to DER access and pricing reform

<b>Put people at the centre</b>	<ul style="list-style-type: none"> <li>• User Friendly</li> <li>• Benefit all energy users</li> <li>• Support access to DER</li> <li>• Deliver DER services that energy users want at a price they are willing to pay</li> <li>• Enable investment in a wide range of energy service models to meet the diverse and changing needs of people, businesses and communities</li> </ul>
<b>Think long term and be flexible</b>	<ul style="list-style-type: none"> <li>• Is flexible and responsive to support the innovation and growth in DER products and services</li> <li>• Is clear and transparent</li> </ul>
<b>Be just and fair</b>	<ul style="list-style-type: none"> <li>• Fair distribution of costs and benefits</li> <li>• DER owners pay to use the system and is rewarded for the benefits to the system</li> <li>• Equitable access to shared network resources</li> <li>• Risks sit with those best placed to manage them</li> <li>• Aim to reduce inequality between cohorts</li> <li>• Future energy users should not be left with unreasonable costs</li> <li>• The costs and benefits of DER services should be made clear, so that policy makers and end users can respond appropriately</li> </ul>
<b>Ensure it works</b>	<ul style="list-style-type: none"> <li>• Lead to efficient network investment in short, medium and long-term</li> <li>• Incentivise uptake of DER products and services where it helps reduce costs to the energy system</li> <li>• Support the secure operation of the grid with regard to frequency, voltage, and thermal constraints</li> <li>• Support system reliability with regard to generation sufficiency and network outages</li> <li>• Incentivise DER products and services where it helps to improve the resilience of home and businesses in response to severe weather events and cyber attacks</li> <li>• Support and complements the uptake of energy efficiency and demand management</li> </ul>
<b>Deliver clean and healthy energy</b>	<ul style="list-style-type: none"> <li>• Support integration of more renewable and zero emissions energy</li> <li>• Incentivise DER products and services to accelerate the transition to zero emissions</li> </ul>

In addition to the New Energy Compact principles, the following requirements were considered as part of future reform packages:

- Ensuring that charging for monopoly services reflects incremental costs and benefits and revenues are structured in a fair way and reduce any distortions.
- Regulation should be technology, system and business model neutral, while encouraging competition, a consistent approach and innovation, promoting a level playing field between entrants and incumbent companies, and between network and non-network alternative solutions.
- Promoting competition and harnessing market based mechanisms where it is in consumers’ interests to do so.

Regulatory frameworks should ensure electricity networks are used efficiently and flexibly, reflecting users’ needs and allowing customers to benefit from new technologies and services while avoiding unnecessary costs.

### 3.4 Evaluation criteria

The Working Group drew on the problem definition, objectives and principles to develop an evaluation criteria (see [Figure 6](#)) to assess reform options and inform findings.

Figure 6. Evaluation criteria for considering access and pricing reform options

<b>Support consumer access &amp; choice</b>	<ul style="list-style-type: none"> <li>• Will reform improve consumer access to DER services</li> <li>• Will it support consumer choice with regards to consumption and export decisions</li> </ul>
<b>Fair and equitable</b>	<ul style="list-style-type: none"> <li>• Will reform allocate risks and associated costs more equitably?</li> <li>• Will risk be borne by those best placed to manage it?</li> <li>• Will export capacity be allocated on a more fair/ equitable basis for consumers?</li> </ul>
<b>Reflect benefits as well as costs</b>	<ul style="list-style-type: none"> <li>• Will reform recognise the benefits to networks as well as the costs of the two-way flow of distributed energy service</li> </ul>
<b>Flexible</b>	<ul style="list-style-type: none"> <li>• Will reform provide flexibility for changing and uncertain conditions?</li> <li>• Will reform lead to improvements in network planning for the integration of distributed generation?</li> </ul>
<b>Efficient</b>	<ul style="list-style-type: none"> <li>• Will it incentivise efficient generation, consumption, import, and export?</li> <li>• Will it incentivise more effective local use of DER services?</li> <li>• Will financial incentives, such as charges and payments, reflect the costs and benefits?</li> </ul>
<b>Implementable</b>	<ul style="list-style-type: none"> <li>• Will consumer benefits substantially outweigh the implementation costs?</li> <li>• Will the implementation be relatively simple? If not, is the benefit materially higher than other solutions this is being done instead of?</li> </ul>
<b>Environmentally Sustainable</b>	<ul style="list-style-type: none"> <li>• Will the option support the rapid decarbonisation of the energy system?</li> </ul>

## 4 SUMMARY OF FEEDBACK ON REFORMS OPTIONS

In workshop 2, participants agreed on a shortlist of potential reform options that should be further developed by the Working Group. The AEMC, on behalf of the Working Group, commissioned CEPA, an economic and regulatory consultancy, to develop alternative access and pricing options. CEPA's analysis was presented at workshop 3, where participants provided feedback on the design elements of the options. Further feedback was also provided by the Reference Group.

Workshop 3 also considered the potential for mechanisms to recognise and reward material benefits DER services provide to networks, which the CEPA report had not dealt with in depth.

In addition, consideration was given to existing reforms, such as implementation of cost reflective consumption pricing, already underway and a desire to not duplicate but adapt existing frameworks. Given the timeframe to implement a rule change and the implications on jurisdictional frameworks, many highlighted that much could be done by industry and the AER through amendments to its guidelines to further consider the role DER can play in managing and augmenting the network.

