AUSTRALIAN ENERGY COUNCIL

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Unlocking CER benefits trough flexible trading – Consultation Paper

The Australian Energy Council (AEC) welcomes the opportunity to comment on the consultation paper – Unlocking CER benefits through flexible trading.

The Australian Energy Council (AEC) is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. Our members collectively generate the overwhelming majority of electricity in Australia, sell gas and electricity to millions of homes and businesses, and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 percent emissions reduction target by 2035 and is part of the Australian Climate Roundtable promoting climate ambition.

The AEC response to the consultation is provided below. In addition to the AEC response, the Australian Energy Council (AEC) commissioned Oakley Greenwood (OGW) to prepare an independent response to the AEMC's Consultation Paper. OGW has developed its response based on fundamental principles of economic efficiency and the National Electricity Objective (NEO), and provide independent views. OGW have had full control of the document including final editorial control. The OGW report is also attached.

The rule change request

AEMO's rule change request puts forward that by separating flexible and inflexible loads, consumers could access more value from their CER - including through better access to incentives for their CER to support the market and power system operation. To examine this hypothesis, it is important to understand what types of value consumers may be looking for from their CER and what motivations and preferences influence their choices to take up CER or related offers, so that we can assess the potential benefits from flexible trading.

The perceived problem is that small customers are limited in selling their exported excess generally to the retailer they use for their energy supply. The proposed solution is to expand the trading relationships available at a single supply point. The matters to be addressed are:

- Are there any real consumer benefits in this, and;
- Do the benefits outweigh the costs of the required changes.

Are there any real consumer benefits?

There are orchestration options available to customers now. Virtual Power Plants (VPP's), the Wholesale Demand Response Mechanism (WDRM) and the Small Generation Aggregators (SGAs) provide that framework and there is no shortage of markets or potential opportunity in the current governance structures. There is however a relatively trivial participation and response, caused by both nascent technology that is yet mainstream, and that also that in normal periods energy prices will usually be below the willingness-to-pay of almost all loads. The attached Oakley Greenwood report (the report) notes that it is primarily behind-the-meter batteries that, if orchestrated, could generate material economic benefits but that up until recently, there has only been a limited stock of batteries to orchestrate. This latter point means that we should not have expected the market to have arranged itself in a way that focused on 'controlling/orchestrating' lower value CER devices (other than batteries or perhaps EV's, of which there are also not many) because the

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economics did not stack up. This seems like economic theory working in practice rather than a market design issue.

The consultation hypothesis is that CER customers are not receiving the full value for their contribution to market and power system operation. However, there are multiple retailers to choose from and a logical conclusion would be that in such a competitive market that CER value would be accounted for. Bundling is attractive to consumers who benefit from a single, value-oriented purchase of complementary offerings. Bundling helps to increase efficiencies, thus reducing marketing and distribution cost. And it allows the consumer to look at one single source that offers several solutions. It should be instructive to the consultation that after the expense, complexity and risk of establishing the WDRM, that Enel X[1], while being a DRSP and offering DR also has a retail licence, allowing it to bundle its services.

Retailers provide an overall package incorporating the benefits and the risks of the customer CER. Assigning that value elsewhere via an additional trading relationship does not necessarily change the CER customers overall position, as the retailers, distributors and metering coordinators fixed costs per customer do not change, and would logically increase to recover costs associated with the change; but the new fixed costs from the second and subsequent providers must now also be met. This outcome in part is why, in competitive markets, the bunding of products and services is most likely to lead to lower overall costs for consumers as fixed costs are spread over a wider suite of products and services. For example, a bundled house and home contents package is likely to be better value than two independent policies from different parties.[2] Similarly with bundled gas an electricity, which has significant penetration not only as a single bill product, but also as two separate accounts where savings are applied for having both with the same retailer.

The obligations to vulnerable customers for life support are also glossed over in the proposal. Life support appliances include the like of air conditioning and hot water; which are also the subject of the partitioning proposed by AEMO. If the provider of life support services is not a retailer, then the consultation needs to better consider how those critical obligations will be applied to non-retailer FRMPs. There will also be impacts on hardship, best offer notifications and even the DMO/VDO. The premise that the proposed changes will only be material for those who wanted to offer FTA services and do not impact on retailer operations significantly in terms of functional and technical specifications of billing, forecasting and pricing is at this stage neither tested nor credible.

Beyond these practical considerations, the AEC commissioned Oakley Greenwood report examines the different potential economic values associated with orchestrating different CER devices. This to date largely absent but important consideration helps explain why the market has developed as it has up until now and provides useful insight into how the market is likely to naturally evolve in response to the rapid (forecast) take-up of certain types of CER. It is behind the meter batteries that can generate material benefit s with other CER devices provide only marginal economic benefits. Now that we are seeing a greater penetration of batteries, we are also seeing a clearer interest in VPPs and CER orchestration.

The barriers to entry identified in the consultation appear to largely be consumer protection, and in terms of consumer benefits this needs serious examination as to what specific characteristics of controlled loads make them justifiably less essential than others? Perhaps EV's, with their public charging alternatives and transport not being a historical electricity essential could make a discrete consumer protection case the costs will be real, and the benefits highly uncertain.

Do the benefits outweigh the costs of the required changes

Given the requirements of the NEO and given the scale and impact on the industry of the proposed change, a detailed cost benefit analysis (CBA) should be done prior to any Rule change being made[3]. In politicised contexts, the Cost Benefit Analysis (CBA) method can (and has) been used for justificatory rather than for evaluation purposes. Some CBA's do require that net qualitative benefits are judged to outweigh the net financial costs, but in this specific case/s the benefits are capable of being reduced to financial terms and proper evaluation could be conducted. This should also include assessment of what is likely to happen

[1] Enel being the single participant of its type
[2] Noting that this example is a much easier accounting and financial settlements proposition than that proposed by AEMO.
[3] Oakley Greenwood identify this in their report.

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absent any change, which in our preliminary view is the approach most likely to provide the greatest surplus of benefits over costs as the market arranges itself efficiently.

Compared to similar changes borne from the introduction of new market participants/transactions the AEC estimates that individual retailer costs of up to $30 million are plausible. Bear in mind that Power of Choice implementation cost individual retailers amounts in the order of $60 million.[4] Of course costs can be justified if there is a benefit. But as Oakley Greenwood note in their report, the lack of partnering with CER aggregators historically may have had nothing to do with misaligned incentives between the retailer and their end consumers presupposed by the proponent and the AEMC's consultation paper, and more to do with the underlying economics of aggregating the types of CER that were available at the time the opportunity arose.

Conclusion

The report observes that the market appears to be much more aligned in its view that there is a clear sustained increase in the number of batteries being installed as well as the number of EVs being purchased, and therefore as to the likely penetration and therefore the potential value proposition related to the market's use of these CER devices in the future. The market is now likely to naturally evolve in response to the rapid forecast take-up of these types of CER which will significantly change what a 'typical' retail customer's load profile looks like, and the types of products and services that retailers will offer. The consultation must therefore explicitly consider how the retail market is likely to evolve under the business-as-usual case.

