



Post 2025 Market Design – A paper for consultation

**CitiPower, Powercor and United Energy
Submission to the Energy Security Board**



9 June 2021

Dr Kerry Schott AO
Chair
Energy Security Board
Submitted via email: info@esb.org.au

Dear Dr Schott

Re: Post 2025 Market Design Options consultation paper

CitiPower, Powercor and United Energy welcome the opportunity to contribute to the Energy Security Board's (ESB) Post 2025 Market Design Options consultation paper (consultation paper).

Our comments focus on one workstream: Integration of Distributed Energy Resources (DER) and Demand Side Participation. Whilst we recognise the importance of the remaining three workstreams, challenges in the enablement and activation of DER present the most direct concern for our customers and businesses.

It is crucial the proposed reforms to the National Electricity Market (NEM) are supported by, and benefit all, customers regardless of their level of participation. It is equally important that ESB recognise that customers already rely on distributors, like CitiPower, Powercor and United Energy, to support their DER connections, manage their electricity demand through direct load control and provide innovative solutions in front of the meter (such as energy storage on the low voltage (LV) network).

In preparation of this submission, we have relied extensively on the feedback received from our Customer Advisory Panel (CAP). A dedicated session was undertaken to consider the issues raised by the consultation paper and, if implemented, what it would mean for the affordability and quality of services our customers receive. What comes through loud and clear from our discussions with CAP is the level of complexity the consultation paper recommendations will impose on customers and the market. Conversely the benefits that arise from this complexity are opaque and what benefits that do exist, are likely to accrue to a small, but vocal, section of the community and market. We agree with these points and would again urge further consideration be given to an independent and transparent cost benefit analysis to support the proposed recommendations.

The key points in our submission are as follows:

- it is not appropriate, or necessary, to prohibit distributors from providing non-network solutions. Doing so reduces customer choice, undermines affordability of network services and threatens network reliability. It also takes away from the NEM a major provider of cost-effective non-network solutions. Perhaps most concerning, it represents interference by regulation in an infant market in the absence of any evidenced market failure
- ring-fencing arrangements have since their inception operated to impede choice and innovation for residential customers, especially for services related to energy storage. What we see is the increasing application of ring fencing to technology rather than evidenced anti-competitive behaviour. ESB needs to be confident it has not acted on self-interest of certain market players in preventing distributor participation in markets rather than correcting an identified market failure

- the future definition proposed for a distribution system operator (DSO) reflects the role distributors are already providing and, under approved investments for the current regulatory period, are already significantly expanding for the benefit of all customers
- we agree with the need for visibility of DER for effective management and system security and are confident that with the action taken, and planned over the next five years, we will be able to fully facilitate market integration of future DER resources and services. Further, we support the need for a nationally consistent approach to the provision of network constraint data in a standard form and on a common platform as an immediate priority
- we continue to support the structured procurement of network services that will evolve from the bilateral contracts we have today toward more dynamic arrangements, including through digital platforms. There should be further development of common contract templates and terms and conditions, to reduce transaction costs and ensure a structured and transparent approach to procurement of these services
- we recognise the material impact DER can have on system wide grid security and the need for consideration of emergency backstops. However, further industry consultation is required to determine the best approach to managing minimum demand in a least disruptive manner. Whatever solutions are adopted, these need to align with the future roles and responsibilities of the post-2025 NEM, including the role of the DSO
- Victorian distributors can accommodate flexible trading arrangements in their current roles as meter coordinators and meter data providers for the smart meter fleet. However, further consideration is required on how the network tariff would be allocated beyond the parent connection
- the sheer complexity of the reforms being proposed by ESB necessitate a strong customer protection framework. We support ESB's proposed framework that enables market development through risk-based principles. However, a body such as the Australian Competition and Consumer Commission (ACCC) should monitor activity given the enormous information asymmetries between customers and retailers/aggregators created by the proposed reforms contained in the consultation paper
- we support national technical and cyber security standards developed through industry consultation, to ensure system security is provided at least cost, and to minimise the risk of customers being locked into proprietary technology.

Should you have any queries about this submission please do not hesitate to contact Sonja Lekovic on 0418 166 169 or slekovic@powercor.com.au.

Yours sincerely,



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CitiPower, Powercor and United Energy

Contents

1	ROLES AND RESPONSIBILITIES	5
1.1	We support the ‘trader – services’ model for NEM participation	5
1.2	Distributors are the natural providers of the DSO function and are already delivering	5
1.3	Improving network data visibility	8
1.4	There is a role for distributors providing non-network solutions	9
1.5	Distributors’ participation aids competition	12
1.6	Banning distributor DM solutions will lead to customers being worse off	12
1.7	Checks/balances are in place for distributors to offer non-network services	14
2	TARIFF AND REGULATORY CHANGES	15
2.1	Structured procurement with a digital platform is the best option	15
2.2	Tariff reform remains essential	16
2.3	Ring fencing is impeding rather than facilitating markets	16
3	MINIMUM DEMAND	19
3.1	More industry consultation is needed	19
4	FLEXIBLE TRADING ARRANGEMENTS	20
4.1	We can deliver option 2 in Victoria	20
4.2	Further consideration should be given to how better to use the existing infrastructure	21
4.3	Further consideration should be given to dynamic operating envelopes and flexible trading arrangement	21
5	CUSTOMER CHOICE AND PROTECTION	22
5.1	Customer protections should address existing and new challenges together	22
5.2	Common technical standards should be a priority	22
5.3	Our principles for demand side participation	23
6	INTEROPERABILITY AND TECHNICAL STANDARDS	24
7	SCHEDULED LITE	26
8	MATURITY PLAN	27
8.1	Customers should contribute to the Maturity Plan directly	27
8.2	The standard AEMC rule change process should be followed	27

1 Roles and responsibilities

Our customers support the need to transition away from Australia's reliance on thermal generation. The important role that DER, including solar photovoltaics (PV), can play in aiding this transition is widely acknowledged and supported.

Who is best placed to aid the transition, and achieve it in the most timely fashion, is critical. Evidence shows artificial establishment of new markets does not necessarily guarantee the benefits of competition. Instead, customer benefit from extracting the full value out of existing regulatory frameworks, network infrastructure and market capabilities, before investing in expensive changes and upgrades that may not deliver more customer benefits.

As an example, the introduction of metering contestability in the NEM (other than Victoria) in 2016 has not achieved the intended results for customers in states other than Victoria, with less than 20% penetration of smart meters in more than five years. Conversely, Victorian customers now benefit from 97% Advanced Metering Infrastructure (AMI) penetration, the advantages of accurate and timely billing, as well as from innovative network and safety initiatives that have been enabled by sophisticated AMI data analytics developed by our networks. As we look to the future of the NEM, Victorian networks can more readily harness the collective benefits of AMI meters in planning for DER integration compared to other states.

Ensuring that customers are engaged in the market is another crucial factor. If customers do not understand or value what the reforms are enabling, there is a significant risk they will not participate in the new markets but will wear the cost of the reform. While the ESB assumes a high level of interest and engagement by customers in some of its proposed reforms, we believe these assumptions should be further tested and evidenced. Our CAP's view is the expectation that customers will invest time in understanding and comparing different service offerings is overstated. They believe large customers may investigate options but residential customers, particularly in regional communities, will want to 'set and forget' energy arrangements.

Accordingly, we consider any reforms should be supported by evidence of demand for new services and expectations of levels of customer engagement. Relying on unrealistic assumptions will lead to a larger dispersion of engaged and disengaged customers, and create knowledge, understanding and technology barriers that will result in disengaged and vulnerable customers being left behind.