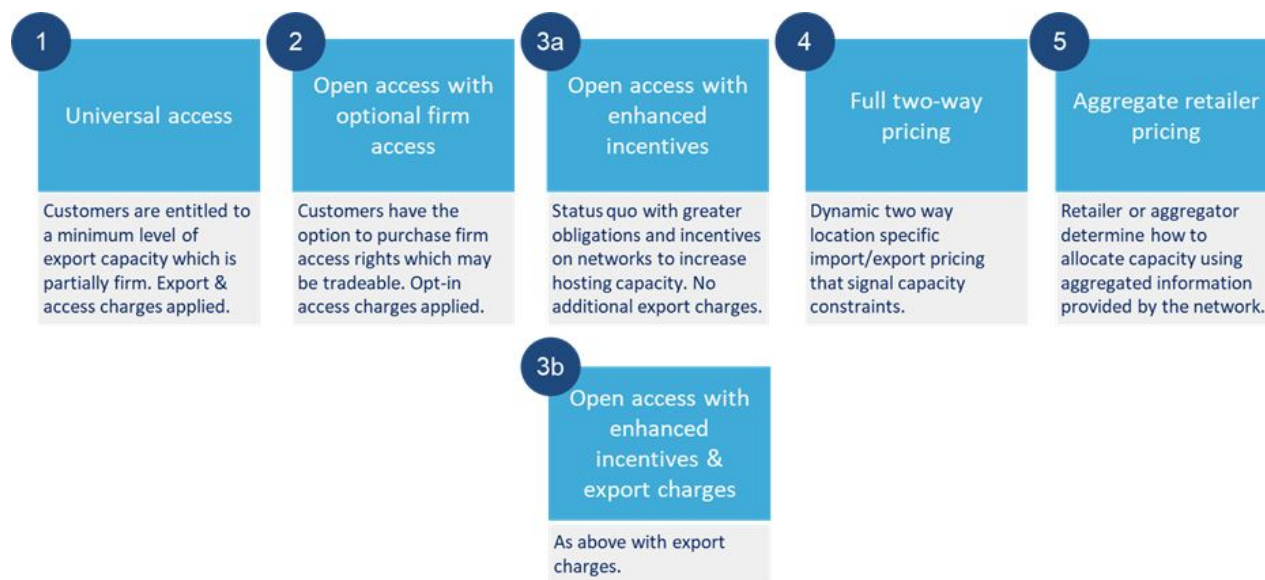
A detailed summary of feedback provided at workshop 3 can be found in the [workshop 3 report](#).

The following provides a summary of the key feedback received by the Working Group on reform options.

### 4.1 Stakeholder feedback on CEPA reform options

CEPA developed five alternative access and pricing options. [Figure 7](#) below provides a pictorial summary of the options.

Figure 7. Summary of CEPA reform options



Participants in workshop 3, discussed each of the CEPA options in detail including assessing each option's strengths, weaknesses and considering alternatives. Participants were also given the option of completing an evaluation form to rate the CEPA access and pricing option against the predefined criteria (see results of the evaluation in [Figure 8](#)).

Detailed analysis of the feedback is documented in the [workshop 3 report](#).

Figure 8. Analysis of CEPA access and pricing options individual evaluation forms

Evaluation Criteria		Average (1 is strongly disagree and 4 is strongly agree)					
		Option 1	Option 2	Option 3a	Option 3b	Option 4	Option 5
Support consumer access & choice	1a. Will it improve consumer access to DER services	3.2	2.5	2.6	2.6	2.6	2.5
	1b. Will it support consumer choice with regards to consumption & export decisions	2.7	2.6	2.2	2.5	2.9	2.9
Fair and equitable	2a. Will it allocate risks and associated costs more equitably?	1.9	2.3	2.3	2.5	2.8	2.6
	2b. Will risk be borne by those best placed to manage it?	2	2.2	2.5	2.5	2.4	2.8
	2c. Will export capacity be allocated on a more fair/ equitable basis for consumers?	2.4	2.1	2.3	2.5	2.4	2.5
Reflects benefits as well as costs	3. Will it recognise the benefits to networks as well as the costs of the two-way flow of distributed energy service	2.4	2.1	2.7	2.6	3.1	2.9
Flexible	4a. Will it provide flexibility for changing and uncertain conditions?	1.8	2.4	2.7	2.8	3.3	3.1
	4b. Will it lead to improvements in network planning for the integration of distributed generation?	2.5	2.4	3	3	2.8	2.7
Efficient	5a. Will it incentivise efficient generation, consumption, import, and export?	2	2.3	2.3	2.6	3	2.6
	5b. Will it incentivise more effective local use of DER services?	2.1	2.2	2.3	2.2	3.1	2.6
	5c. Will financial incentives, such as charges and payments, reflect the costs and benefits?	1.8	2.1	2.1	2.6	3.1	2.5
Implementable	6a. Will consumer benefits substantially outweigh the implementation costs?	2	2.1	3.1	2.5	1.9	2.1
	6b. Will the implementation be relatively simple? If not, is the benefit materially higher than other solutions this is being done instead of?	2.5	1.7	3.5	2.4	1.5	1.6
Environmentally Sustainable	7. Will the option support the rapid decarbonisation of the energy system?	2.5	2	2.5	2.4	2.4	2.1
Best performing in each criteria							
Second best performing in each criteria							
Score less than 2 (Disagree and strongly disagree)							

In summary, no one option was considered perfect, nevertheless the workshop participants used the options to consider plausible design elements and a transition pathway. There was general consensus among stakeholders consulted that the design elements of reform Option 3a are a least regrets reform and should be considered as a first step in a transitional pathway on distribution access and pricing arrangements. Questions remained about the design of incentives and concerns that this option does not go far enough to address the pricing and investment signals identified. Many believe that enhanced obligations and incentives on networks to consider the value of DER exports, and efficiently plan and deliver enhanced network hosting of DER is necessary given the critical role networks will play in managing and enabling DER participation in the future energy system.