The AEC agrees with the reports assessment that the rule change proposed does not represent a solution to an actual problem that will occur in the future, but rather is a solution to a perceived problem from the past, based upon a misunderstanding as to why the market has developed in a certain way until now.

Please contact the undersigned at david.markham@energycouncil.com.au should you wish to discuss.

Yours sincerely,

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Australian Energy Council

[4] The AEC spoke to retailers about retailer costs but given functional and technical details are vague, this early comparison is the best guide for now.

Response to AEMC's Consultation Paper - Unlocking CER Benefits Through Flexible Trading

Australian Energy Council | 16th February, 2023

DISCLAIMER

This report was commissioned by the Australian Energy Council (AEC). The objective of the report is to provide an independent response to the Australian Energy Market Commission's (AEMC) Consultation Paper entitled *Unlocking CER benefits through flexible trading*, published in December 2022.

The analysis and information provided in this report is derived in part from information provided by a range of parties other than Oakley Greenwood (OGW). OGW explicitly disclaims liability for any errors or omissions in that information, or any other aspect of the validity of that information. We also disclaim liability for the use of any information in this report by any party for any purpose other than the intended purpose.

DOCUMENT INFORMATION

Project	Response to AEMC's Consultation Paper - Unlocking CER Benefits Through Flexible Trading
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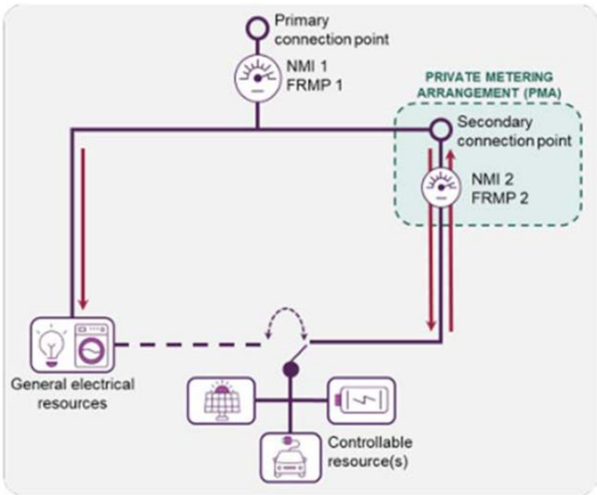
Executive Summary

Background

In December 2022, the Australian Energy Market Commission (AEMC) released a Consultation Paper titled: *Unlocking CER Benefits through Flexible Trading.*

This was in response to a Rule change request that the Australian Energy Market Operator (AEMO) submitted in May 2022, titled: *Flexible trading arrangements and metering of minor energy flows in the NEM*.



AEMO's proposed Rule change would see the introduction of flexible trading to:

- Enable residential and business consumers to have their consumer energy resources (CER) independently identified and treated in market settlements; and
- Allow consumers to engage with multiple service providers if they choose to.

AEMO's proposed model for flexible trading would create new secondary settlement points for CER resources behind consumers' current meters.

Objective

The Australian Energy Council (AEC) commissioned Oakley Greenwood (OGW) to prepare an independent response to the AEMC's *Consultation Paper, Unlocking CER Benefits through Flexible Trading* (December 2022).

The terms of the engagement agreed between the AEC and OGW noted that whilst we were able to consult with and interview members of the AEC to understand their views regarding the proposed Rule change, OGW would:

- Develop its response based on fundamental principles of economic efficiency and the National Electricity Objective (NEO), and
- Provide independent views and have full control of the document including final editorial control of the document.

Overall Findings

In our opinion, the case for making this Rule change at the present time has not been made. In particular, the Rule change would impose costs on all retailers, increase the risk of operating as FRMP1 (which in turn would manifest in higher economic costs, and higher prices to customers), likely lead to inefficient use of CER for the provision of network services, for what we believe is a stream of very uncertain economic benefits, when compared to the BaU case.

In saying this, in our opinion, the assessment of the purported benefits of this Rule change needs be done with explicit consideration to how the retail market is *likely to evolve under the BaU case, not the status quo,* otherwise, there is a risk that the Rule change:

- Does not represent a solution to an actual problem that will occur in the future, but rather

- Represents a solution to a *perceived* problem from the past (with that perception potentially based on a misunderstanding of why the market has developed as it has).

Specific findings

The market has developed as one would have expected

In our opinion, the market has developed as one would have expected it to have developed, given:

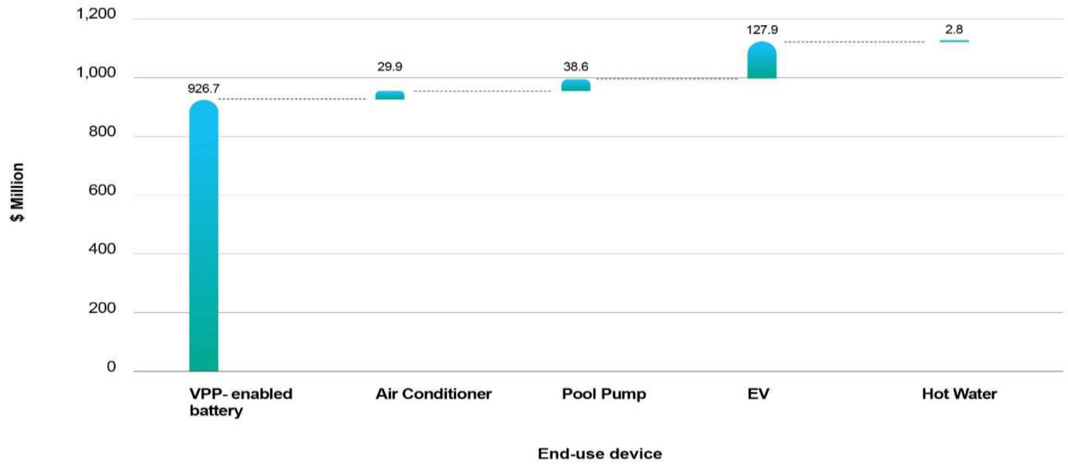
- The very low level of penetration of high value DER devices such as BTM batteries and EVs until recently; and
- The relative immateriality (in terms of economic value) of other controllable loads (i.e., water heating, etc).

This is based on previous work we have done[1], where we have found that:

- It is primarily behind-the-meter batteries (and to a lesser degree, EVs) which, if used differently (i.e., controlled/orchestrated), could potentially generate material economic benefits; and
- Other CER devices provide only marginal economic benefits from being orchestrated, particularly:
  - Once the incremental costs of controlling/orchestrating them are considered, and
  - If they are not paired with either an orchestrated behind-the-meter battery (or to a lesser degree, an EV) at the same site.

The following figure demonstrates the relative economic contributions different CER devices would make in the Western Australian Electricity Market (WEM), if they were to be orchestrated.

Figure 1: Contribution to gross economic benefits



Source: Oakley Greenwood (for ARENA), *The economic value of a virtual power plant in the South West Interconnected System of Western Australia*, 2022, page 45

[1] Oakley Greenwood (for ARENA), *The economic value of a virtual power plant in the South West Interconnected System of Western Australia*, 2022

Assuming these results (particularly the relative contribution of different devices) broadly translate to the NEM (noting that we have no reason to believe that they wouldn't[2]), then these types of economic values will be (inherently) reflected in the historical market outcomes seen in the NEM.