1.1 We support the 'trader – services' model for NEM participation

The ESB proposes to simplify NEM participation in a 'trader–service' model, where traders are service providers and customers engage them for specific services (as opposed to technology-specific rules for market participation). Accompanying the role of the trader, the ESB has proposed the introduction of new registration categories, metering arrangements and market roles.

We support a simplification market participation and registration roles and the move to a service-orientated market rather than technology specific. However, we consider the ESB should not be pre-empting the type of market participant that will be able to register as a trader in the future; rather, all potential providers of specific services should be able to register for participation as a trader if they are able to demonstrate technical and other relevant capabilities to do so.

1.2 Distributors are the natural providers of the DSO function and are already delivering

We appreciate the consultation paper proposes that distributors would be the natural provider of DSO functions. This makes sense as distributors are the best positioned market participant to impartially operate an efficient and reliable system that delivers on their customers' needs.

Further, the obligations of distributors under regulatory instruments for operating and maintaining the distribution network and the incentives schemes under which they operate including the service target

performance incentive scheme (STPIS), mean the DSO function should remain with distributors. Internationally it is understood the role of DSO has also remained with distributors and operated successfully.

We are committed to delivering reliable, safe and affordable electricity supplies that empower our customers' choices and deliver services important to our communities and the environment. We operate and manage electricity networks which are incentivised for high utilisation, productivity and reliability and supported by consumer protection systems which ensure a fair and equitable approach to providing high quality services.

We consider the definition of a DSO as proposed by the ESB and investigated by the Western Australian DER Roadmap appropriately defines the DSO functions at a high level to:

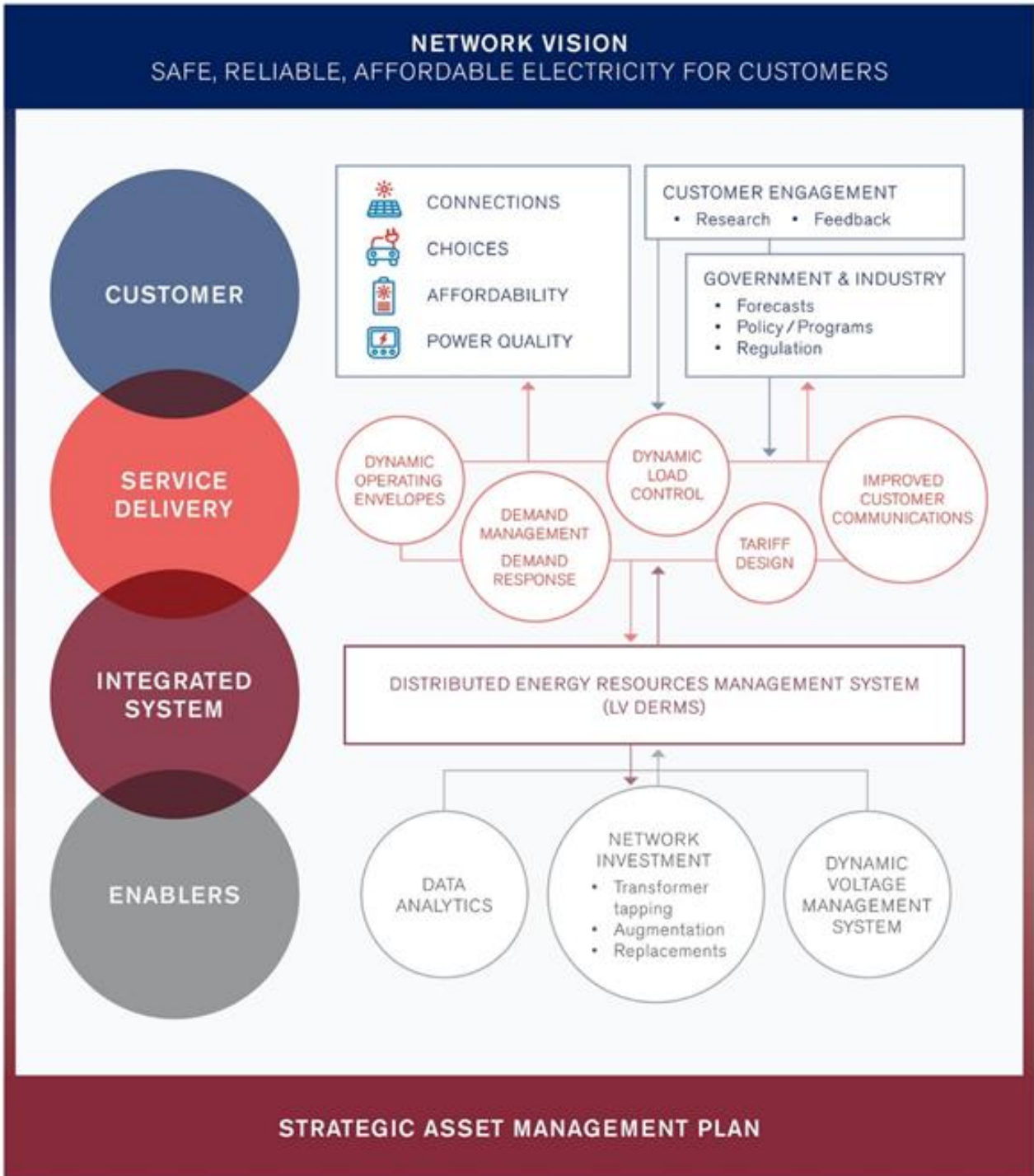
- connect, control and communicate DER assets and information
- identify and share data on network constraints and opportunities, including provision of dynamic operating envelopes
- administer a DSO platform which enables visibility of power flows and potential issues
- coordinate with the market operator to consider impacts on the broader power system.

We are already investing in capabilities to transition to the DSO role, made easier and more accessible by the high penetration of smart meters already on our network. Throughout our recently completed regulatory reset, we were constantly reminded by customers and stakeholders of the importance of having the flexibility to utilise new technologies, such as solar PV and energy storage, as they deemed appropriate. We agreed with our customers, and proposed investments over the next regulatory period will enhance customers' experience through our Future Networks program (see Figure 1).

The program was accepted by the Australian Energy Regulator (AER) and will result in more than \$150 million in investment that will facilitate customer choice and participation and ensure a smooth transition to a DSO role. Some of the innovative initiatives our businesses have made and are making include:

- the implementation of dynamic voltage management systems (DVMS) to support system security, manage voltage compliance and enable DER participation at a low cost
- the introduction of a dynamic DER management system (DERMS) on the high voltage (HV) and low voltage (LV) network to allow greater utilisation of existing assets and solutions to improve DER participation and meet the minimum demand challenges. At an HV level, we currently manage 841MW of capacity generated by 12 customers (each with greater than 1MW DER capacity). At an LV level, these capabilities can support two-sided interaction with customer connected appliances, such as air-conditioners and hot water systems, and customer behavioural demand response programs
- strategic investment in IT systems to allow interaction with an increasing number of devices and third parties, based on interoperability standards such as the IEEE2030.5 protocol
- trialling of grid connected energy storage, e.g. pole-top batteries and community batteries, in a business model that leverages network benefits and customer/market benefits through partnerships with retailers
- examining opportunities presented by smart thermostat devices, to play a greater role in supporting demand management programs, government energy efficiency programs and emissions reduction efforts
- trialling of innovative network tariffs with electric vehicles and community batteries
- improving visibility of network constraint and opportunity data, down to the LV level (discussed further in section 1.3)
- the publication of dynamic operating envelopes (DOE) as part of a trial integrating electric vehicles onto our networks.