Most stakeholders were also supportive of export charging proposed in Option 3b, as it provides a price signal to encourage efficient investment and was seen as more equitable with respect to network cost allocation between DER owners and non-DER owners, and between DER owners. Feedback suggested further consideration is needed to how it is applied (options included locational vs. universal and impact on existing vs. new DER owners). Discussion was held on whether its introduction should be coupled with

rules to reward network (and broader systems) benefits of exporting. There was also concern of potential inconsistency between transmission and distribution networks, which could create competitive neutrality issues. Option 3b scored reasonably well against the evaluation criteria, on fairness and equity, flexibility to network planning, and efficiency,

Setting a minimum access standard (Option 1) and enabling customers to obtain a level of firm access (Option 2) were respectively seen as having the potential to adversely impact customer affordability and potentially creating inequities in the energy users rights to the shared network. Acknowledgement was again given to the level of DER export hosting already embedded into the existing infrastructure. Neither option scored well against the evaluation criteria.

Full two-way pricing (Option 4) was perceived as having the most future potential as it better reflects the nature of how the network is used, and considers how to reward DER benefits. It was considered cost reflective and therefore more efficient, and provided flexibility to consider various DER products and services. However, the CEPA option which was based on dynamic SRMC pricing approached which was considered too complex and challenging to implement. The future potential of two way pricing and the complexity of the CEPA model was reflected in the results of the evaluation forms.

The focus on the retailer in Option 5 (Aggregated retail pricing) was seen as a big positive that could lead to greater simplicity for the customers and make transition to cost reflective pricing easier. However, there were some major concerns including loss of transparency and visibility for customers, complexity for smaller retailers, and impacts on competition. It was also seen as too complex to implement and warrants further trials to explore the option further.

In addition, stakeholders expressed concerns that some options did not clearly consider the role of retailers and aggregators and explicitly how the reform would consider valuing the benefits DER can provide to the shared network. Also, it was noted that transitional arrangements may need to be considered for reforms that negatively impact the value of existing DER investments. Importantly stakeholders reflected that any reforms in the short-term as part of a transition pathway should support and not hinder elements of Options 4 and 5 further development.

Information availability, both to consumers and network, was also raised as a key enabler to the efficient integration of DER at the workshops. Knowledge about DER performance, network constraints and market conditions are fundamental to decision making.

[Table 9](#) (below) seeks to summarise the feedback on the design elements of the CEPA options using notes taken from workshop 3 and the evaluation forms summarised in [Figure 8](#) (above).

Table 9. Preferred reform design elements

Design Elements	Description	Stakeholders Considerations
<b>Planning and incentives</b>		
Define new network service definitions and classifications	Review of the regulatory framework to update service definitions and classifications to acknowledge the new role of distribution networks as a platform to connect, manage and enable DER.	<b>Broadly Supported</b>  <i>Consideration to be given to revising rules to further consider the role of networks services as a platform to connect, manage and enable DER.</i>  See <a href="#">Finding 1</a> .
Networks plan to maximise net	Introduce requirements on distributors to consider net market benefits in all	<b>Broadly Supported</b>



benefits of increased DER network hosting	their network planning decisions. If the market benefit criterion and the incentive to consider export capacity as a network planning solution are designed correctly, customers will benefit from network planning decisions, including those providing additional export capacity. However, the aim would be to maximise the net benefit for the whole system, rather than consumers alone (in line with the existing Regulatory Investment Test for Distributors framework). This could be extended to include externalities such as environmental benefits. Networks would need to consider whether it is more beneficial to customers to constrain exports, enable DER or reinforce the network. See section 7.3.1 in CEPA report for further details.	<p><i>Many stakeholders highlighted that most networks already considered this and the regulatory reforms could outline best practice and consider further standardising the business case considerations (i.e. via the DER expenditure guidelines). Preference should be given to adapting existing mechanisms before creating new frameworks.</i></p> <p>See <a href="#">Finding 2</a>.</p>
Networks have an obligation to consider optimising the use of the network, include DER export hosting capacity	Networks have an explicit requirement to report and consider export-enhancing options as part of their network planning decisions. See section 7.3.2 of CEPA report for further details.	<p><b>Broadly Supported</b></p> <p><i>Reforms should obligate networks to plan to achieve an efficient level of hosting capacity. Benchmarking between networks could be used as a tool measure and assess performance.</i></p> <p>See <a href="#">Finding 3</a>.</p>
An independent body reviews and sets the service level performance targets for DER hosting capacity	The network service level performance targets for DER hosting would be proposed by networks and reviewed and set by the AER, either through legislation or a regulatory process using principles set out in rules.	<p><b>Broadly Supported</b></p> <p><i>The service level performance targets must be set in such a way that it maximises customer net benefits and would be linked to any incentive scheme.</i></p> <p>See <a href="#">Finding 6</a>.</p>
Networks face financial incentives	Networks face a financial incentive (similar to the Service Target Performance Incentive Scheme) to increase export capacity (compared to current level or a target) and/or face a reward / penalty and ensure that export capacity is effectively utilised.	<p><b>Broadly Supported</b></p> <p><i>The key principle of regulation in the NEM is that it is based on incentivising network businesses to provide services as efficiently as possible. Although it is important to align network incentives to efficiently provide hosting capacity services, a new incentive scheme requires further consideration.</i></p> <p>See <a href="#">Finding 3</a>.</p>
<b>Access</b>		
Regulations set new principles to	The regulations outline principles (e.g. fair, equitable, non-discriminatory) for	<b>Broadly Supported</b>

