Drew Butterworth

Australian Energy Market Commission

Submission made online at www.aemc.gov.au

12 December 2024

Dear Mr Butterworth,

Subject: EPR0097 Consultation Paper - *Electricity pricing for a consumer-driven future* market review

SA Power Networks welcomes the opportunity to provide feedback on the AEMC's Consultation Paper for the *Electricity pricing for a consumer-driven future* market review (the Review).

We strongly support the consumer-first approach proposed by the AEMC and the 'end-state visioning' that the Review seeks to deliver. South Australia is leading the nation's transition to a renewable and distributed energy system, and we consider that reforms to the way that electricity supply is communicated to and paid for by consumers have the potential to realise more optimal benefits for consumers throughout the energy transition.

Our submission outlines key points of feedback which will strengthen the Review's consumer focus and expand its consideration of potential reforms, including:

- the addition of *equity* as a Consumer Preference Principle;
- an expanded definition of *engagement* as the axis for the Consumer Archetypes;
- consideration of *home energy management system* technology and *interoperability* as key enablers of future products, services and pricing models;
- the role of *energy efficiency* in delivering optimal outcomes for consumers;
- the need for a review of current *incentives* and *cost recovery models* to support efficient distribution network investment and operations in a consumer-led energy system; and
- the emerging importance of the *customer agent* role.

The Review presents a genuine opportunity to transform the way that electricity services are delivered to consumers and to realise a truly optimised approach across the entire energy system, and we look forward to continuing to engage constructively with the AEMC and other stakeholders throughout the Review, collaborating to realise a consumer-first energy transition.

Should you have questions on any aspect of our submission, please contact Liam Mallamo, Future Networks Engineer, at liam.mallamo@sapowernetworks.com.au.

Ben Birch

Acting Chief Customer & Strategy Officer

Review approach

Question 1: Do you consider that we should make any changes to our proposed approach to this review?

SA Power Networks supports the AEMC's proposed approach to the review, and understands the review's focus is to progress over time the exploration of:

- the future needs of consumers;
- future electricity products and services to meet those needs;
- regulatory barriers to delivering those products and services; and
- reforms to overcome those barriers and enable new products and services.

We commend the AEMC's future-focused approach of the review, and would continue to encourage 'blue-sky' thinking, ensuring that the Review can remain focused on designing tomorrow's future and not get 'bogged down' in resolving today's problems.

We understand that the AEMC has sought to utilise existing research wherever possible to inform the Review. We recommend that where appropriate, the AEMC consider commissioning further consumer research, ensuring that the exploration of the Review is not limited only to existing information but that genuinely new insights can be gathered to support the transformative nature of the Review. This could include research to test the validity of proposed future products and services with consumers, or preferences regarding their trust in various parties for the provision of energy advice and support through the transition.

Consumer types & their preferences

Question 2: What are your views on our proposed Consumer Preference Principles?

- Are you aware of additional existing research that could help us refine the CPPs?
- How might the CPPs help us in assessing whether our decisions will lead to good consumer outcomes?

Question 3: What are your views on our proposed Consumer Archetypes?

For the purposes of this review:

- Do the Consumer Archetypes capture the diversity of future energy consumers?
- Do you agree that engagement is the primary axis of differentiation among electricity customers?

Consumer Preference Principles

We support the AEMC's proposed Consumer Preference Principles (CPPs) and feel that they will serve as a valuable lens through which to view any proposed solution. Whilst the current CPPs cover most factors influencing the effectiveness of a given solution, we suggest that the AEMC consider the inclusion of an additional CPP, focusing on *equity.* The inclusion of equity as a CPP will allow for

solutions to be tested against their ability to realise benefits for *all* consumers, whether with CER or without.

Consideration of equity would not mean that a solution must deliver *equal* benefits for all consumers, as we do not consider this to be a realistic outcome of any solution. Rather, equity as a CPP should ensure that proposed solutions:

- deliver *some* benefit for all consumers, regardless of their access to resources; and
- provide equal *opportunity* for all consumers to realise the same level of benefits, as their access to enabling resources increases over time.