Figure 1 Initiatives under our Future Networks program



Source: CitiPower, Powercor and United Energy

The box on the next page describes how distributors also play an important role in the optimisation of DER in front of the meter.

Delivering local network and community benefits through optimising grid-scale DER

Distributors are optimising local grid-connected DER, such as grid-connected energy storage.

For example, we are already pioneering pole-top and community batteries on our network that can deliver local system benefits such as solar hosting and maximum and minimum demand management, while enabling a stream of benefits to local customers and communities.

These types of solutions, that involve partnerships between distributors, retailers and communities, are becoming increasingly popular across our network.

In our recent application to the Victorian Government on the Neighbourhood Battery Initiative, we were approached by more than 20 community groups seeking partnerships and leadership from our networks to manage and operate community batteries in their neighbourhoods. These communities are seeking localised solutions to their challenges, where there is limited solar capacity or sharing the benefits of a few customers' solar panel with the wider community.

Localised solutions such as community batteries will be a key feature of the future energy market and should be considered in the post-2025 NEM design. The model that allows distributors to unlock the full value of the grid connected DER, through partnerships with retailers and communities, is pragmatic and maximises network and customer benefits. It also demonstrates distributors' capabilities to transition to the evolving role as a DSO, as optimisers of the full value stream of the distributed network infrastructure.

1.3 Improving network data visibility

The importance of network capacity constraint and opportunity data (especially at the LV level) being available and visible has been highlighted by our CAP and users of our networks such as councils, renewable energy groups and the Victorian Government. We are pleased to see the consultation paper similarly identifies the importance of data availability and visibility.

Data availability and visibility is a crucial step towards a two-sided market and a facilitator of greater competition. Distributors are already incentivised to identify least costs solutions (including from third party providers) and reveal localised opportunities to elicit third party offers.

Our businesses are providing network constraint data to the market and continuously increasing their efforts to make more LV level data available. United Energy publishes LV constraint data following each summer for the upcoming summer and distributes it to aggregators, customers and on our non-network service providers on its demand management register and website. CitiPower and Powercor will do the same from 2021. We are also developing capability to publish dynamic operating envelopes through innovative network trials, for example the EV Grid electric vehicle project.

As part of our Future Networks program, we have commenced implementation of a broad LV data strategy utilising our smart meter fleet. We are considering various options for sharing data with market participants, including the use of a common platform across the industry. Our experience with third party market participants has been the wide variety of formats and content provided by distributors across Australia has been an impediment to greater market participation.

Rapid advancement could be made by tasking the AER with the responsibility for setting a minimum data sharing standard across the industry. This could be done through a common information sharing platform like AREMI.

1.4 There is a role for distributors providing non-network solutions

The most serious issue raised in the consultation paper from our perspective relates to the role distributors will play in the provision of non-network services. From the consultation paper, it is not clear why ESB considers it inappropriate for distributors to procure their own non-network solutions. From our perspective, we consider there to be an important on-going role for distributors in provision of demand management (DM) and DER services on the basis it offers customers:

- greater choice—our DM programs are relatively simple to understand and are unlikely to add to complexity. They are also suitable for customers seeking lower risk participation in energy markets
- benefit all customers, not just the highly engaged—DM procured in the right location, at an appropriate time, offers all customers greater affordability compared to capital solutions or broad-based third-party non-network solutions. By procuring the service directly from our customers, aggregators or both, we can set the time, location and the critical mass of the desired response, optimising the operating costs of the network and making the network more affordable for our customers.

Our existing DM programs play a crucial role in network management while offering our customers an opportunity to be rewarded for participation. Hot water load control in particular has a high penetration of around 23% of our Powercor customers. In the absence of hot water control, Powercor's and CitiPower's zone substation's demand would be at least 61MW higher.

Across our DVMS, Summer Saver program, Energy Partner program, battery storage projects and other non-network solutions we have over 35MW of capacity that has been instrumental in helping to lower costs for customers by deferring more expensive network capital investments.

Our successful Summer Saver program, launched in 2013, has resulted in \$12 million of capital expenditure being deferred at 214 sites. Of the more than 1,000 household customers regularly participating, 51% say their electricity usage patterns have permanently changed as a result.

Table 1 summarises some of our largest DM programs to date.

Table 1 Summary of our largest DM programs

Program	Type of program	Customer participation	Number of customers
Hot water load control	<p>Remotely controlling hot water units through the second element on the smart meter.</p> <p>Typically, hot water is turned on at night and turned off before peak usage.</p> <p>We are also currently trialling use of hot water load management to soak up excess solar in the middle of the day.</p>	<p>For each new connection of electric hot water, the electrician will offer the customer a dedicated circuit and a two-element meter, with the potential for remote load control. Customer then opt in to load control for a reduced tariff on that load. The special tariff is part of their retail bill.</p> <p>Customers can opt out of the direct load control at any time.</p>	<p>Powercor: 205,000</p> <p>CitiPower: 37,000</p> <p>United Energy: 55,000</p>
Summer Saver	<p>The Summer Saver program provides customers with a rebate for reducing energy usage at peak times.</p>	<p>The offer is issued to customers to participate, and they choose to respond (or not). Those who respond receive the reward.</p> <p>The Summer Saver program has been extremely well received, with four fifths of customers believing it was very easy to participate in, with the significant majority of customers saying they would take part again.</p>	~2,000
Energy Partners air conditioner trial	<p>Third party devices are installed to remotely control temperature set points on customers’ air conditioners.</p> <p>We manage the devices utilising our smart meter data analytics platform and DERMS system.</p>	<p>Customer agree to have the Sensibo device installed on their air conditioner. We send a notification to customers via text message and email to notify them of an upcoming event – at this point customers can opt-out.</p> <p>DERMS sends details to the Sensibo device to adjust the customer’s air conditioner temperature to a minimum of 26 degrees for a set period of time</p> <p>Customers receive a cash payment for participation per event.</p>	Up to 1,500 per program

Source: CitiPower, Powercor and United Energy

United Energy has developed a DVMS program to manage network voltage, which has also proven to be successful in managing load through participation in reliability and emergency reserve trader (RERT) services. The DVMS can provide up to 25MW of load reduction within three minutes for an extended period of time on the United Energy distribution network. This capability is being deployed into CitiPower/Powercor this year.

A key feature of our DM programs is they are voluntary. Customers can opt out at any stage. For behavioural DM programs, customers can simply choose not to participate and not receive rewards. Our programs are therefore flexible and do not lock customers into contracts, participation or expensive hardware. This is an important distinction when comparing alternative DM products that may lock into customers into longer contracts, require a level of control customers are not comfortable handing over or the obligation to payback expensive hardware.

Customer Advisory Panel (CAP) meeting, Topic: Future of the NEM, 19 April 2021

A dedicated session was conducted with our CAP to consider provision of non-network solutions by distributors. The session identified issues of concern for our CAP members summarised as follows.

- customers being inundated with multiple offers from a wide range of market participants all offering one or a combination of services. This will create serious complexity. To be successful, and engage customers, the process of procuring services needs to be simple. This may be best achieved through partnerships
- distributors should continue to play a role in the provision of non-network solutions. An advantage of distributors is they are well practised in considering equity issues and customer impacts in making operational decisions, something CAP members felt other market participants may not have
- distributors are best positioned to respond to their own network problems. This is a fact and should not be interpreted as anti-competitive or an impediment to innovation. It is important however that to the extent possible, information on those network problems should be universally available to elicit the most efficient and effective solutions
- distributors need to be clear on the value proposition in a crowded market and offer something that is unique. There should be clarity, and purpose, for what is wanted from customer participation with demand response. The CAP recommended developing a conversation on the locational specifications of demand management programs, to pre-empt any confusion amongst customers
- ESB's goal should be creating a market that provides services that create value for customers and communities and the wider system, whether through distributors or not. If the purity of competition is preserved, but there are higher system costs, this is not a preferable outcome for customers.