allocate capacity	distribution networks to allocate available two-way capacity between customers. Customers would not receive firm access.	<p><i>Access would be offered on a non-firm open access basis guided by principles outlined in regulations. Policy decisions may need to be made in respect to grandfathering existing DER owners access rights.</i></p> <p>See <a href="#">Finding 2</a>.</p>
Universal Firm Access	Customers are entitled to a standard ‘minimum’ level of export capacity through their connection agreement. Customers can negotiate access rights above the standard. However, there is no compensation if the ‘extra’ capacity is constrained off. Charges would be applied on a cost reflective basis.	<p><b>Not Supported</b></p> <p><i>Concerns raised over impact on customer affordability through potential for over investment if the service standards are set where the costs to customers exceed the market benefit.</i></p> <p>See <a href="#">Finding 1</a>.</p>
Optional Firm Access	Access rights will be mostly firm and customers would have the option to purchase a level of additional firmness. A level of financial compensation would be required for cases where physical firmness cannot be ensured. Customers without access rights can export, but when constraints occur they can be curtailed without receiving compensation. Various connection and network use charging structures would apply.	<p><b>Not Supported</b></p> <p><i>Concerns raised over complexity of implementation and impact on customer affordability as well as equitable allocation of the shared network.</i></p> <p>See <a href="#">Finding 1</a>.</p>
<b>Pricing</b>		
Customers with DER pay an export charge	<p>Introduction of export charges to both provide efficient signals for customers to facilitate the allocation of costs associated with hosting capacity enhancements to the benefit of exporters. Prices could be set on a cost-reflective basis and export capacity would continue to be defined to a level defined through connection agreements.</p> <p>This could involve a level of firm access however, preferences were for a beneficiary pay-for-use only approach with no firm access. This would transfer some risk to the network for cost recovery from hosting capacity investments.</p>	<p><b>In-principle Support</b></p> <p><i>Export pricing was seen as desirable to allocate DER-related costs in an efficient, affordable and equitable way. Stakeholders encouraged further consideration be given to:</i></p> <ul style="list-style-type: none"> <li>- <i>How it is applied (locational vs. universal and existing vs. new DER owners)</i></li> <li>- <i>Whether its introduction should be coupled with rules to reward network (and broader systems) benefits of exporting</i></li> <li>- <i>Whether there is potential for distortion to the competitive neutrality of different transmission and distribution generation pricing regimes</i></li> <li>- <i>Potential impacts of encouraging self-use over benefits of exporting</i></li> <li>- <i>Benefits of having in place more widely consumption tariff reforms</i></li> </ul> <p>See <a href="#">Finding 4</a>.</p>

<p>Location based two-way pricing</p>	<p>Networks would provide location specific charges that reflect the import and export capacity used by customers. This could be determined through dynamic SRMC pricing (not preferred) or more simple demand/supply capacity charges.</p> <p>Networks would also pay for the benefits that DER services provide networks (and potentially the broader system).</p> <p>Consumers could be reliant on retailers and aggregators actively managing their network capacity impact (via consumption and export) due to the potential variability in prices. This could lead to greater efficiency if customers can also be provided simplified offers similar to an internet telco pricing approach.</p>	<p><b>Future Consideration Support</b></p> <p><i>Full two way pricing was viewed as having the most potential to address the objectives, as it better reflects the nature of how the network is used, considers how to reward DER benefits, is cost reflective and therefore more efficient, and can provide flexibility and innovation in DER products and services.</i></p> <p><i>However, concerns were raised over the complexity, in particular with the proposed CEPA SRMC dynamic pricing model, as well as the potential challenges to implement and explain to customers.</i></p> <p><i>Additional investigation is necessary to further investigate design options and considerations.</i></p> <p>See <a href="#">Finding 8</a>.</p>
<p>Export prices are regulated</p>	<p>In line current Tariff Structure Statements, all network export pricing proposals would need to be approved by the AER. The allocation of costs between consumers and exporters in addition to the structure of the charges will need to be further defined.</p>	<p><b>Broadly Supported</b></p> <p><i>Pricing reforms should be considered further by AER and AEMC and could be determined using the existing TSS process.</i></p> <p>See <a href="#">Finding 1</a>.</p>

## 4.2 Rewarding DER benefits

Stakeholders also noted that reforms should include mechanisms to recognise and reward material benefits DER services provide to networks (and potentially broader). This was seen as important because, as more of our energy is forecast to come from distributed ‘customer-owned’ assets, our electricity system will become more reliant on these assets to augment and operate the system. Participants outlined a desire to see complementarity and remove biases to network assets when DER could enable a lower cost outcome.

Building on the principle of seeking a fair outcome, the ability to equally recognise the costs and the benefits will likely further optimise the use of DER and the grid, which in turn further decarbonises the grid and reduces customer bills (see [Finding 5](#) and [Finding 8](#)).

## 4.3 Ongoing actions to facilitate DER integration

Stakeholders noted that actions could be taken under the current regulatory framework to support efforts to improve investment and operation of DER. These should be expedited to provide more equitable, sustainable and efficient outcomes for all energy users.

Stakeholders noted that cost reflective tariffs could contribute to more equitable and efficient network cost allocation to those contributing to the costs on the system (i.e. during peak times) – causer pays principle. However it was also acknowledged that despite the progress of cost reflective pricing at the network level, full tariff reform at the consumer level has proven to be difficult to implement effectively. There was support for more concerted effort to continue to progress these reforms, whilst also

acknowledging that additional work was required to continue to address community concerns (see [Finding 9](#) and proposed next steps in [Chapter 5.4.2](#)). [Appendix B](#) provides further discussion of these issues.

Stakeholders also noted the importance of accelerating the rollout of smart metering and other complementary technologies to enable ongoing tariff reform and support greater visibility and ability to manage the two-way power system (see [Finding 10](#)).