Therefore, it is not surprising that until relatively recently, the development of business models that revolve around the use of high value DER devices has not been significant. That said, more recently, we have seen various types of business models evolve to target CER and allow CER providers to monetise the value of their resource.

The following table summarises the types of business models that have evolved in recent times to target CER and allow CER owners to monetise the value of their CER via VPPs, along with examples of the market entities operating in each category.

Table 1: Examples of the types of business models that have evolved in recent times that allow customers to monetise the value of their CER via VPPs

Business model	Examples
VPPs (via a retailer)	Reposit Power; Members Energy; ShineHub; Sonnen, Tesla
Small retailer offering VPPs	Discover Energy; EnergyLocals; ArcStream;
Aggregators, providing services into the Wholesale Demand Response Mechanisms (WDRM)	ENEL
Established Retailers, who have entered into VPPs	AGL, Energy Australia; Origin Energy; Powershop; Simply Energy
Specialised retailers targeting CER	Pooled Energy.
Retailers that provide pool price pass through	Amber, Flow Power
Retailers providing large customers with the opportunity to monetise their CER devices	Shell, AGL, many retailers contract for DR from large customers

As indicated by the information above, there is a plethora of players seeking to provide products and services that are designed to leverage the latent economic value of high-value DER devices. These range from individual VPPs, such as Reposit Power and Tesla, partnering with retailers, to small registered retailers such as Discover Energy and EnergyLocals who also offer VPPs, to all of the large retailers, who offer VPPs as part of their overall product offerings. Based on public statements, there is significant ambition driving these business models, for example:

- Origin Energy is "targeting significant growth" in its in-house VPP (Loop), with a view to getting to 2GW of assets connected to Loop[3]; and

2 For the avoidance of doubt, the key difference in the two markets, namely that the WEM is a capacity market and the NEM is an energy-only market, means VPP-enabled batteries would not be eligible for capacity payments in the NEM (which is a driver of economic value in the WEM, and therefore factored into the values presented above). However, a countervailing factor is that there is increased market volatility (and particularly, a higher frequency of higher wholesale prices) in the NEM, which would tend to increase the economic value of VPP-enabled batteries in the NEM.

3 Origin Energy, *Strategy Presentation*, 9 March 2022, slide 17.

- Tesla plans to install a total of 50,000 rooftop solar systems and Powerwall batteries in South Australia to be part of a VPP[4].

In short, there now appears to be no shortage of market entities adopting different business models, seeking to provide products and services to customers that revolve around the use of high-value DER devices, particularly behind-the-meter batteries. And this is just what is happening in the market now, not what will happen in the future under a business-as-usual case, if, as expected, behind-the-meter battery penetration increases significantly and EV penetration increases as forecast.

The purported problems the AEMC suggests have occurred because of (or under) the existing framework are in the main, eminently explainable

Many of the purported problems that the AEMC indicates may have occurred because of (or under) the existing framework are in the main, eminently explainable. For example, AEMO notes the "*challenges relating to direct entry*". As written, the AEMC's concerns imply that they believe that the additional obligations an aggregator would face if it were to become a retailer are an economic barrier to entry, resulting in inefficient outcomes. However, a retailer undertakes different functions to an aggregator, which the AEMC in effect acknowledges when it states, in the context of the "challenges relating to direct entry", that "*this would require them to become an authorised energy retailer, responsible for providing the full suite of consumer protections under the NERL and NERR*". These customer protection issues are indicative of the additional roles and responsibilities a retailer must bear, as compared to an aggregator. Their provision is not a costless exercise for a retailer, yet their provision is fundamentally important to the delivery of outcomes that are in the long-term interests of consumers (e.g., appropriate customer protections) as well as to the long-term efficient operation of the market (e.g., prudential arrangements). If these, or other functions that retailers must carry out because of the legislative or regulatory framework represent:

- A disincentive for aggregators to become retailers, then in our opinion, this is not an economic '*barrier to entry*' *per se*, but rather, it reflects the market arranging itself in a way that minimises the overall cost of supply (i.e., it is better for a VPP to focus on providing 'VPP-type' services, as that is its competitive advantage, and in turn rely on retailers to provide 'other' retail services), hence it is an efficient[5] outcome[6]; and

4 https://www.aemc.gov.au/news-centre/data-portal/retail-energy-competition-review-2020/vpp-offers-available

5 Assuming these consumer protection obligations are set at efficient levels (i.e., the incremental benefit stemming from imposing the obligation exceeds or is at least equal to the incremental cost).

6 To compare and contrast this, if VPPs were *forced to* become retailers in order to provide their services to the market (i.e., they were not allowed to operate via a retailer), then this *would* be a barrier to entry, and potentially lead to inefficient outcomes. And if they were forced to be retailers their costs of operation would go up, which would presumably reduce the proportion of the benefit they could share with CER customers.

- A cost impost on retailers, then it is self-evident that these costs will be (and should be) recovered from the party causing those costs to be incurred (in this case, the customer). It is not clear how the AEMC has automatically drawn the conclusion that there is "*less value to share with end customers*", without considering whether or not this may be an appropriate sharing of the costs to serve across the two parties that are providing services to that customer. For example, if Retailers partly recover 'customer protection costs' from customers by way of the variable charges[7] they levy, then any change in a customer's load profile might compromise their ability to recover those costs in full, absent some reallocation of the recovery of those costs across the multiple parties that provide services to that customer. Possibly, it is the AEMC's perception regarding the level of market competition (discussed below) that underpins their view as to the efficiency of any payment made from aggregator to retailer.

AEMO further notes the "*challenges relating to partnering with a retailer, with a lack of competitive alternatives*". It goes on to indicate that these challenges might be "*due to existing retailers acting as customer gatekeepers*" and that "*there is currently only a very small number of existing retailers partnering with third-party VPP service providers*".

- Firstly, whilst the AEMC's premise that retailers act as 'customer gatekeepers' might be correct, in our opinion, it is not portrayed correctly. Retailers should be there to maximise the value they provide to their customers, and in that context, they should act as a 'gatekeeper', only utilising the products and/or services that align with that objective function. This appears to underpin Origin Energy's VPP strategy, where it states, in the context of its in-house VPP (Loop) that it "*creates lower churn, deeper engagement and seeks to fulfil customers' expectations for lower costs, decarbonisation and energy autonomy*" [8]. To the extent that customers perceive that their retailer is not fulfilling this role (i.e., they are not acting in their best interests), those customers are able to switch energy providers (with high switching rates across the NEM evidence of this).
- Secondly, in relation to AEMC's comment that there is "*currently only a very small number of existing retailers partnering with third-party VPP service providers*":
  - Firstly, it is not clear what evidence the AEMC has relied upon to make this statement, as, whilst possibly being true up until ~18months ago, it is our understanding that there is now a much more active market (see information contained in the body of the report),
  - Secondly, even if this was correct, it fails to consider whether the lack of partnering is a barrier, *per se*, or whether it simply reflects the fact that the economics underpinning third-party VPP service provider approaches to retailers have been lacking (including in comparison to retailers providing these services in-house, noting that any assessment of the market should relate to whether products and services that customers value - and which in turn would maximise the economic benefits of their CER - are being offered to them, not how the market has arranged itself in order to make those offers); and

7 Noting that in theory, most of these costs should be recovered via fixed charges, yet in practice, this is unlikely to be the case.