Our CAP is well versed in the competition arguments advanced by ESB but approached the issue differently focusing on transparency of processes in terms of procurement and information provision rather than eliminating market participants. Paramount however is ensuring the evolving markets cater for a wide range of customer engagement including a large cohort of customers who will just want to 'set and forget'.

CAP members:

- Gavin Dufty, Executive Manager Policy and Research, St Vincent de Paul Society Victoria
- Tennant Reed, Head of Climate, Energy and Environment Policy, Australian Industry Group (AI Group)
- Natalie Collard, Chief Executive Officer, Food and Fibre Great South Coast
- Emma Chessell, Project Manager, Climate Change and Energy, Brotherhood of St Laurence
- Dean Lombard, Policy and Research Manager, the Renew.

1.5 Distributors' participation aids competition

Non-network solutions provided by distributors provide an avenue for furthering competition. Products offered by distributors are simpler, voluntary, provide a lower level of risk and a guaranteed return for customers through lower tariffs or direct payments. Distributors also have the reach of the whole network, which in our case includes customers ranging from urban areas such as business centres to remote customers in country Victoria. We have the capabilities to offer the same DM options to all our customers, including rural and remote customers that are often offered by far fewer commercial opportunities in many markets.

Products such as hot water load control, have been managed by distributors for decades and are now integral to network management. As shown in table 1, the Summer Saver behaviour DM program is extremely popular with participants, partially for its simplicity and ease of reward and has been running as economic program in its own right for five years. We do not see a case for disrupting these services by banning distributors from offering these options to customers.

Prohibiting distributors from continuing to provide these non-network solutions would require a reversal of relationships with customers already successfully developed and delivering tangible benefits. We do not see a case for disrupting these markets by banning distributors from offering these options to customers.

We are not suggesting distributors should be the only parties providing these products to customers. If a customer wishes to select an alternate product that may offer them a higher return, we will not prevent them from doing so as they can opt out of our programs. We expect customers will 'vote with their feet' without ESB needing to implement a 'ban' on distributor participation.

After all, customers drive competition. They typically drive markets and competition for all forms of retail products and services, and the same can be expected in these markets.

1.6 Banning distributor DM solutions will lead to customers being worse off

If there was a ban on distributors providing DM solutions, exclusive reliance on third party non-network solutions would disrupt and impact on the service and affordability of distribution services. This is because network planning decisions today are reliant on multiple tools which include well established DM programs. These programs provide certainty for the operation of the distribution network because they are locally based i.e. relevant to our distribution network and managed to coincide with network peaks.

Were these programs to be transferred to a third party, aside from the ensuing disruption in the short term, it is not clear the third party would be able to provide DM in the same quantities, at the same price or with the same certainty of deliverability. This would then lead to more network augmentation and higher costs to all consumers. We expand on this in the following sections.

All customers should have access to DM opportunities

The highest benefit to all consumers and distributors will be if DM solutions are able to extend beyond the rents various third parties are able to extract from customers that are low cost to serve—i.e. typically customers in urban or high-density areas.

If distributors were banned from providing DM solutions, rural or remote customers may not receive DM opportunities as they are typically more costly to serve. Further, market participants are unlikely to be interested in offering DM or flexible trading arrangements in rural/remote areas as the potential rents they can extract are low from low density customer bases.

This is currently the case in NEM jurisdictions other than Victoria where rural and remote customers are poorly served under metering contestability, due to high cost of service.

Optimising load control for the wholesale market will inevitably lead to higher distribution costs

It may be the case third parties do not find the rents available on network capacity products attractive, rather, prioritise participation in the wholesale market or system strength services such as FCAS. While this may be to the benefit of the consumer and the wider wholesale market, this will increase the cost of managing the network and lead to higher network tariffs in the long term. As DM solutions are cost effective measures to manage network constraints, if DM solution is not available or not a lucrative proposition for third parties, all customers will end up paying more for their network infrastructure.

For example, Powercor relies on at least 61MW of hot water load to manage its largely rural network. If this DM was alternately managed by a third party and bid into wholesale markets, it would likely result in new network peaks on many rural and remote feeders.

This problem could be exacerbated by the anticipated gas substitution programs being rolled out by local and state governments in response to climate change objectives. We are seeing this in Victoria with action being taken by the state Government under their Climate Change Strategy (April 2021) and various local government plans such as the Borough of Queenscliffe and City of Yarra.

These plans promote the need for gas hot water units to be phased out and for all new households to use electric systems. Depending on the speed of this transition, in the short term we may be unable to harden the network in time, resulting in potential outages and/or load curtailment. In the medium term, we would be required to undertake expensive network upgrades to support the third parties wholesale market arbitrage which would be an expense paid for by all customers.

The highest value DM for network capacity is locally based

Managing network constraints at the LV level requires a critical mass of DM in one local area. It is therefore highly valuable to have direct access to customers on a specific transformer or low voltage circuit to provide network capacity services. Our Summer Saver program is an example of localised demand constraints that are addressed through a voluntary behavioural DM solution, contacting customers on a transformer and then pricing the rewards based on the critical mass that is expected to respond.

Relying on third party solutions alone may make it more difficult to collect the critical mass if some customers do not have an agreement with a third party and increase the cost to deliver the same level of voluntary DM response.

Smart meters in Victoria have been instrumental in analysing LV network constraints and targeting the right set of customers. For that reason, the Victorian distributors are well placed to offer these voluntary behaviour programs to their customers.

Reliability penalties under the current incentive framework are difficult to contract

The regulatory incentive arrangements should be considered before eliminating distributors from provision of non-network solutions. Distributors, through STPIS and guaranteed service level arrangements (GSLs), are subject to substantive punitive penalties if they fail to meet reliability targets (and potentially export targets).

Discussions with distributors in the United Kingdom, who operate under similar arrangements, have advised us that because third parties are generally not sufficiently capitalised to manage STPIS penalties, they are having to underwrite the STPIS risk themselves through acquiring 130 percent of their actual non-network requirements. This is reflective of third parties simply being unable/unwilling to guarantee the delivery of their non-network support.

1.7 Checks/balances are in place for distributors to offer non-network services

Retailers and aggregators have raised concerns around distributors' conflict of interest regarding running tenders for DM solutions while also proposing their own DM solution.

Some of these concerns will be alleviated with the DSO role through which distributors will have a more transparent, structured and standardised process of procurement, including eventually via exchanges. In the meantime, there are checks and balances in place to ensure distributors do not discriminate against third parties. These include:

- projects in excess of \$6 million are reviewed and approved by the AER as part of the regulatory investment test for distribution (RIT-D)
- distributor sponsored non-network solutions must generally be approved and the outcome verified as part of the AER assessment of demand management incentive scheme (DMIS) payments
- ultimately, the current expenditure incentive framework rewards distributors for selecting the most efficient option. Efficiency incentives act as strong commercial deterrents to inefficient discriminatory behaviour, including setting connection conditions that would lead to inefficient investment.

In many cases, the third-party DM solutions reach non-financial road blocks, particularly the transfer of risk associated with reliability penalties. As a result, distributors must be prepared to contract directly for such services should a third-party provider default or terminate an agreement or fail to complete the original network investment.