It was suggested that the Regulatory Investment Test for Distributors (or RIT-D) process, and related measures, could be utilised to promote innovation that enables improvements in DER operation, through AER guidance on DER expenditure and innovation schemes or allowances (see [Finding 11](#)).

## 5 REFORM FINDINGS AND ACTIONS

### 5.1 Context

DEIP is focused on how to establish positive conditions to facilitate the implementation of reforms. The Working Group acknowledges the potential complexities of future access and pricing reforms. Consideration has been given to political and stakeholder consensus in developing the recommended sequencing of reforms. Collaboration has been key to the Access and Pricing Work Package and should continue through future AEMC and AER processes – with priority given to consumer views and preferences.

Current and future trends in the energy system are transforming how we use the electricity networks. DER technologies and new, innovative business models offer opportunities to adjust demand and supply at times and places where network capacity is limited. It is increasingly important that network capacity is allocated and used in a way that reduces the potential costs to consumers as a whole. Both retailers and networks should have aligned drivers with their customers through clear obligations and well-designed incentives that are flexible enough to offer customers choice and consider new business models and technologies.

Regulators have acknowledged and are seeking to facilitate the emergence of different market participants, as new entrants continue to offer innovative technical and commercial models to energy users. Regulations must also recognise the provision of DER export capacity as a fundamental part of the Australian electricity system. However, the export of DER is not seen as an ‘essential service’ and prosumers should not impact the reliability, safety and security of the electricity system. The regulatory framework is recommended to be updated to balance network incentives and obligations to align the need to not adversely impact existing consumption-based service standards, whilst facilitating an efficient level of DER participation in the electricity system.

Stakeholders expressed a clear preference for:

- Prioritising reforms that are achievable in the very short term, for example CEPA Option 3a;
- Identifying foundational steps for near future market developments and reform considerations, including a variation of full two-way pricing and access model. For example CEPA Options 3b (Enhanced DNSPs’ incentives and Distribution Use of System charges), Option 4 (Fully two-way pricing) and Option 5 (Aggregate retailer pricing) all involve a form of two-way access and pricing and provide a useful basis to consider the design of how two-way access and pricing could be implemented in the future; and
- The urgent need to progress current reforms, including cost reflective tariff reform.

### 5.2 Immediate reform findings

The findings in this report have been developed by the Working Group and informed by stakeholder feedback. Focus has been on actionable steps, where outcomes can be progressed immediately.

It is envisaged that **further consultation is likely required on how these reform stages should be implemented and how any impacts are to be addressed**. For example, any rule changes submitted will require further consideration and consultation by the AEMC.

It should be noted that **these findings are expected to complement and leverage existing consultations underway, and should be considered within the context of the other reforms**. These include market

body, regulator and Energy Security Board (**ESB**) forums, the Energy Charter, ARENA funded trials/knowledge sharing, government and industry consultations and other DEIP work packages (see [Appendix A](#)).

Policy makers and regulators should outline predictable staging of regulatory reforms and transition frameworks, including further consultation to enable customers and industry to have input and adapt. Depending on the reforms, the National Electricity Retail Law and the National Electricity Rules (**NER**), jurisdictional state and territory licensing and legislation laws may be impacted. Close collaboration between the jurisdictions and national regulators is required to ensure alignment.

### 5.2.1 Findings

Based on a broad consensus of stakeholder views, the Working Group has suggested the following reform package for consideration:

**FINDING 1:** Review the regulatory framework to update service definitions and classifications to acknowledge the role of distribution networks as a platform to connect, manage and enable DER. This should extend to:

- a. *Access standards* – Available network DER hosting capacity should be provided at an efficient level and be distributed equitably using principles defined in the regulations. Reforms should consider balancing the customer interest in access to an efficient level of network DER hosting capacity (e.g. for EV charging and solar exports), affordability and the desire for networks to plan for the supply and demand impacts/benefits of DER. Consideration should be given to the base level of DER export capacity that all networks already provide.
- b. *Network service levels* – DER hosting capacity network service levels (e.g. level of interruption to supply) should be defined to measure performance and underpin any incentive scheme (see [Finding 3](#)). It is expected service levels will vary across the network topology and that consumption and export service reliability would not necessarily be symmetrical. Short-run capacity constraints may well be best managed through operational limits (e.g. flexible export limits or ‘operating envelopes’) and technical standards, with long-run investment signals through cost-reflective pricing or markets.
- c. *Information sharing obligations* – Workshop participants spoke about a desire for networks to be required to better communicate potential network hosting capacity constraints (i.e. to solar PV customers). Under the current rules, networks are required to publish information on demand constraints on their system and this should be extended to greater information on DER hosting capacity. Customers must be able to continue to connect DER, and have the information they require to make informed investment decisions. This could be enabled through ‘DER Integration Plans’ as an explicit requirement for networks to deliver as part of their revenue determinations (see [Finding 5](#)).

**FINDING 2:** Introduce a requirement on distributors to optimise export capacity for system-wide net market benefits, which would require changes to their planning obligations in the NER. The expectation is that distributors will provide export services to maximise the value of DER to the energy system as a whole – so any new investment leads to lower overall costs to consumers. This should extend to:

- a. Clearly defined principles and usable frameworks for networks to support their assessment of DER hosting capacity constraints, allocating DER hosting capacity and maximising net market benefits. These principles could also include environmental benefits.

**FINDING 3:** Create additional obligations and/or incentives for networks to provide hosting capacity to a level valued by users and to maximise the net market benefits. This should extend to:

- a. AER benchmarking could be extended to hosting capacity services to further incentivise networks to improve performance and facilitate consumer engagement.
- b. If incentives are developed, they should take into account the multiple value streams DER can offer to networks and wholesale markets, such as in relation to reducing peak demand, as a carbon offset or improving power quality (see [Finding 5](#) and [Finding 8](#)).