8 Origin Energy, *Strategy Presentation*, 9 March 2022, slide 17

- Finally, and notwithstanding any of the above, this does not account for how the market is *likely to naturally evolve* under the BaU case, given the broader factors affecting the market. As outlined in the body of the report, we of the view that the retail electricity market (absent any intervention) is likely to naturally evolve such that retailers focus more of their product and service offerings to customers with EVs and batteries, as a means of harnessing the potential of those resources, as to not do so would inevitably result in a loss of market share and in the end (when a large portion of the market has either or both a battery and EV), a potentially uneconomic business model.

The AEMC further notes the "*there are risks of stranding those assets if the customer chooses to engage a different retailer*". In our opinion, rather than this risk being framed in the context of a "challenge relating to partnering with a retailer", the reality is that the nature of the service is likely to require some form of upfront investment, creating a risk if that customer churns in the future. This risk is similar no matter how the market arranges itself to provide these services to end customers (e.g., VPP who becomes a retailer; a VPP who provides its service to an end customer via a retailer; or a retailer who provides the same services as a VPP offers). The natural counterpoint to the AEMC's comment that this is 'a challenge relating to partnering with a retailer', is: what does the AEMC expect retailers to do in this situation – simply bear this risk themselves? So yes, this is a "challenge relating to partnering with a retailer", however it is a challenge no matter what business model is adopted (including those that would occur if FTA were introduced), hence it is a real risk that an efficient operator in the market would seek to recover the cost of bearing.

Finally, the AEMC notes that "*some existing retailers may not have strong incentives to partner with CER aggregators as their incentives and motives may not be well aligned with the interests/preferences of consumers*".

- Firstly, it is not clear what evidence the AEMC has relied on in making this statement, and moreover, this would appear to go against much of the evidence that suggests that the retail market is highly competitive, which, would be suggestive of the need for retailers to in fact be highly cognisant and responsive to their customers' needs and preferences, for not doing so would risk losing customers to a competitor.
- Secondly, if this were the case (particularly in relation to what are likely to be high-value customers, being those with behind-the-meter batteries and EVs), it would call into question retail competition more broadly.
- Finally, it is important to consider any historical market outcomes in the context of the types of CER devices that are likely to have sought to be aggregated. As we note above, whilst there are many CER devices, the two key drivers of value are behind-the-meter batteries and EVs. Their take up has been immaterial up until very recent times, which, everything else being equal, will have affected the "*incentive to partner with CER aggregators".* Or put another way, the lack of partnering with CER aggregators historically may have had nothing to do with misaligned incentives between the retailer and their end consumers, and more to do with the underlying economics (aggregate opportunity) of aggregating the types of CER that were available at the time the opportunity arose.

AEMO's proposed Rule change will create several significant problems

In our opinion, AEMO's proposed Rule change will create several significant problems for customers, retailers and the supply chain, including, but not limited to:

- AEMO's proposal to allocate all network charges to FRMP1 will almost certainly lead to inefficient use of CER, as FRMP 2 has no incentive to operate the CER that they control in a manner that aligns with the needs of the network. This occurs because it is not able to directly monetise any financial benefits that might accrue because of how their actions (to operate the customer's CER) affect the customer's network costs. This will lead to:
  - Higher overall economic costs of supply, assuming network price signals are broadly cost-reflective; and
  - Higher bills for customers.
- AEMO's proposal would allow the switching of load between FRMPs (for example, to leverage opportunities for tariff arbitrage) means that FRMP1 will face variation in the volume and timing of the total NMI load, which will necessarily add risk for FRMP1 in the wholesale electricity market. Importantly, the drivers of these risks are outside the control of FRMP1 and there is no natural hedge, unless it is also acting as FRMP2. This (inefficient) allocation of risk will:
  - Need to be priced into FRMP1's offers to customers, increasing the price of FRMP1 services[9], and
  - Lead to higher overall economic costs of supply.

9 Except those that also operate as the FRMP2 at the site.

1. Background and objective

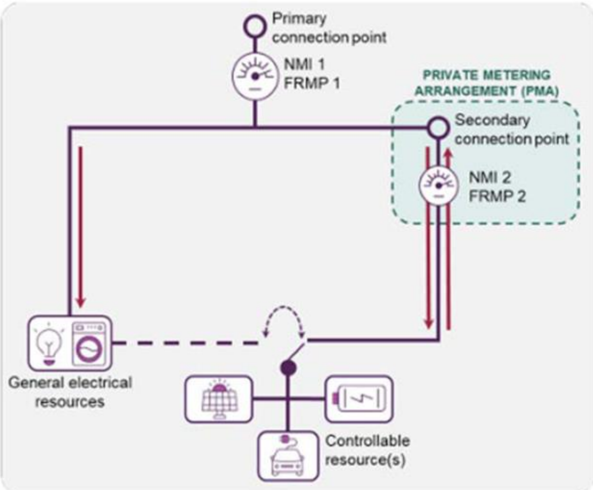
1.1. Background

In December 2022, the Australian Energy Market Commission (AEMC) released a Consultation Paper titled: *Unlocking CER benefits.*

This was in response to a Rule change request that the Australian Energy Market Operator (AEMO) submitted in May 2022, titled: *Flexible trading arrangements and metering of minor energy flows in the NEM*.

AEMO's proposed Rule change would see the introduction of flexible trading to:

- Enable residential and business consumers to have their consumer energy resources (CER) independently identified and treated in market settlements; and
- Allow consumers to engage with multiple service providers if they choose to.



AEMO's proposed model for flexible trading would create new secondary settlement points for CER resources behind consumers' current meters.

Under AEMO's proposal the consumer could have contracts with:

- More than one FRMP for individual devices; or
- One FRMP for less flexible load and another for their flexible load; or
- One FRMP for all their resources, but with different types of pricing.

AEMO's Rule change request postulates that by separating flexible and inflexible load, consumers could access more value from their CER, including through better access to incentives for their CER to support the market and power system operation.

AEMO's Rule change aligned with the Energy Security Board's (ESB) post-2025 review, which proposed several reforms seeking to achieve better integration of CER so that consumers have opportunities to receive new products and services, including being rewarded for flexible demand and generation.

Notwithstanding the fact that the Consultation Paper was precipitated by AEMO's Rule change request, the AEMC notes in their Consultation Paper that there are potentially four models that could be used to support flexible trading for a customer[10]:

- Improving the current ability to establish a second connection point, to which AEMO has said there are significant barriers today
- Parallel metering, as considered in the Multiple Trading Relationships Rule change

10 AEMC, *Consultation paper, Unlocking CER benefits*, December 2022, page iv and v

- Potential for multi-element metering, similar to what is in place for hot-water heaters today but with the capability to be managed by multiple FRMPs
- Establishing a sub-metering arrangement by introducing secondary settlement points as proposed by AEMO, either for a single FRMP or multiple FRMPs.