Proposed alternative solutions

As an alternate to the 'ban' on distributors, ESB should consider:

- ensuring distributors provide ease of access and transparent information on network constraints on a regular basis to be determined by the AER. The AER could also determine the format and content of the data and if necessary, include review of the data as part of its regulatory information notice process
- developing a common industry platform for provision of network constraint data and tendering information for third parties to provide non-network solutions
- recommending minimum probity and tendering requirements and expectations on the end to end process of tendering, selection, procurement and settlement of contracts for the selection of non-network solutions. This could also include developing standard contract terms and conditions for procurement of non-network services to streamline service provision across utilities and jurisdictions
- augmentation of the existing DMIS to provide an enhanced multiplier to the incentive rate where a distributor procures a third-party non-network solution (in full or in part)

Regardless of the solution, the priority needs to be delivering customer value and encouraging customer participation, not 'bans'.

2 Tariff and regulatory changes

Unlocking the power of DER, to the benefit of customers, requires a better understanding of the impact and influence DER plays on sustaining reliable distribution networks.

The data available through our high penetration of smart meters and associated investments place us in an enviable position to do this. In addition, our accumulated knowledge and expertise in the management and operation of distribution networks and our understanding for and presence in our communities create further competitive advantages.

Collectively, these assets help us identify and procure opportunities that guarantee the performance of the distribution network through time without compromising network reliability and while delivering the affordability and flexibility our customers desire.

2.1 Structured procurement with a digital platform is the best option

Markets for network constraints already exist today and continue to evolve. They are managed through a blend of distributor and third party provided programs. These include direct load control, rebates, generation, energy storage and smart electronics. Whilst network constraint markets continue to develop, they remain in their infancy. We would caution against drawing 'hard and fast' conclusions as to how they may evolve.

For example, the proposed early intervention of trading services in network capacity markets could impact customers' experience of both affordability and performance from their distribution network. Affordability would deteriorate if distributors were required to scramble for scarce or expensive network capacity services to ensure basic continuity of supply, and compete against wholesale and ancillary service markets to replace demand management programs previously distributor sponsored.

The consultation outlines four options for the procurement of locationally based DER services.

The first option is a structured procurement process. In United Energy, we already undertake:

- a limited structured procurement process through our annual DAPRs
- an annual request for non-network proposals from our demand management register for our pole top transformer augmentation program ahead of summer
- public forums as part of the DAPR process to promote awareness of our non-network solution opportunities.

Overall interest to date has been modest, but this probably reflects the relative immaturity of the market. We agree with ESB that this is a low cost option that avoids expensive IT costs to implement and are already moving to implement a more transparent and structured internal approach.

The second model involves structured procurement with a digital platform. We see merit in the extension of the structured procurement model to include a digital platform. The most important aspect of this model is its potential to improve transparency and ultimately liquidity in the non-network solutions markets. Based on the consultation paper, it appears market participants have been advising ESB that the lack of consistency in the provision of LV network constraint data and tender platforms has inhibited liquidity in the market. We support the need for a common platform.

Beyond an information sharing and tender platform, we believe ESB could go further. There is merit in designing a standard set of 'boiler plate' terms and conditions and contracts that would serve to minimise transaction costs and clarify responsibilities.

We do however believe the term sheets should remain flexible, reflecting the different needs of each distributor and the nature of the constraint to be addressed and to allow further innovation in the products being offered. This approach is supported by insights received from associates from major distribution business, UK Power Networks, regarding the development of the flexible market in the UK. Their feedback was that LV constraint

data is distributed through the centralised market. This is supported by a common form of contract for trading with variations contained within the term sheets defined by each distribution network and outlining different approaches to minimum loads and level of firmness in contracts.

To this end, we have already begun to develop improved methods of ensuring data availability and visibility. This is drawing on AER approved investment in our digital network capability during the regulatory period commencing July 2021 and the benefit of standardised data available through AMI meters.

We do not support options 3 (Retailer portfolio level tariff charges) and 4 (dynamic price signals per network element). Both entail expensive system changes, create additional and unnecessary risk for customers and cloud responsibility for delivery of reliability and important export services on the distribution network.

Option 3 appears to represent a transference of the risk from the distributors to retailers and unnecessarily introduces complexity for little benefit. It is distributors that carry responsibility for the safe operation, power quality and maintenance of the network through the Rules, guidelines and ultimately their licences. Failure of the retailer to meet its obligations exposes the distributor to enormous penalties and potential loss of licence. No responsible business would outsource such a function and as such, we believe no further consideration should be made of this model. We also agree with ESB that given the risks involved for the retailer, all retailers except for the three large incumbents would be eliminated from the market.

Option 4 is similar to the Coordination of Generation and Transmission Investment (COGATI) reforms that have previously been considered by the AEMC for transmission networks. This option is expensive, complex to implement and cannot easily determine how customers would be impacted from a move to locational marginal pricing.

2.2 Tariff reform remains essential

Any discussion of tariff reform needs to be cognisant that there is more than economics that drive distributor decisions with respect to network tariffs. Tariff reform has, and will continue to be, equally driven by political considerations just as much as economic considerations. Recent discussions with many customer groups has highlighted the importance of social licence. This is especially true when it comes to tariff reform. Tariff reform requires bringing the community and government along for the journey. In the absence of their support, tariff reform is doomed to fail.

Tariff reform needs, and requires, transition periods and a strong understanding of its impact on different users.

Over the next five years our businesses are investing heavily in tariff trials including electric vehicles and community batteries. We remain supportive of tariff reform and continue to believe it is an important tool in resolving network constraints at efficient cost.

2.3 Ring fencing is impeding rather than facilitating markets

Ring-fencing could impede network innovations and limit customer choice by excluding our attractive value proposition. This is particularly evident for services related to energy storage, behind the meter services and provision of system strength. Distributors can often provide a lower cost innovative solution that delivers greater customer benefit, however are prevented from doing so by regulation. Current ring-fencing rules are not fit for purpose in the new NEM and need review.

In fact, the AER's Ring-fencing Guidelines Electricity Distribution (guidelines) have been amended three times since their inception in 2017 and are still not fit for purpose. Some of these changes could have been averted or anticipated if the debate and analysis surrounding the guidelines had not been entirely qualitative and was instead based on market evidence. The theoretical potential market failures identified by the AER, and other third parties, have, in practice, not eventuated. This limits the ability to quantitatively assess the impact of the guidelines.

A more sinister view of the guideline has been its use by third parties to inhibit competition. This is most keenly felt in markets behind the meter, energy storage and most recently system strength provision.

The example of energy storage

The damage the guideline has had on innovation and competition is no clearer than in the case of energy storage. Energy storage is a technology that should have wide application to distribution networks. Whilst the economics are in their infancy, we have been working with the technology for the past five years to understand how it can be applied to lower network charges.

UK distributors have indicated energy storage once held similar promise for their distribution networks. Regulatory reform however restricted distributors from the ability to use energy storage unless it was used entirely for distribution services.

The economics of energy storage remain such that it still cannot be justified based solely on the provision of distribution services. As a result, no further energy storage facilities providing network support have been installed on UK distribution networks post regulatory reform.

Through successive procurement processes, we understand distributors have sought energy storage options from third parties. To date, this has been unsuccessful as third parties have preferred the rents available in more lucrative FCAS and fast frequency markets. These markets require fast discharge and differing unit sizes unsuitable for a distribution network. As a result, the opportunity for energy storage to play a role in lowering distribution system costs has been lost.