A solution that delivers additional benefits for consumers with CER, given the increased market access and subsequent revenue streams available to these consumers, would not be dismissed based on a perceived inequity as long as some benefits were realised for non-CER consumers, such as a direct reduction in the need for network augmentation or a reduction in wholesale energy prices.

We consider that the number of consumers without access to some form of CER will reduce over time, and that parallel policy, subsidies and funding programs should seek to roll-out enabling technology to all consumers, 'closing the gap' between consumers over time.

Consumer Archetypes

We support the development of Consumer Archetypes and consider that when coupled with the CPPs, these will allow for robust testing of proposed solutions through the Review. Whilst we broadly agree with the four archetypes proposed by the AEMC, we feel that the differentiation of archetypes based on *engagement* as currently defined does not sufficiently capture the needs of all consumers.

We recommend an expanded definition of engagement for the purposes of the Consumer Archetypes, namely that *trust* be included, in addition to the current inclusions of *resources* and *interest*. A consumer's level of engagement with the energy system is determined not only by their ability (resources) and willingness (interest) to engage with concepts, but also their trust in the current parties providing a service to them. Some consumers may currently have the resources and desire to engage but refrain from doing so due to a lack of trust in current energy service providers to genuinely act on their behalf and in their best interests.

The Consultation Paper states that *"interest defines whether a customer will or won't choose to engage"* – we consider that interest defines whether a customer *wants* to engage, but that *trust* is needed before a customer *will* engage.

Additional research

We recommend that the AEMC include consideration of the Australia Institute's 2023 *Community Attitudes to Home and Car Electrification Research Report*[1] in any further development of future consumer needs and scenarios. Importantly, this research included questions focused on consumer attitudes to HEMS and third-party orchestration of CER, as well as an analysis of the trust placed in various parties by consumers for energy advice and orchestration, including government, DNSPs, energy retailers and technology providers.

[1] https://australiainstitute.org.au/wp-content/uploads/2023/04/P1408-Household-Electrification-WEB.pdf

Future electricity products, consumer protections and barriers

Question 4: We want stakeholders to help us imagine the widest range of possible future products, services, and pricing structures. How might they look in the future? For example, you might consider:

- How have products and services evolved in similar markets that were disrupted by new technologies, for example, in telecommunications and point-to-point transport?
- What new innovations are we starting to see in current offerings?
- What electricity products and services are available internationally that aren't available here?
- Which technological trends may impact the electricity market, beyond those already discussed in this paper?
- What types of pricing structures might align well with the proposed Consumer Preference Principles?

Question 5: How could electricity products, services, and pricing structures be presented to serve future consumers?

Question 6: How could consumer protections be balanced to enable further innovation in a future retail electricity market?

Question 7: What barriers will need to be addressed to deliver future consumers a meaningful and beneficial range of products, services, and pricing structures? How might we consider addressing those barriers?

- Consider the changes that are happening in the system now - what barriers might either endure or emerge post 2035?

Future pricing models and the role of home energy management technology

We support the AEMC's goal of envisioning a wide range of future electricity products, services and pricing structures, and consider that a broad suite of offerings will need to be available in future to service an increasingly diverse range of consumers.

As our energy system progresses to one dominated by distributed and flexible resources, the operation of networks and the energy market will become increasingly complex, leveraging real-time capabilities of CER and other resources to deliver a stable and reliable supply of electricity. However, we strongly believe that this increasing complexity of system and market operations *should not* be reflected in an unavoidable increase in the complexity of customer retail offers.

Current customer offers are in a transitional state – shifts towards cost-reflective pricing have led to increased complexity in retail offerings, but with a consumer's ability to respond to these more complex offerings largely dependent on their ability to change their energy use behaviour. Not all customers have the ability to change their energy use, particularly those without access to technology, a thermally efficient house or the ability to work from home.