Whilst unstated, clearly, there is a fifth model, and that is to rely on the existing framework to support customer monetisation of the value the CER create, if reverting to any of the other model identified is not considered to provide net benefits to customers.

In considering AEMO's Rule change proposal, or any of the other models identified, the AEMC notes that it will be important to understand:

- What value consumers may be looking for from their CER
- What motivations and preferences influence their choices to take up CER.
- What products and services are available or may in the future to allow consumers to access value from their CER.

More broadly, the AEMC must make decisions that align with the National Electricity Objective (NEO) and National Energy Retail Objective (NERO). The AEMC states that it must also satisfy itself that the Rule is[11]:

> *"compatible with the development and application of consumer protections for small customers, including (but not limited to) protections relating to hardship customers" (the "consumer protections test")"*

1.2. Objective of our report

The Australian Energy Council (AEC) commissioned Oakley Greenwood (OGW) to prepare an independent response to the AEMC's *Consultation Paper, Unlocking CER benefits* (December 2022).

The terms of the engagement agreed between the AEC and OGW was that whilst we were able to consult with and interview members of the AEC to understand their views regarding the proposed Rule change, OGW would:

- Develop its response based on fundamental principles of economic efficiency and the National Electricity Objective (NEO), and
- Provide independent views and have full control of the document including final editorial control of the document.

1.3. Structure of remaining sections of report

The remaining sections of this report are structured as follows:

- Section 2 summarises the AEMC's assessment framework and provides our comments on that framework
- Section 3 discusses the purported problem the FTA is supposedly solving, and our thoughts on that
- Section 4 discusses how the Rule change could be expected to impact the market.

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11 AEMC, *Consultation paper, Unlocking CER benefits*, December 2022, page 29

2. Assessment framework

2.1. Objective of section

The objective of this section is to:

- Summarise our understanding of the AEMC's assessment framework; and
- Provide our thoughts on the AEMC's assessment framework, and in particular, areas where it could be expanded upon or adjusted (in particular, the evidentiary basis upon which any change to the existing framework should be made).

2.2. Our understanding of the AEMC's assessment framework

Section 7 of the National Electricity Law (NEL) contains the National Electricity Objective (NEO).

It states that:

> *The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system*

The NEO guides all of the Australian Energy Market Commission's (AEMC) decisions regarding Rule changes[12], the Australian Energy Regulator's (AER) and Australian Energy Market Operator's (AEMO) decisions on the application of the Rules, as well as the decisions of the Australian Competition Tribunal (ACT). Underpinning the NEO is the concept of economic efficiency, which has three sub-components: *productive*, *allocative* and *dynamic* efficiency.

Components of economic efficiency – key points

Economic efficiency (which underpins and is required by the NEO) is comprised of:

- **Productive Efficiency:** ('*promote efficient investment in*') The least cost (efficient) mix of resources (e.g., capital and operating) should be used to meet customers' demand for electricity services.
- **Allocative Efficiency:** ('*efficient….use of, electricity services*') The efficient amount of electricity should be consumed by customers, which, amongst other things, requires that variable charges for electricity services reflect the forward looking marginal costs of providing those services (cost reflective) so that customers only consume electricity services where the benefit to the consumer outweighs the cost to society of providing those services; and
- **Dynamic Efficiency:** ('*for the long-term interests of consumers of electricity with respect to…price*') The market design and regulatory framework should incentivise businesses to seek out efficiency gains over time, and improve performance where the benefits exceed the costs, such that efficiency is promoted in the long-term.

12 The Commission also notes the importance of compliance with the national energy retail objective (NERO), which mirrors the NEO, as well as the need to satisfy itself that the rule is "*compatible with the development and application of consumer protections for small customers, including (but not limited to) protections relating to hardship customers" (the "consumer protections test")"*. The later will be a particularly important consideration, given the implications of the proposed rule change on customer protection issues.

For the purposes of this assessment, the focus is on dynamic efficiency – that is, to what extent would the proposed FTA changes be likely to enable (or be required to enable) a more efficient electricity industry in the long-term (interests of consumers).

To operationalise this, the AEMC has identified several assessment criteria, namely:

- Outcomes for customers
- Impacts on safety, security and reliability
- Principles of market efficiency, in particular, competition
- If it would increase innovation and flexibility
- Implementation costs and considerations
- Decarbonisation

2.3. Our view of the AEMC's assessment framework

Whilst the AEMC must adhere to the requirements of the NEO (and NERO) as well as other legislative and regulatory requirements, the AEMC's additional criteria are a welcome addition to the assessment process (and one we have attempted to have regard for when formulating this report).

However, we are of the view that given the requirements of the NEO and given the scale and impact on the industry of the proposed change, a detailed, quantitative, cost benefit analysis (CBA) should be done prior to any Rule change being made[13].

This would enable all stakeholders to undertake a more fulsome assessment of the Rule change proposal, having regard to the potential range of economic costs and benefits that might ensue from such an impactful reform. In doing so, it would be important to:

- Establish what is likely to happen (i.e., a Base Case), absent any change (e.g., level of orchestration), noting that the Status Quo is not the Base Case, rather, the Base Case must represent a forecast of how the market will *naturally evolve* under the existing framework over time, given the broader market dynamics that are expected to affect the market; and
- What is likely to happen if the Rule change were to occur.

As a bare minimum, the process of developing (and in turn publishing) this CBA would be instructive for stakeholders as it would expose to the broader industry, the potential economic values associated with orchestrating different CER devices, and the potential impact different levels of orchestration under the different future scenarios might have on the overall outcome. It would also ensure that the full costs of the changes are fully considered, including the impact on the risks associated with providing FRMP1 services, and the impact that this risk has on economic outcomes.

13 We note that in its Public Forum (on February 6), the AEMC indicated that it would undertake a cost-benefit analysis of the proposed Rule change.

2.3.1. Why is it important to consider the different potential economic values associated with orchestrating different CER devices?

We believe that the different potential economic values associated with orchestrating different CER devices is an important consideration, not only as an input into any CBA, but also more generally, as it helps:

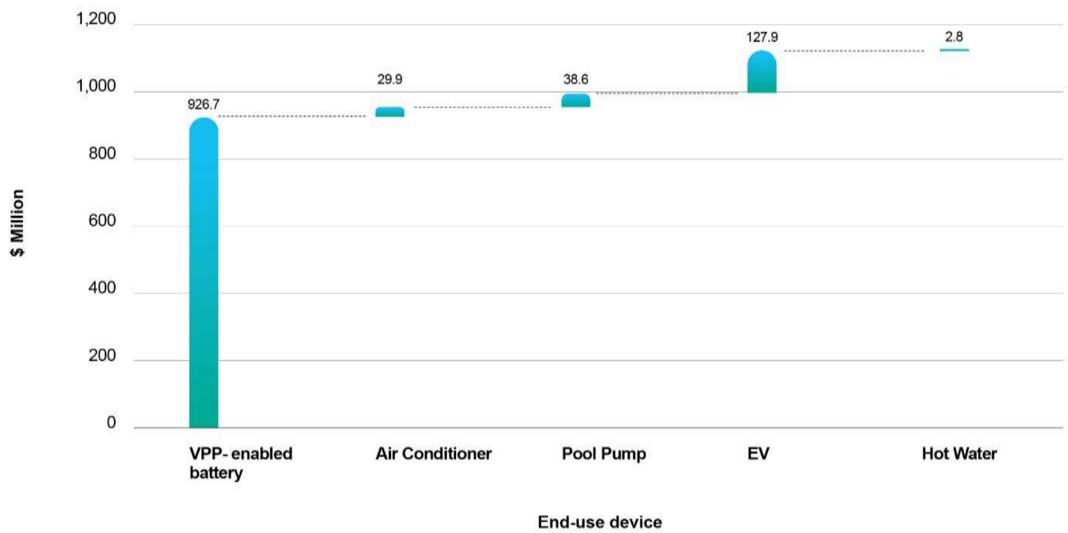
- Explain *why* the market is likely to have developed as it has, up until this point in time; and
- Stakeholders understand *why* and *how* the market is likely to naturally evolve in response to the rapid (forecast) take-up of certain types of CER.