Our experience has been third parties have been very keen to involve us in energy storage projects and seek to capitalise on the benefits energy storage can provide for the distribution network.

United Energy's pole top energy storage trial in collaboration with a retailer is an example of this. CitiPower has had similar interest from renewable energy groups and universities for its proposed neighbourhood battery trials. We have also been encouraged by the interest we have received from the Victorian Government and local community energy groups to explore the use of energy storage through its Neighbourhood Battery Initiative.

Although the guideline technically 'bans' distributors from the provision of energy storage services, we have been able to secure a waiver for the United Energy pole top energy storage trial with the support of the AER. The process of obtaining a waiver was however, not ideal and complicated:

- the first discussions with the AER focussed on agreeing what portion of the energy storage devices should be included in the regulatory asset base
- we were then required to agree network tariffs with the AER's pricing group
- the final step involved obtaining the waiver. We had been previously advised for the first six months that no waiver was required. The position changed around the middle of 2020 after which we worked with the AER's ring-fencing team. This was a particularly difficult time for the business as procurement arrangements for hardware had been entered into and negotiations with our partners well advanced. In total the process took 12 months.

The length of the process is important because, as for most businesses, we need to raise finance to fund projects and where there is scope for other parties to be involved, conduct a competitive process to attract those parties. This normally done on an annual planning cycle. We generally become aware of LV network constraints during summer and define these constraints during our post summer assessment. We then need to run a competitive process to secure network capacity service for the following summer, allowing enough time to deliver the lowest cost option ahead of the next summer. For batteries and network augmentation solutions in particular, there is a significant time needed for design, procurement, construction and commissioning of the solution. The additional time to obtain a waiver for a battery solution is therefore problematic.

To this end, if a 'ban' on energy storage being provided by distributors is to remain, then there should be a time limit on the AER approval process for waivers. For example, a 40 business day limit on decision making.

Our businesses are pioneering a model where distribution connected energy storage can be justified on:

- avoided network investment
- a third party contribution (e.g. grant funding)
- an agreement with a retailer/aggregator who can lease use of the battery for energy market arbitrage and FCAS market participation when it is not needed manage local peak or minimum demand network issues.

With scale, and with the expected decline in energy storage prices and the emerging synergies with technology platforms, we see a future where distributors can enable the cost-effective roll-out of locally connected energy storage for both network and consumer benefits. This solution uses competition in equipment supply and retailer leasing to optimise these components, thus minimising the residual cost placed onto RAB for the network capacity service component. Thus, customers ultimately benefit through reduced network charges.

3 Minimum demand

Emerging minimum demand issues should be the most immediate priority for the ESB in the post-2025 NEM design as the penetration of rooftop solar PV rises.

Minimum demand challenges are particularly observable in islanded networks with very high renewable penetration, such as South Australia, and are now emerging in Victoria. The ESB has proposed the following options for addressing minimum demand:

- introducing an emergency backstop across the NEM, based on the backstop functionality created in South Australia
- over time, the development of turn-up services, or dynamic load control (rapid ramping up or down of demand), to help balance the system in real time and reduce the need for backstops. It is expected dynamic controls would allow customers to maximise the size of their DER installations, and hence have more opportunities for their DER to actively participate in the wholesale market.

We recognise the material impact DER can have on system wide grid security and the need for consideration of emergency backstops in the same way there are emergency system arrangements for system restart and load shedding in the event of extreme disturbances. Our focus is ensuring we invest in appropriate measures to address this risk, while keeping network charges affordable for our customers and ensuring the customers experience is not significantly impacted. As such, the approach to managing minimum demand needs to ensure the utilisation of all other tools before backstop measures are invoked.

Distributors are well placed to provide alternate innovative solutions to address this emerging issue, for example through developing dynamic connection agreements and advanced dynamic controls facilitated by smart meters. Our existing capabilities in relation to demand management (i.e. reducing demand through dynamic controls) can be leveraged to manage minimum demand issues across the system.

We have spoken to our CAP about the impact on customers of introducing backstop measures. The CAP was overall understanding of the need for multiple tools to manage system security, including backstops as the measure of absolute last resort. Some CAP members mentioned that the ultimate backstop is rolling black-outs, and hence everything possible should be done to prevent that from happening.

However, the CAP cautioned that it will be an extremely difficult task to educate customers on why the backstop measure is appropriate. They suggested communities would require significant customer engagement and awareness campaigns to understand the measures. They also proposed that AEMO should be developing guidelines around the appropriateness of using the backstop measure through industry consultation to provide greater comfort.

3.1 More industry consultation is needed

We echo the CAP's concern around public support and the need for better industry consultation on how these measures are developed and implemented. It is not clear whether the current mechanisms that apply in South Australia, involving four parties issuing and following directions in real time, is the most efficient solution. This mechanism may also not stand the test of time as we move to a DSO managing the low voltage network in real time (in which case, it may be more appropriate the DSO manages the backstops under direction from AEMO).

As such, we support the Maturity Plan's focus on the development of the appropriate backstop measures that will reflect the future roles and responsibilities of the post-2025 NEM. It is important the Maturity Plan includes both technical representatives and customer perspectives. We also recommend the Maturity Plan be supported by a comprehensive public awareness campaign to ensure consumers are aware of the proposed changes. Whatever solutions are adopted, these need to align with the future roles and responsibilities of the post-2025 NEM, including the role of the DSO.

4 Flexible trading arrangements

The ESB considers small customers need greater flexibility to engage different trading partners to manage their loads separately. It is understood this will provide small customers with more choice and access to multiple revenue streams or reduce their energy bills via the wholesale market. The ESB is considering two options:

- option 1—second connection point
- option 2—sub-meter connection point.

We agree flexible trading arrangements have the potential to deliver more innovative products for customers, albeit at the risk of complexity for the customer and potential beneficiary being the market participant as opposed to the customer.

Our CAP is also broadly supportive of the need to introduce more flexibility behind the meter, acknowledging the digitalised industries (such as telecommunications or the internet) have evolved to also offer a range of products to their customers. While there is broad support for enabling more innovative products behind the meter, it is crucial the chosen model is:

- the most efficient solution for all customers to use existing infrastructure to the extent possible
- supported by customers themselves before significant investment is made into system upgrades and framework changes.

We encourage the ESB to conduct comprehensive customer engagement, market research and behaviour economics research, to better understand what products customers are interested in and willing to pay for, and be guided by those results.

4.1 We can deliver option 2 in Victoria

Option 1 is already permitted under the current regulatory framework, albeit there are implementation challenges as indicated in the consultation paper. These include higher costs to the customer that are unlikely to be offset through the savings made by having a second trading arrangement.¹

Option 2 is more affordable and may provide savings if flexible trading arrangements are implemented. Should the ESB recommend this option, we are already able to provide a workable solution in Victoria. This may be somewhat different to other jurisdictions due to their lack of penetration of smart metering.

Overall, we support the premise of option 2 and the creation of the Private Metering Arrangement (PMA). Similar to embedded networks, this option would allow for a parent meter to be connected to the distribution network, and multiple child meters behind the parent connection.

The child meters would not be required to meet the same functionality as the parent meter but rather, only be required to have minimum standards for participation in the wholesale market. Over time, this may be smart device such as electric vehicle (EV) charger or a smart inverter.

Acknowledging option 2 is not the same as an embedded network, there are similarities that would enable an easy Victorian solution with only minor changes to the regulatory framework.