We consider that availability and access to technology that can manage increased complexity and risk on the customers behalf is an essential enabler to getting the most out of cost reflective pricing.

Our vision is that future electricity services will be underpinned by home energy management systems (HEMS), whether a physical device installed in the home or a cloud-based system. Such a HEMS would have 'plug-and-play' integrations with all devices in the home, enabled by nationally legislated, device-level interoperability standards for communications between CER and a HEMS. At the discretion of the customer, the HEMS would be able to monitor and control all devices within the home, acting as the 'brain' of the home's energy.

The customer would be able to input a set of preferences into the HEMS via an app, considering factors such as:

- the devices that they are willing to have managed by the HEMS and included in its energy optimisation functions and those that they are only wiling to have monitored, with the customer maintaining the ability to opt-in or out any device from control at any time; and
- limits placed on the control of certain devices, considering their actual requirements for use such as:
    - their desired EV charge level, or distance to be travelled, and the times at which use of the EV is required;
    - temperature bounds within which the home must remain at various times; and
    - the number of hot showers required per day, and the time windows in which those showers would be expected.

We expect that future HEMS products will have the ability to account for a wide variety of consumer preferences regarding the use of their energy, with a key requirement of such technology being that the consumer is always at the top of the control hierarchy, and that the primary goal of the HEMS is to optimise for consumer outcomes. In doing so, the HEMS would consider:

- the consumer preferences having been input;
- the network tariff applied to the site;
- network signals, such as reward-based, opt-in dynamic operating envelopes (DOEs); and
- any market participation that the customer has opted into, such as participating in the wholesale energy market or local network support services via a virtual power plant (VPP).

With network pricing and market participation as targets to optimise against, and the consumer preferences acting as constraints on that optimisation, the HEMS would then automate the response of the homes energy use to provide the best outcome for the consumer.

Critically, this complexity would be operating unseen to the consumer, with their input preferences ensuring that the HEMS control does not have any undue impact on their amenity, and the resultant costs presented to the customer through a choice of several retail plans. A variety of retail offers will be required to meet the diverse needs of customers, with a likely spectrum ranging from simple subscription models, where a consumer could pay a flat fee per month for their electricity and receive credits for flexibility, through to transparent pass-throughs of wholesale energy costs & network pricing to consumers.

Consumer protections and barriers – the role of energy retailers and retail pricing

Reforms to realise a consumer-driven future should ensure that the increased complexity of the energy system should not lead to *unavoidable* increases in the complexity of the consumer experience.

Freedom of access to a variety of simple, flexible retail offers is the most important consumer protection mechanism to ensure that all customers can share in the benefits realised through the energy transition.

The need for simple retail offers, however, does not mean that network signals should be overly simplified - to drive the lowest whole-of-system cost, we believe that network signals should continue to become more reflective of real-time network conditions over time. This could be achieved either through more cost-reflective pricing signals, through the provision of limits via DOEs with simple rewards attached, or a combination of the two, depending on the consumers risk appetite and their access to technology enabling them to hedge that risk.

The audience for network tariffs is increasingly shifting away from consumers, and towards technology acting on behalf of the consumer and their energy retailer, such as HEMS and other CER. As outlined in our future vision, we consider that cost-reflective network tariffs and DOEs will form a key input to a HEMS, with this technology being able to optimise a home's response to those signals whilst ensuring that consumer preferences are maintained.

Energy retailers will play a critical role in protecting consumers through the provision of simple retail offers. The role of energy retailers today is inherently one of risk management, taking on the risk of purchasing energy from a volatile wholesale market, implementing hedging strategies and packaging complex, time-varying prices into more simple consumer-facing offers. Retail offerings today protect consumers from the risk of being exposed to the wholesale market, unless they choose to take on that risk, and we consider that future cost-reflective network tariffs should be treated similarly by retailers, not being directly reflected in consumer retail offerings unless desired by the consumer, noting that these tariffs would likely have both cost and reward elements attached.