In relation to the former, based on previous work we have done[14], we have found that:

- It is primarily behind-the-meter batteries (and to a lesser degree, EVs) which, if used differently (i.e., controlled/orchestrated), could potentially generate material economic benefits; and
- Other CER devices provide only marginal economic benefits from being orchestrated, particularly:
  - Once the incremental costs of controlling/orchestrating them are taken into account, and
  - If they are not paired with either an orchestrated behind-the-meter battery (or to a lesser degree, an EV) at the same site.

The following figure demonstrates the relative economic contributions different CER devices make in the Western Australian Electricity Market (WEM), if they were to be orchestrated.

Figure 2: Contribution to gross economic benefits



Source: Oakley Greenwood (for ARENA), *The economic value of a virtual power plant in the South West Interconnected System of Western Australia*, 2022, page 45

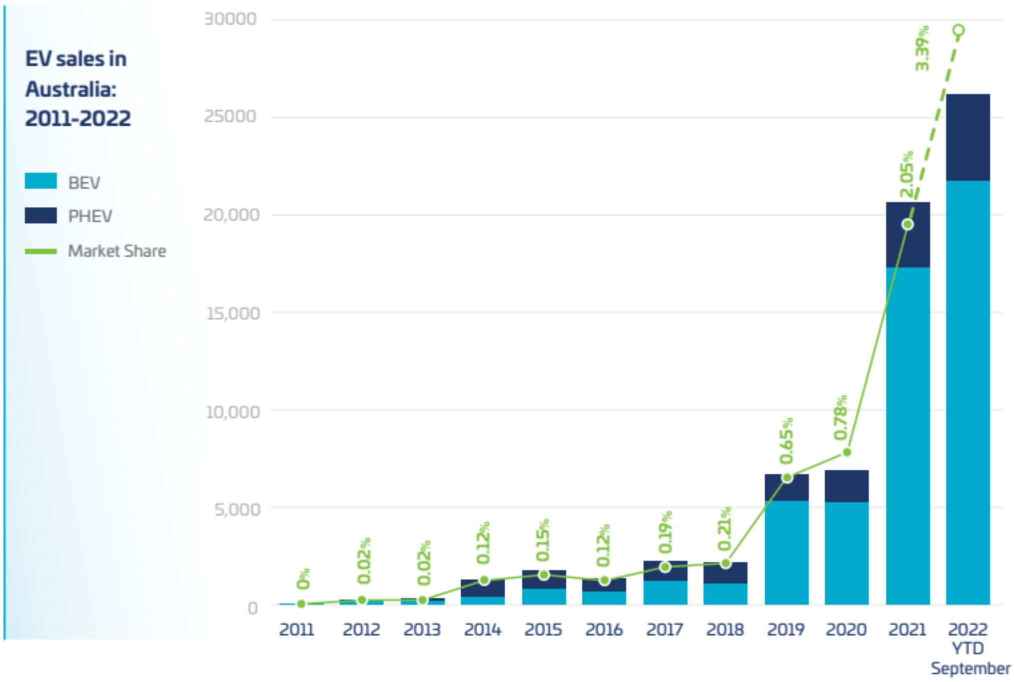
14 Oakley Greenwood (for ARENA), *The economic value of a virtual power plant in the South West Interconnected System of Western Australia*, 2022

Assuming these results (particularly the relative contribution of different devices) broadly translate to the NEM (noting that we have no reason to believe that they wouldn't[15]), then these types of economic values will be (inherently) reflected in the historical market outcomes seen in the NEM.

To this end, up until recently, there has only been a limited stock of batteries[16] and EVs in the NEM to control / orchestrate, which means that we should not have expected the market to have, *en masse*, arranged itself in a way that focused on 'controlling/orchestrating' lower value CER devices (even if there is a significant number of them), quite simply, because the economics did not stack up.

That said, in the last ~18months, there has clearly been a material change in the CER landscape, with a clear, sustained, increase in the number of batteries being installed as well as the number of EVs being purchased.

Figure 3: EV sales in Australia, 2011-2022



Source: Electric Vehicle Council, *State of Electric Vehicles*, October 2022, page 8

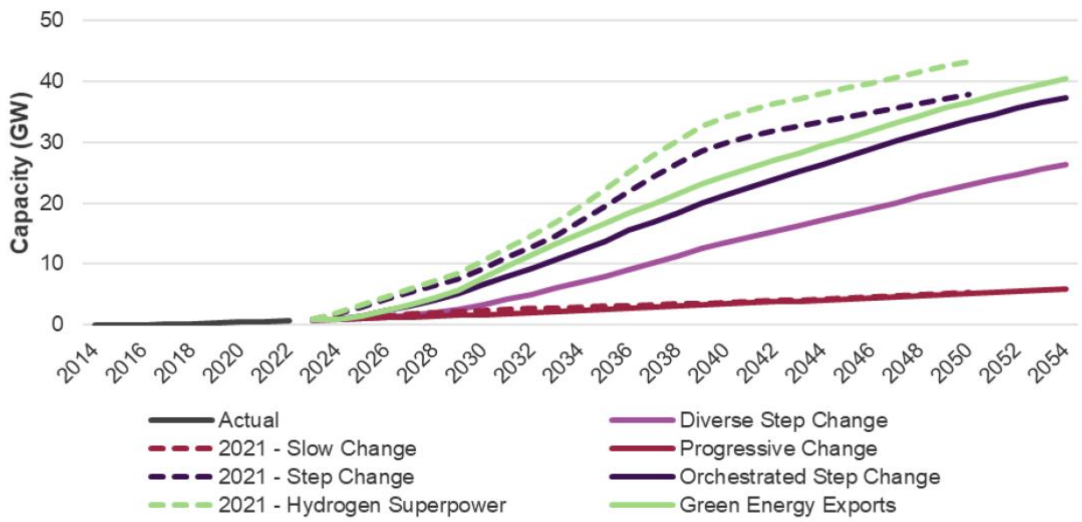
More generally, we would observe that the market appears to be much more aligned in its view as to the likely penetration (and potential value proposition related to the market's use of them) CER devices in the future.