**FINDING 4:** Consider enabling network export prices to send efficient price signals to retailers, other energy service providers, and customers to allocate network hosting capacity costs associated with DER in an efficient, affordable and equitable way. This should extend to:

- a. Enable price signals that incentivise efficient future investment in and operation of distribution networks, for both consumption and export services, to maximise the benefits of DER for all energy users – regardless of whether they have access to DER or not. This would require removal or amendment of the prohibition of charges for exports by the NER (clause 6.1.4).
- b. Distributors consult with their customers to understand community preferences for how costs of new or future investments in hosting capacity services are allocated.
- c. Where network hosting capacity is increased to facilitate DER services, and those customers that are expected to directly benefit can be clearly identified, in principle they should pay the costs of that investment. That is, the regulatory framework should enable a ‘beneficiary-pays approach’ whereby a network’s pricing structure can allocate the investment costs between users and over time, in proportion to the benefits that customers are expected to receive from these services.
- d. The efficiency and equity benefits should be considered against the increased complexity created by export charges, and the desire for distribution/transmission competitive neutrality.

**FINDING 5:** Consideration should be given toward how to further reflect the value of the services DER could provide to networks, such as in relation to reducing peak demand or improving power quality. This can be connected to, or separate from, the procurement of specific network support services by networks (e.g. load reduction at critical times).

**FINDING 6:** Consider how access services, incentives, network planning, and pricing interact and complement one another. This should extend to:

- a. Distribution businesses could be required to include a ‘DER integration strategy’ in their regulatory proposals to outline the inter-linkages between their pricing structures, connection policies, expenditure, DMIA projects and tariff trials - based on consumer views and preferences.
- b. Export charges should account for how distributors in the future exercise their role in planning the network and interacting with customers on their service offerings.

**FINDING 7:** Greater regulatory flexibility would allow regulators and the sector to maintain a focus on future options and enable continued innovation in access, pricing and operational solutions. This should extend to:

- a. Considering foundational steps for future market developments and reform considerations included in CEPA’s Options 4 and 5 or other transactive ‘prices to devices’ models which may be trialed in the future.

## 5.2.2 Next steps

To progress the above findings:

- AEMC has initiated a study into the CEPA proposed financial incentive scheme under Options 3a and 3b to test feasibility/practical implementation in response to stakeholder feedback (due June 2020). This study is expected to identify data requirements to measure and implement a possible incentive scheme and, therefore, the AER will closely engage in this study and consider possible changes to regulatory information notices and benchmarking.
- Members of the Working Group, TEC and ACOSS, propose to submit a rule change request to the AEMC in June 2020, that reflects some of the findings discussed above.
- AEMC to subsequently undertake a rule change process on the above distribution access and pricing reforms within 6–9 months. Any amendments to the Rules should be implemented in time for the upcoming regulatory electricity distribution determinations - starting with NSW, ACT, NT, TAS networks' proposals for which are due to the AER in January 2023.
- AER, with support from ARENA, to undertake a Value of DER study to inform AER assessment of DER expenditure proposals (underway and is due by October 2020).

## 5.3 Two-way/sided framework

The future energy system will have to accommodate two-way, dynamic interactions between ESBcustomer-owned DER assets and the grid, requiring a regulatory framework that supports decisions by industry that respond to consumer preferences and offers customers efficient price signals. Two-way access and pricing, similar to the 'telco model' (as discussed in [Chapter 2.3](#)), could deliver benefits of improved efficiency and enable innovation and customers more choice, and allow energy market participants to respond to price based on their cost and value preferences.

Implementation of two-way pricing would be a significant transition for consumers. Any new market design needs to realise the benefits and mitigate the risks involved in the transition. These issues are being considered as part of the ESB's two-sided markets review and Post 2025 Market Design review, and two-way pricing was a key element of the 'distribution market operator' model being considered as part of the AEMO/ENA Open Energy Network project.

### 5.3.1 Findings

**FINDING 8:** Future reforms should consider implementation of a full two-way access and pricing model to enable customers to capture the multiple value streams of DER to networks and wholesale markets. This should extend to:

- a. Further enabling more cost reflective and potentially location-based pricing of import and export services – for both future and sunk costs.
- b. Greater acknowledgement of the benefits of DER services could include reductions to peak demand, carbon offset or improving power quality (see also Finding 5).
- c. Streamlining the procurement of specific network support services from DER, such as for load reduction at critical times or increasing the DER hosting capacity.

### 5.3.2 Next steps

To progress the above findings:



- Pending the outcome of the rule change request referred to in the immediate reforms ([Chapter 5.2](#)), and the ESB's Post 2025 Review, members of the Working Group, TEC and ACOSS, will consider submitting a rule change request to the AEMC to implement a full two-way access and pricing model.

## 5.4 Other reform considerations

The electricity sector and customers alike require predictable regulatory frameworks which recognise existing investments, support efficient future investment, and allocate risks as well as costs fairly.

Networks and industry more broadly will continue to have a range of regulatory, technology and commercial tools at their disposal to plan for and respond to increasing levels of DER self-consumption and exports. Stakeholders accept the requirement to continue to develop and use new technology to manage constraints and optimise the allocation of additional supply and demand hosting capacity on an economic basis. The role of the retailer or aggregator is critical in translating reforms to customers in a user friendly and transparent way.

Future reforms should consider a transition period and level of grandfathering to enable both industry and customers to transition. The transition period and the learnings from the implementation of the Power of Choice Review (e.g. cost-reflective network pricing) among other reforms should be considered.