For this reason, a possible consumer protection mechanism could be for all customers to have access to simple retail plans incurring a flat monthly fee for their electricity use, scaled to their demand and/or consumption – a 'tiered' approach. Credit mechanisms could be attached for response to signals incentivising response to network and market signals, with these signals actioned by the HEMS and leading to lower flat fees for all consumers over time.

The risk posed to an energy retailer through misalignment of consumer behaviour with network pricing could be further managed over time through consumer education and deploying, subsidising or supporting the continued development of HEMS technology and building thermal efficiency measures, enhancing the ability of their customers to respond to these pricing signals.

Where the customer chooses to opt-in to a more complex plan, being exposed to additional risks but also accessing additional rewards, they should be empowered to do so, but never forced to take on that risk exposure.

Consumer protections and barriers – home energy management technology and thermal efficiency

We see HEMS technology and interoperable CER as the key enabler to a successful consumer-led distributed energy transition, supported by cost-reflective network pricing and simple consumer-facing retail offers. Without this technology in place, consumer behaviour risks misalignment with the needs of the network and the market, driving up costs at all levels of the system.

We consider that accelerating uptake of HEMS technology is a key consumer protection should be adopted, with the presence of a HEMS increasing a customers ability to engage, providing them with enhanced visibility and control over their own energy usage. Deployments of this technology by

governments, DNSPs or energy retailers to vulnerable customers could help to realise an equitable future for this group.

The presence of a HEMS would not mean that a consumer no longer maintains control over their appliances, with optionality and consent being core principles upon which the HEMS would operate. The consumer would be able to opt-in or out of any network or market service at a device level at any time, ensuring that they maintain full control and can adapt their participation as their circumstances change.

Although all customers do not currently have access to CER such as solar PV, a battery system or an electric vehicle, a significant number of consumers, including vulnerable customers, have electric hot-water systems and air-conditioning, loads which inherently have some flexibility and can be managed by a HEMS in order to realise the lowest cost for the customer whilst having no impact on their amenity.

The ability of a HEMS to benefit consumers in this way is complimented by uplifts to the thermal efficiency of customer homes, such as insulation, draft proofing etc and window glazing to allow for pre-cooling and pre-heating outside of peak periods. Deployment, subsidies or support for these initiatives could be considered by governments, DNSPs and energy retailers as a consumer protection mechanism, ensuring that no consumer is 'locked out' of accessing the benefits of home energy management due to insufficient building thermal performance.

We consider that optimal outcomes for all consumers can only be achieved when pricing, technology and building efficiency are considered together, and recommend that the AEMC explore the symbiotic role that these three initiatives can play in delivering a consumer-driven future.

Network tariffs

Question 8: What should network tariffs look like in the future?

- What are the key choices and trade-offs we should consider when answering this question?

Responsibility for tariff design

The Consultation Paper questions the role that various parties, including retailers and the AER, should play in the process of designing network tariffs. DNSPs are responsible for tariff design and implementation today, and do so in consultation with retailers, customers and the broader industry.

We strongly believe that the party responsible for designing network tariffs should be the party incurring the costs that are being recovered via those tariffs, and hence would not support any reform that would propose to remove this responsibility from DNSPs and place it on another party.

Future network pricing models

Cost-reflective network pricing models introduces choice for consumers, energy retailers and technology providers and allows them to make informed decisions about how those choices influence the energy system.

However, future network pricing is likely to encompass a wider range of products than just tariffs. For instance, opt-in DOEs with reward-based elements can provide similar signals to a HEMS to influence consumer behaviour, albeit in a dampened manner when compared to more dynamic pricing products such as a locational marginal price or a critical peak price.

This range of network products will be required to inform a range of retail products, with increased collaboration between networks and retailers helping to ensure that the development of network products can align with the evolving capabilities of retailer systems and consumers access to enabling technology.