The key features of a Victorian solution which could be considered an early adopter of this approach are:

- distributors can issue national metering identifier (NMI) for the child meters as we are allocated batches of NMIs by AEMO today. The distributor would only issue the NMI to the trading partner responsible for the

¹ ESB, Post 2025 Market Design Options – A paper for consultation Part B, April 2021, p.58.

child meter and they would be responsible for registering the NMI with AEMO. Victorian distributors used to provide this service to embedded networks prior to embedded network framework changes in 2015

- as the meter data providers (MDP) for the parent meter, distributors can provide subtractive metering calculations for each NMI to AEMO. We also provided this service for embedded networks prior to the framework change in 2015. As this is not a current feature of the MDP, this would require upgrades to our systems, however, we consider them to be modest
- distributors would not be installing or owning the child meters.

By issuing NMIs and providing subtractive metering, the distributors can enable wholesale market participation by the device with the child meter. Given the high penetration of smart meters in Victoria, this solution could be available to all customers with the appropriate changes to the regulatory framework immediately.

One of the challenges of option 2, is how the network tariff would be shared between the parent and child meters. In an embedded network, the embedded network manager assigns tariffs from the parent meter to the child meters to share costs between customers. However, this would be an unnecessary complexity of option 2, given the same customer is responsible for all the meters.

A possible solution is for distributors to develop a network tariff that can be shared between traders, i.e. with components that be spread across different devices. This would however require changes to distributors' tariff structure statements (TSS) and be accompanied by extensive customer and stakeholder engagement and tariff trials.

An additional challenge is disconnections or isolations of supply at the connection point, which take the parent meter and all child meters offline. At present, distributors only have the obligation to notify the customer at the parent meter of a planned outage. Should this model be implemented, distributors would be required to review their planned outage and disconnection policies to ensure all parties are properly notified and informed.

4.2 Further consideration should be given to how better to use the existing infrastructure

The rollout of advanced metering infrastructure (AMI) in Victoria has ensured smart meters are installed to around 97% of customers, delivered a communications network and a set of IT systems that communicate to the meters, and enables data analysis for the efficient investigation of safety and integrity issues on the network.

When discussing these options with our CAP, they expressed support for an option that uses the existing infrastructure to the extent possible, to reduce the implementation costs of the options and reduce the costs that are shared by all consumers. For example, there may be opportunities to better use the existing AMI to provide a similar product (for example, through a two-element meter).

We support our CAP in the need for the ESB to consider all possible options for maximising the existing infrastructure in choosing the preferred option.

4.3 Further consideration should be given to dynamic operating envelopes and flexible trading arrangement

The current work on DOEs and flexible limits has been around the limits at the connection point. With flexible trading arrangements behind a connection point, the available operating limits may need to be communicated to multiple parties and distributors may need to consider multiple network services at the same connection point with the same customer. This could increase the complexity of DOEs and further thought needs to be given to these matters through the Maturity Plan.

5 Customer choice and protection

Customers should, and must, be the ultimate beneficiaries of the post-2025 NEM design.

There should be no change to the NEM that exposes customers to worse outcomes, declining affordability or a combination of both. As such, it is paramount that as the NEM evolves and the already complex energy market becomes more multifaceted, customers are protected from predatory and anticompetitive behaviour by market participants.

We support the ESB's customer protections risk assessment framework and risk-based approach that is ongoing and carried out in collaboration with market bodies, jurisdictions, consumer advocates and industry stakeholders.

The key to this framework will be thorough and continuous monitoring and evaluation of the evolution of the framework and acting whenever evidence of misbehaviour is identified. Whilst the market for new and innovative services should be permitted to develop without regulatory interference, it is important that a body such as the ACCC is tasked with closely monitoring activity given the enormous information asymmetry the post-2025 NEM design is creating between customers and retailers/aggregators.

We encourage the ESB to complement its risk assessment framework with customer market research and behavioural economics research that will help inform areas of potential high risk, such as areas of extreme complexity or vulnerable customers especially exposed to predatory behaviour.

5.1 Customer protections should address existing and new challenges together

The existing retail market already has its challenges, evident in low switching rates and high concentration of market share amongst three gen-tailers. For many existing customers, even switching between existing retailers for the same product is already highly complex due to lack of product comparability and lack of trust.

The retail market in jurisdictions other than Victoria is made even more complex by contestability of smart meters. The very slow uptake of smart meters indicates that customers either do not understand the benefits, are not interested, fear being locked into agreements with retailers for the meter or the processes around installing a new meter and defaulting to a new product (time of use tariff) is too complex.

The ESB should ensure its customer protections framework does not focus exclusively on new market design, but rather addresses existing and potential new market failures together. If the focus is purely on new market developments, there is risk existing market failures will amplify and customers that are not participating in new products will be left behind.

The existing market challenges, particularly in relation to the rapidly developing solar PV industry, can also provide insights into customer behaviour and appetite for active market participation, as well evidence of predatory and anticompetitive behaviour. For example, door to door selling of rooftop solar offers for residential customers has just been banned within Victoria.

We strongly encourage the ESB to use learnings from existing and past market failures to identify and address growing risks as the NEM evolves. This includes aggressive sales practices, information asymmetry, complexities around pricing of products with and without discounts, the time and effort required to switch retailers, lack of transparency in bills and use of metering as a barrier to switching (outside of Victoria).

5.2 Common technical standards should be a priority

We support the introduction of technical interoperability standards at a national level, rather than at a network or jurisdictional level. This will ensure proprietary systems and technology are not used as a mechanism to lock customers in.

An example is the mobile phone industry where one of the largest providers (Apple) has technical specifications that cannot operate with many IT systems. While the mobile phone sector has accepted this market limitation,

this cannot be acceptable for an essential service like electricity, particularly in a market that is already slow to incentivise switching. (We provide further comments on interoperability in section 7).

Further, we strongly support consistent cybersecurity standards and operational processes to provide protection to both customers and the energy system. Cybersecurity is a significant threat to the operation of the network, and we have strong protections in place to ensure the system keeps functioning despite regular cyber attacks. If customers’ devices are to be used to provide network support (or for other market purposes), common security standards that ensure safety for all participants will be necessary.

Historically the key challenge with implementing common standards has been monitoring and enforcing compliance. This is currently the case with DER registration and solar installations where there is no single party responsible for enforcement of compliance, and there are no penalties for non-compliance.

Availability of appropriate standards in emerging areas has also been a challenge due to the traditionally slow nature of standards development. However, with a strong enough demand and support, standards can be produced in a timely nature as exhibited by global 5G standards.

We encourage the ESB to recommend a responsible body for monitoring and enforcing compliance for the new standards. We also encourage the ESB to introduce a financial penalty scheme where the ‘punishment fits the crime’, or where the cost of non-compliance can result in significant negative impacts (e.g. non-compliance with cybersecurity standards).

5.3 Our principles for demand side participation

An essential part of the two-sided market, and activation of passive DER, will be greater demand side participation. The customer choice and protections framework will need to balance incentivising customers to participate in larger numbers than they have in the past, whilst combating information asymmetry, complexity of offers, anticompetitive practices and the potential development of unregulated monopolies (i.e. by the only or largest provider of a certain technology).

We worked with our CAP to develop principles for demand side participation to guide the ESB’s protections framework and provide checkpoints for the appropriateness of the NEM design regarding customer choice, expectations and necessary protections. We encourage the ESB to implement these principles in its post-2025 NEM design.