### 5.4.1 Findings

**FINDING 9:** Further focus should be on accelerating the transition toward cost reflective consumption tariffs in a way that addresses broad community concerns, as discussed in [Appendix B](#). This should extend to:

- a. Fast tracking the implementation of cost reflective tariff reforms without changes to the NER, or changes to network and retailer systems (see next steps in [Chapter 5.4.2](#)) - e.g. the most recent Tariff Structure Statements approved by the AER for South Australian and Queensland distributors will result in cost reflective network price signals sent to retailers for all residential and small business customers with smart meters, after a short transition period.<sup>7</sup>
- b. Further engagement between networks, and retailers and consumer groups, with the aim of understanding the community and customers concerns, developing opportunities to co-design alternatives and define fairer transition pathways.

**FINDING 10:** Accelerate roll out of smart metering and other complementary technologies as key enablers to ongoing tariff reform and to support two way communication and measurement of a two-way power system.

**FINDING 11:** The regulatory framework should, where possible, promote innovation that enables improvement in DER operation within network technical limits, particularly where networks can demonstrate improved economic benefits of DER for customers.

- a. Amendments to AER expenditure guidelines, network hosting capacity reporting obligations and development of common valuation approaches to investments that enable DER exports. As well as continued rollout of recent changes to the innovation scheme and allowance framework to all distributors.

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<sup>7</sup> Acknowledgement has been given to difficulties in implementing effective tariff reform and the possible impacts on vulnerable households as well as translating these changes to consumers through retailers.

- b. Regulated investment tests for improved low voltage network monitoring as a precursor to constraining solar and battery exports.

**FINDING 12:** Distribution businesses, ARENA and the AER continue to consider business cases for improving LV networks ability to model, integrate and monitor DER to address technical issues and visibility constraints, including the quantification of costs and benefits of alternative approaches. This should extend to information to inform customers about potential constraints that could impact their ability to export and the need for future investment in hosting capacity services.

#### 5.4.2 Next steps

To progress the above findings:

- To accelerate tariff reform:
  - AER could consider developing a ‘statement of expectations’ to guide distributors’ development of third round TSS proposals (similar to the AER’s ‘future direction’ commentary published ahead of the second round TSS proposals).
  - Retailers could create new offers that represent the costs and benefits DER can offer the shared network.
  - AEMC could consider initiating a review (in collaboration with consumer groups, networks, retailers and the AER), of the impact of consumption tariff reform on customers, in particular vulnerable consumers within the next 12 months. This would identify additional actions needed to be undertaken by retailers, improve consumer protections and support improving choice and control via complementary measures.
- Continued revision of guidances by AER on DER enabling network expenditure.
- As planned, AEMC to undertake a review of competitive metering arrangements in late 2020, including identification of potential barriers to the roll out of smart metering and other complementary technologies to deliver the maximum possible benefits to customers.
- ARENA continues to support innovative trials that explore alternative approaches to tariffs, non-network solutions, development of customer insights and complementary measures. These trials should also facilitate a collaborative approach between regulators, retailers, aggregators, networks and customers.

## Appendix A: Key activities progressing DER integration

Figure 10. Key activities progressing DER integration

Energy market bodies	Industry	Energy businesses
<ul style="list-style-type: none"> <li>● AEMC’s Electricity Network Economic Regulatory Framework (ENERF) review</li> <li>● AEMC’s Coordination of Generation and Transmission Investment (CoGaTI) review</li> <li>● AEMC’s Mechanisms for Wholesale Demand Response Rule Change</li> <li>● AEMC’s stand-alone power systems review and rule changes</li> <li>● AEMO’s Distributed Energy Resources Program</li> <li>● AEMO/ENA’s Open Energy Networks (OpEN) project</li> <li>● ESB’s DER Steering Committee is coordinating DER integration</li> <li>● AEMO’s VPP Demonstrations</li> <li>● AEMO’s DER Register</li> <li>● AEMO’s Demand Response RERT Trial</li> <li>● AEMO’s Renewable integration study</li> <li>● AER’s Value of DER study and DER Integration Expenditure Guidance Note</li> <li>● AER’s approval of distributor’s Tariff Structure Statements and Connection Policies</li> <li>● AER’s Demand Management Incentive Scheme and Innovation Allowance Mechanism</li> <li>● ESB’s Post-2025 Market Design</li> </ul>	<ul style="list-style-type: none"> <li>● TEC, ESB, ANU and Ausgrid collaborating on regulatory, economic and consumer challenges to the rollout of community scale batteries in the NEM</li> <li>● Industry bodies have considered DER integration through key publications (e.g. CSIRO and ENA’s Electricity Network Transformation Roadmap)</li> <li>● Clean Energy Council and Smart Energy Council contribute to policy debates</li> <li>● Electricity businesses have DER integration as a key part of their corporate strategy</li> </ul>	<ul style="list-style-type: none"> <li>● New energy service providers contribute to policy debates (e.g. Reposit, GreenSync, Solar Analytics, etc)</li> <li>● GreenSync’s DeX DER trading platform</li> <li>● Small retailers offering exposure to wholesale market (e.g. Energy Locals with Enosi)</li> <li>● Numerous virtual power plant trials (e.g. SA Govt/SAPN/Tesla)</li> <li>● Peer-to-peer trading using block chain or other non-market platforms (e.g. PowerLedger)</li> </ul>
Consumer representatives	Research bodies	Governments
<ul style="list-style-type: none"> <li>● Wholesale demand response rule change from PIAC, TEC and TAI</li> <li>● Renew’s DER Enablement</li> <li>● TEC is reviewing DERs contribution to Resilience</li> <li>● TEC and ACOSS’s New Energy Compact</li> <li>● ACOSS and Healthy and Affordable Homes Coalition are pursuing measures for energy efficiency and solar upgrades to low-income homes</li> </ul>	<ul style="list-style-type: none"> <li>● UNSW School of Photovoltaic and Renewable Energy Engineering</li> <li>● ANU Battery Storage and Grid Integration program</li> <li>● CSIRO’s NEAR Program</li> <li>● CSIRO’s LV Feeder Taxonomy Project</li> </ul>	<ul style="list-style-type: none"> <li>● Many jurisdictions have, or are developing DER integration strategies or roadmaps (e.g. Western Australia DER Roadmap)</li> <li>● Many jurisdictions have programs supporting residential/commercial solar and storage</li> <li>● Local government associations have begun to develop their own DER integration plans</li> </ul>