We consider that continued development of cost-reflective network pricing and other network products will provide the best long-term outcomes for consumers when coupled with HEMS technology, energy efficiency measures and simple retail pricing models.

Roles and responsibilities

Question 9: How should the role of energy supply businesses evolve to meet customer and energy system needs in the future?

Question 10: What changes might be required in the future to the interfaces between different energy supply businesses?

Future role of DNSPs – demand flexibility and technology adoption

The fundamental role of DNSPs today is to prudently and efficiently meet or manage demand for electricity, ensuring that a stable and reliable supply of electricity can be provided for all consumers. In performing this role, DNSPs today rely primarily on network capacity augmentation to meet demand. DNSPs are increasingly exploring the use of non-network solutions to manage demand, however, with many DNSPs offering flexible connections, developing reward-based flexibility services and deploying flexibility marketplaces.

We consider that in future, the 'toolkit' of a DNSP may be further expanded to include a broader range of non-network solutions to efficiently manage demand, potentially including supporting the deployment of CER and thermal efficiency upgrades to consumer homes, where such initiatives are identified as the most efficient solution to manage demand.

The evolution of these services could form a core part of the role of future Distribution System Operators (DSO). We note the AEMC's exploration of this concept, with a DSO-led rollout of CER and HEMS technology outlined in the Consultation Paper's third *Future consumer energy experience.* We consider that the Review should explore a potential future role of DSOs in supporting consumers to adopt, as an alternative to network capacity augmentation:

- HEMS technology;
- CER, including solar PV and batteries;
- home electrification, such as hot-water systems, air-conditioning and induction cooktops; and
- thermal efficiency initiatives, such as insulation, draft-proofing and double-glazing.

Ubiquitous adoption of these technologies is central to a consumer-led, efficient energy transition, but the burden of adoption should not rest solely on consumers. A DSO is likely to be able to leverage a significant 'economy-of-scale' in their ability to purchase and install these technologies, and the resultant demand reduction, increased flexibility and network support ability may pose a genuinely efficient alternative to network augmentation in future.

This expanded toolkit to manage demand, including the procurement of flexibility services and the deployment of CER and other technologies has the potential to lead to the deferral or avoidance of significant amounts of network augmentation. We recommend that the AEMC consider whether the existing regulatory framework provides sufficient incentives for DSOs to equally consider *all* potential solutions to meet or manage demand, as non-network solutions become increasingly available as an efficient alternative to augmentation.

Future role of DNSPs – provision of additional services

To reach national decarbonisation targets, significant deployment of infrastructure including EV charging stations and large batteries will be required. We consider that in some cases, the most efficient mechanism for this deployment could be via a DNSP-led model, which is currently prohibited under the regulatory framework.

We recommend that the AEMC consider reforms to the service classifications provided for DNSPs, namely to allow DNSPs to deploy, own and operate essential infrastructure such as EV charging stations where a DNSP-led model would prove to be more efficient than the market can provide.

Role of the customer agent

Energy retailers have historically been the primary interface to consumers, but as the energy system becomes increasingly distributed, we expect that customer agents such as CER aggregators, HEMS and CER technology vendors and energy advisory service providers will play a growing role, particularly in managing the customer's interface to and interaction with the wider energy system.

These parties have not historically been included within the regulatory framework yet play an increasingly important role as the primary interface for many customers. We consider that it may be prudent for the Review to explore whether there is a need for formal roles, responsibilities and obligations to be placed on customer agents in order to provide an optimal outcome and experience for consumers.

In particular, the need for trusted, unbiased sources of information and energy education services will increase significantly, as the opportunities presented by a consumer-focused transition grow. This energy advisory service is played in part today by government, DNSPs, energy retailers and customer agents, but with disparate information and at times, conflicting commercial interests. The Review should consider the need for a formal energy advisory role in the regulatory framework, and the suitability of existing parties to fulfil this role and create a trusted source of energy advice for consumers.