15 For the avoidance of doubt, the key difference in the two markets, namely that the WEM is a capacity market and the NEM is an energy-only market, means VPP-enabled batteries would not be eligible for capacity payments in the NEM (which is a driver of economic value in the WEM, and therefore factored into the values presented above). However, a countervailing factor is that there is increased market volatility (and particularly, a higher frequency of higher wholesale prices) in the NEM, which would tend to increase the economic value of VPP-enabled batteries in the NEM.

16 For example, based on information available from an data sheet available on the AEMO's Forecasting Portal, there was around 300MW of behind-the-meter battery capacity available in the NEM as at the end of June 2019.

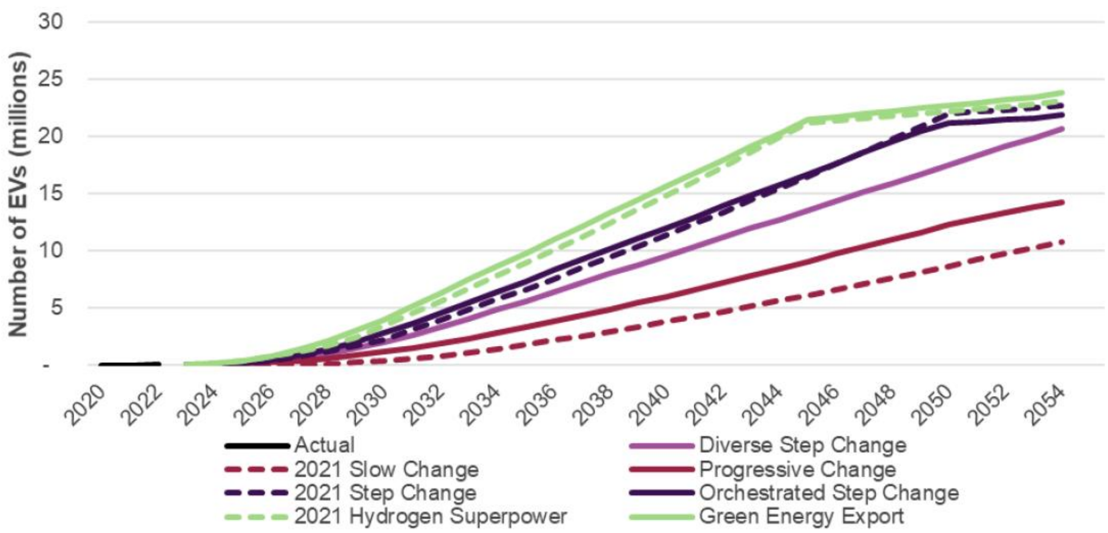
AEMO's ISP provides a snapshot of how it expects the market for the key CER devices - behind-the-meter batteries and EVs - to develop.

Figure 4: AEMO Behind-the-meter battery forecast



Source: AEMO, *Draft 2023 Inputs, Assumptions and Scenarios Report*, 2022, page 63

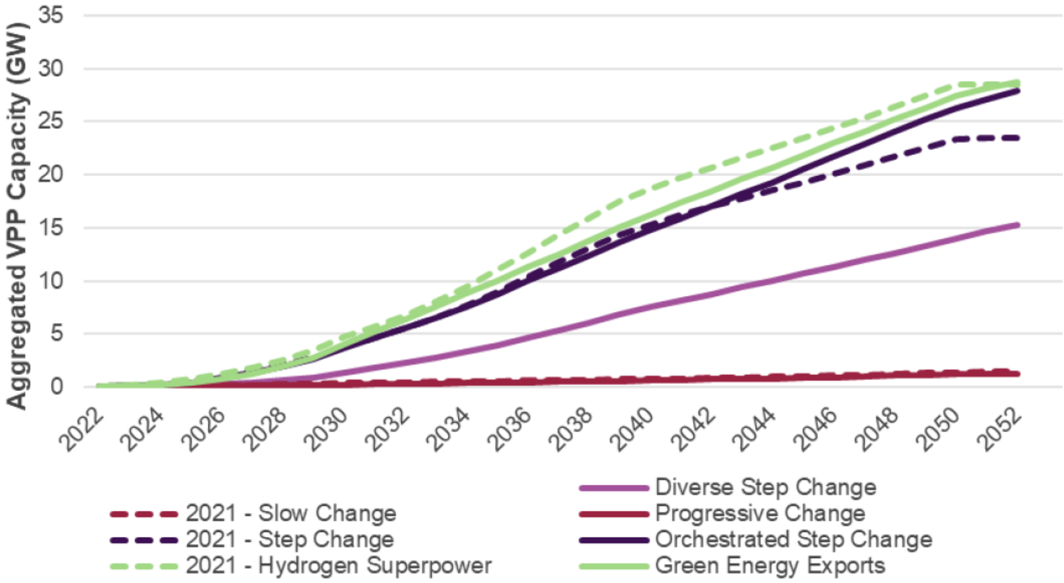
Figure 5: AEMO EV forecasts



Source: AEMO, *Draft 2023 Inputs, Assumptions and Scenarios Report*, 2022, page 52

The ISP also highlights their expectations regarding the market opportunity for VPPs.

Figure 6: AEMO VPP forecast



Source: AEMO, *Draft 2023 Inputs, Assumptions and Scenarios Report*, 2022, page 65

Whilst the take-up of behind-the-meter batteries and EVs (and other CER devices) will affect all parts of the electricity value chain, it is arguable that they will affect the retail electricity market the most. In particular, the large, sustained penetration of behind-the-meter batteries and EVs will significantly change what a 'typical' retail customer's load profile looks like, and the types of products and services that they will likely seek from retailers. For example[17], a residential customer without electric hot water uses between 4000 and 5000kWh per annum on average. An EV is estimated to add in the order of 2000 to 2500kWh to this load. Depending on the level of orchestration, EVs could, after accounting for diversification, add anywhere between 0.2 to 0.7kW of load per residential vehicle during the afternoon/early evening periods. An average behind-the-meter battery for a residential customer will generally have a capacity of around 4- to 5kW and is able to provide around 10 to 12kWh of energy. The former is similar to the (undiversified) demand most networks use as the size of an individual residential customer connection, whilst the latter would allow many customers to be energy self-sufficient for significant portions of the day and year (if paired with solar, and particularly during spring and autumn periods).

It is self-evident that as more customers install behind-the-meter batteries and purchase EVs, the more:

- Customers with those types of CER devices become an important new type of customer, particularly so due to the economic value they can unlock, with in the medium to long-term, these customers becoming the 'typical' customer;
- These new 'typical' customers' overall load profile will be disproportionately impacted by how they use their behind-the-meter battery and EV demand; and

17 The following information is based on various sources, including AEMO information, our understanding of network planning standards, and analysis Oakley Greenwood has previously undertaken for other projects.

- Customers with devices that can provide economic benefits to the broader electricity industry will be seeking products and services that allow them to maximise their financial returns from those assets.

2.3.2. How should this impact the AEMC's assessment of this Rule change

In our opinion, there is a high probability that the natural evolution of the retail electricity market (absent any intervention) is likely to see retailers focus their product and service offerings on offers to customers with EVs and batteries, and that these products and service offerings will entail offers that allow customers to maximise the financial returns they receive from the large investments they have made in those devices. A secondary outcome is that this is also likely to unlock the orchestration of other, more marginal CERs, such as pool pumps and hot water, at those sites that have behind-the-meter batteries and EVs.