Figure 2 Our demand side participation principles, jointly developed with the CAP

Customers should have easy access to voluntary opportunities to participate	Participation should be rewarded in a way customers understand and value	No customers should be worse off because of more DER participation
<p>Ensure voluntary and opt-in/opt-out arrangement</p> <p>Customer choose whether to participate, whether that be with distributors, aggregators or community groups</p> <p>Customer have access to simple, plain English materials that advise on avenues to market participation, perhaps at time of installation of DER or smart appliances</p> <p>Customer choice should be supported by easy to understand data and information on energy usage, efficient behaviour and market participation</p>	<p>Financial rewards from demand side participation should be simple to understand to begin with and clearly linked to participation. As participation increases and the consumers better understand the market, there can be more complexity</p> <p>To account for the risk of potential misunderstanding/miscommunication, rewards should be asymmetrical, i.e. there should only be rewards and no penalties</p> <p>Customers should be able to easily identify and compare offers between distributors and retailers/aggregators, and there should be an independent website or local communities/government websites to explain the ins and outs of the average offer</p>	<p>Customer protections should be developed based on historical learnings. Customers should be protected from highly complex or misleading agreements and those with high risk of cyber attacks</p> <p>There should be regulatory oversight of demand management schemes, including both distributors and third parties to ensure customer are no worse off or having their opportunities to participate in other market curtailed. This includes monitoring how data sharing is leveling the playing-field between networks and market participants</p> <p>Ultimately, customer participation should result in measurable benefits to all customers, not just those participating</p>

6 Interoperability and technical standards

As discussed in section 6.2 above, technical interoperability of devices is key to promoting competition in the market and reducing the risk of market failure.

We agree with the ESB that without a minimum level of ‘open’ interoperability within the device, customers may have their DER assets locked-in to certain market participants or offerings. This would limit future choices for customers and act as a barrier to market entry for new players.

We support the proposed ESB principles relating to interoperability of devices. In particular, we are actively using the IEEE2030.5 protocol in our trials to enhance opportunities for interfacing with third party assets across the NEM.

Consistent national standards for inverter and IT system interoperability is essential to the efficient operation of networks.

We support the development of national interoperability and cybersecurity standards to ensure system security at least cost and to minimise the risk of customers being locked into proprietary technology. Distributors should be involved in defining and setting the industry standards.

With this objective, we are working with the industry to ensure the best implementation of IEEE2030.5 under a national guideline and consider it a priority to enable greater and consistent interoperability methods.

We provide further comments on each of the principles proposed by ESB and add a further principle.

- consumers should be able to share data with service providers—we support this principle however highlight the risk of misuse of private and personal data which should be considered under the customer protections framework. We consider the privacy-preserving data sharing framework², prepared for the NSW Minister for Customer Service, the Hon Victor Dominello MP in December 2019 is a good example of how this risk can be managed
- consumers’ DER assets should have a level of portability between providers—we strongly support this principle as this will be key to promoting competition between providers and ensuring customers can switch easily. We agree the standards should be minimum levels of capability while allowing providers to layer additional functionality over the top
- control of and access to consumer devices should be limited to clear use cases—while there is merit in identifying use cases for control and access to devices, it is important these use cases are reviewed regularly and frequently, to ensure customers are not missing out on opportunities to assist in system operation, particularly if their preference is to have their devices controlled by the system operator (rather than an aggregator)
- consumers need to receive clear information about the compatibility of their DER assets—while transparency is important, consumers should not have to be able to interpret complex technical standards. Any consumer shared data should be in an easy to understand format, while regulators and dedicated bodies should be responsible to ensuring compliance with the agreed technical standards and notifying customers of the risks of inappropriate behaviour.

An additional principle should be a requirement to have open communication standards to allow devices to communicate with DSO systems via an application programming interface (API). This will ensure that the devices can participate in the wholesale market but also communicate with the DSO to provide network capacity services in near real time. This is a feature of the DSO role, which will ensure the security and safety of the distribution network.

² ACS, Privacy-Preserving Data Sharing Frameworks, People, Projects, Data and Output, December 2019.

Further consideration should also be given to:

- utilisation of international standards to the extent practical, to reduce unique Australian solutions
- development of uniform performance standards for interoperability, e.g. speed of response
- how much of the standards code should be 'open-sourced', i.e. publicly shared.

7 Scheduled Lite

The ESB is proposing a voluntary scheduling mechanism in the NEM for small to medium DER. The aim is to increase visibility of DER activity in the market, provide more opportunities for DER to interact with the market directly and reduce operating inefficiencies caused by lack of visibility, including in forecasting of supply and demand and dispatching resources.

We support the need for the scheduled lite model to improve visibility and assist with the efficiency of the NEM.

Visibility of DER and improving forecasting accuracy has multiple benefits, not just for the NEM but also for network management.

While in Victoria we have access to smart meter data, and already have significant visibility of the LV network in real time, the future DSO will be able to more accurately set dynamic network limits by having more concrete information to forecast activity on the distribution network.

The proposed voluntary model is a reasonable approach that would allow rewards for participation without mandating customer behaviour. Equally, option 1 is a reasonable first step towards more visibility and forecasting accuracy, before option 2 is potentially implemented in the future.

We support the proposed principles, and provide the following comments:

- applies only to non-scheduled load and generation resources—the ESB should clarify this includes energy storage, including behind the meter but also in front of the meter for energy storage that is small/medium sized (like our pole-top energy storage or community batteries)
- frameworks should enable customer choice—it is highly likely there will need to be changes to the consumer protections framework as a result of changes to accommodate scheduled lite, at least with regard to data privacy. This should be a priority for the ESB
- additional information required improves the efficiency of operational decisions—data and forecasting accuracy will be crucial for this model to function as intended. The industry should be consulted to develop a consistent standard for data formats, sources and accuracy, to ensure forecasts are as reliable as possible and data can be consolidated. Using existing data sources should be a priority, to reduce overlap of resources and potential for inaccuracies. For example, one way to improve accuracy is to rely on SCADA arrangements for larger scale systems.

We are already trialling sharing data and forecasts with AEMO through United Energy's pole top battery trial, which can inform future developments. We will share our learnings through the Maturity Plan development and our broader industry engagement efforts.

8 Maturity Plan

The ESB is proposing a Maturity Plan approach to DER integration and future market design consistent with directions on future roles and responsibilities.

The Maturity Plan is intended to be an iterative process to identify priority issues for reform, deliver analysis and solutions to identified challenges, including needed regulatory change or capability development. It is intended the Maturity Plan will be informed by insights from processes such as industry or ARENA trials.

We support an iterative process to develop the necessary technical, regulatory and customer protections framework given the magnitude of proposed changes. We also support the use of industry and ARENA trials to inform necessary technical capabilities for the functioning of the market.

8.1 Customers should contribute to the Maturity Plan directly

The scope of the Maturity Plan needs to be expanded to include learnings from customer research and engagement, particularly regarding development of new products and how customers would value them.

Customer feedback should be a key input in the future market development, and this can be done through various market and focus group research, surveys, and targeted workshops.

While it is expected customer representatives and groups will be part of the industry consultation, it is important customers are able to contribute directly to ensure their voices are heard.

8.2 The standard AEMC rule change process should be followed

The Maturity Plan is likely to result in changes to the Rules.

It is important any Rule change is subject to the standard AEMC Rule change consultation process. This provides the appropriate level of industry consultation and has the requisite checks and balances in place to ensure the proposed changes are in the long term interest of consumers.

We do not consider it appropriate that any of the Rules are expedited, given the importance and magnitude of the post-2025 NEM design changes.

We encourage the AEMC and ESB to conduct a cost benefit analysis of any proposed rule changes. This will provide the evidence and confidence that the proposed changes are in fact in the long-term interests of consumers.