## Appendix B: Current tariff reform context

Electricity network charges, or tariffs, are provided as a cost to energy retailers to recover the cost of building, owning and operating electricity transmission and distribution networks. These charges are passed on to consumers, along with the wholesale and other costs of supplying energy, as the energy retail tariff that appears on the customer bill.

For businesses that are 'large' energy users (consuming over 100 or 160MWh/year) network tariffs are usually itemised on the bill. Households and small businesses do not generally have visibility of network charges, even though they can be as much as 50% of the total bill.

Traditionally in the NEM, network charges have comprised two parts:

- A fixed charge (cost/day). All consumers of the same type (e.g. residential, small business) in a given energy network essentially pay the same fixed charge, irrespective of their energy use and location within the network.
- A volumetric charge (cost/kWh). This charge applies to the energy used by a given consumer. Volumetric charges can be:
  - A flat rate, which is the same for all energy consumed, regardless of when it is used
  - Time variant, with two or three different rates to make a distinction between peak, offpeak, and potentially shoulder periods.
  - An inclining (or declining) block charge, where the rate goes up (or down) as a consumer uses more energy in a given billing period

Networks incur some cost as 'fixed'; that is, these costs don't vary when consumer demand varies.

Other costs do vary with changes in demand:

- Notably, the cost of building and replacing network infrastructure, which increases along with 'coincident peak' demand. 'Coincident peak' describes demand on parts of the energy system that supply any number of energy users, from a substation that supplies a local suburb, to the transmission system supplying a whole state. Coincident peak demand in many parts of the energy system is aligned with the increased use of air-conditioners, so most of the demand-sensitive network costs support demand during heat waves every few years.
- Changes to energy flows from increased DER (such as solar PV and EVs) and wider range of low to high coincident demand will lead to costs to accommodate these technologies.

Volumetric energy pricing is understood to have two main shortcomings in this context:

- It does not send a price signal to energy users that aligns with the cost of energy consumed during times of coincident peak. As a result, people who use air conditioning at times of coincident peak are cross-subsidised by those who don't. Time variant volumetric pricing can reduce this cross subsidy, but is a poor substitute for a dynamic and locational cost reflective price.
- Energy users with solar PV effectively avoid volumetric charges for the portion of the energy they generate that is used onsite, and doesn't go 'through the meter'. In other words, the volume of energy they use from the grid is lower, meaning they pay less, even if their demand during coincident peak - and therefore the cost they place on the grid - is the same as if they didn't have solar.

The AEMC acknowledged the lack of cost-reflective network pricing in their Power of Choice review in 2012. In November 2014, the AEMC made a new rule to require network businesses to set prices that reflect the efficient cost of providing network services to individual consumers<sup>8</sup>.

Each network distributor is required to provide retailers, aggregators and other third party providers with clear signals for the cost of their consumers' use of the distribution network.

A set of pricing principles for network tariff pricing to guide a transition to more cost-reflective pricing was introduced. These principles require network charges to align with Long Run Marginal Cost and entails moving away from flat volumetric charging to greater alignment with coincident peak demand. This principle has been widely interpreted as to how they can be implemented, including via 'demand tariffs' and 'time-of-use energy tariffs', to allowing households and other energy users to opt-in to more cost reflective tariffs, such as 'critical peak pricing' or 'peak time rebates'.

The Rules require distributors to propose strategies to progress network tariff reform each regulatory period to the AER for approval in a tariff structure statement (TSS). Distributors have to consider the network's circumstances, the expected impact on consumers within their network, and their ability to respond, when outlining the strategy for each regulatory period. They are also expected to outline how they will approach trialling more complex, innovative trials in their TSS and explain how the learning from previous trials was used to inform their strategy.

Despite the progress at the network level, full cost reflective and socially accepted tariff reform at the consumer level has proven to be difficult to implement effectively. Lack of analysis of the impact on various consumer groups, lack of clarity as to how network tariffs could play out through retailers, how retailers will translate tariffs to customers and what protections and supports will be put in place for vulnerable consumers, are all contributing to delays and concerns.

In addition, there is:

- A lack of consistent messaging to explain the benefits of cost reflective tariffs to all consumers.
- A lack of tools to enable consumers to assess the impact of different retail tariff structures for their individual circumstances

To fully realise the potential of tariff reform to make essential energy services affordable to all consumers, it is critical that clear and detailed customer impact analysis of cost reflective consumption tariffs is undertaken with recommendations on how best to address the impacts, including through retailer actions, consumer protections and complementary measures (e.g. energy concessions reform).

Analysis would need to show not just the proportion of the customer base that will see higher or lower costs from cost-reflective tariffs, but also:

- the magnitude of typical impacts;
- the magnitude and incidence of significant impacts;
- case studies of households facing significant price impacts and reductions;
- case studies of the impacts on different types of representative vulnerable households;
- characteristics and distribution of the types of load profiles likely to experience significant impacts; and
- including identifying who cannot change their behaviours to make use of cost reflective tariffs.

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<sup>8</sup> <https://www.aemc.gov.au/rule-changes/distribution-network-pricing-arrangements>