If retailers that do not 'meet the market' by tailoring products and services to these types of customers, reflecting their behind-the-meter CER devices, they will inevitably lose market share, with the associated financial ramifications that come with this.

In short, this market will become the main market for residential customers, rather than it being a somewhat peripheral market, as it is now (or at least, was up until ~18 months ago).

This seismic change will inevitably lead to changes in how the market arranges itself, such that they can meet this challenge in the most efficient way possible.

In our opinion, this means that:

- The assessment of the purported benefits of this Rule change should be done with explicit consideration to how the retail market is *likely* to evolve under the BaU case – otherwise, there is a risk that the Rule change does not represent a solution to an actual problem that will occur in the future, but rather a perceived problem from the past (with that perception based on a misunderstanding of why the market has developed in a certain way);
- Any Rule change being considered should:
  - Not pre-suppose how the market should best arrange itself in the future to support this evolution as this will stifle innovation, and likely, increase costs; and
  - Instead, focus on whether parties can see through to the correct (economically efficient) price signals, as absent this, CER will not be operated in way that maximises its economic benefits in accordance with the requirements of the NEO.

2.4. Summary of section findings

In summary:

- The long-term interests of consumers will be maximised if CER is operated in a way that maximises its economic benefits, however this is not a costless exercise. The costs need to be balanced against the economic benefits.
- Orchestrating different CER devices will generate different economic values:
  - It is primarily behind-the-meter batteries (and to a lesser degree, EVs) which, if used differently (i.e., controlled/orchestrated), could potentially generate material economic benefits; and
  - Orchestrating other CER devices provides only marginal (albeit still positive) economic benefits, particularly once the cost of orchestrating those devices is included.

- The natural evolution of the retail electricity market (absent any intervention) will almost certainly see retailers focus their product and service offerings to customers with EVs and batteries, reflecting the fact that:
  - As the penetration of those devices increases materially, those types of customers will form the majority of customers (i.e., they will become the 'typical' customer),
  - EVs and battery usage will swamp the contribution other CER devices and non-controllable usage makes to customer's overall usage, and
  - The potential economic value accruing from the orchestration of those devices is relatively large, as compared to other devices as well as the costs of providing electricity to non-controllable devices.
- Therefore, maximising the value customers receive from their CER devices will become <u>the main market for residential customers,</u> rather than it being the somewhat peripheral market as it is now (or at least, was up until ~18 months ago). Retailers that do not tailor products and services to customers that allow them to maximise the value of their valuable CER devices will inevitably lose market share with the associated financial ramifications that come with this.

3. What are the purported problems under the existing framework?

3.1. Objective of section

The objective of this section is to:

- Summarise the key problems that the AEMC suggests are occurring because of the existing framework; and
- Provide our opinion regarding those purported problems.

3.2. What are the purported problems under the existing framework?

The AEMC indicates that there are (or might be) existing barriers to effective offers to orchestrate CER in ways that maximise net benefits to the electricity supply chain (including CER and non CER customers), which could diminish economic efficiency. For example, the AEMC states that there are two paths for CER aggregators to operate in the market when there is one connection and settlement point:

- Direct entry by operating as the customer's retailer/FRMP; and
- Partnership with a retailer.

In analysing these pathways to market, the AEMC states, amongst other things that[18]:

- **Challenges relating to direct entry**: *Some new entrants might prefer to become specialist providers of energy services focusing on certain types of consumer resources e.g. electric vehicles, batteries or pool pumps. However, the arrangement of having all of a consumer's resources on one connection point means that the provider must become the FRMP for the household or business's entire premises. This would require them to become an authorised energy retailer, responsible for providing the full suite of consumer protections under the NERL and NERR, rather than solely being responsible for the consumer's flexible resources or a particular type of resource.*
- **Challenges relating to partnering with a retailer**: *The approach of CER aggregators providing value to customers by entering into a partnership with an existing electricity retailer could also face challenges due to existing retailers acting as customer gatekeepers. Key issues could include:*
  - *Lack of competitive alternatives: There is currently only a very small number of existing retailers partnering with third-party VPP service providers. This could mean CER aggregators may have low bargaining power when entering into terms to share the value generated by trading CER in the markets with existing retailers. This would mean existing retailers can capture a greater share of the value generated by CER aggregators than would be possible under a more competitive market.*
  - *Stranding risks: If a CER aggregator pays upfront costs when initially enrolling a customer into their program (such as installing kit at the location), there are risks of stranding those assets if the customer chooses to engage a different retailer. The cost to manage these risks may lead to CER aggregators providing offers to customers that are less attractive, e.g. lock-in contracts. If the CER aggregator could become the FRMP for the second settlement point, then retailer churn at the primary connection point shouldn't impact the aggregator's ability to offer services to the customer.*

18 AEMC, Consultation paper, Unlocking CER benefits, December 2022, page 15

- *Diluted incentive for existing retailers to participate: Some existing retailers may not have strong incentives to partner with CER aggregators as their incentives and motives may not be well aligned with the interests/preferences of consumers*.

The AEMC concludes that[19]:

> *These factors mean that, where CER aggregators are able to generate value from trading CER in the wholesale market under the current framework, they have to share that value with the existing retailers instead of being able to share this value directly with consumers. Small margins may not result in deals at all and existing retailers may add a margin before sharing cost reductions with the customer. This would mean customers face the risk of receiving less value from their CER being traded in the market than if they could directly engage with CER aggregators to trade their flexible resources in the markets.*

3.3. Our opinion regarding those purported problems?

The aforementioned problems appear to be premised on two key assumptions:

- That the additional obligations an aggregator would face if it were to become a retailer are an economic barrier to entry and result in inefficient outcomes; and
- If an aggregator must operate through a retailer and pay a fee to retailer, that there is automatically "*less value to share with end customers*" rather than this payment being for the services the retailer provides to the aggregator, and that "*less use of CER*" and that this is automatically considered to be an inefficient outcome.

In considering these two assumptions, it is important to consider:

- **The role of the retailer**: A retailer undertakes different functions to an aggregator. The AEMC in effect acknowledges this when it states, in the context of the "*challenges relating to direct entry*", that "*this would require them to become an authorised energy retailer, responsible for providing the full suite of consumer protections under the NERL and NERR*". These customer protection issues are indicative of the additional roles and responsibilities a retailer must bear, as compared to an aggregator. Their provision is not a costless exercise for a retailer, yet their provision is fundamentally important to the delivery of outcomes that are in the long-term interests of consumers (e.g., appropriate customer protections) as well as to the long-term efficient operation of the market (e.g., prudential arrangements). If these, or other functions that retailers must carry out because of the legislative or regulatory framework represent:
  - A disincentive for aggregators to become retailers, then in our opinion, this is not an economic '*barrier to entry*' *per se*, but rather, it reflects the market arranging itself in a way that minimises the overall cost of supply (i.e., it is better for a VPP to focus on providing 'VPP-type' services, as that is its competitive advantage, and in turn rely on retailers to provide 'other' retail services), hence it is an efficient[20] outcome[21]; and

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19 AEMC, *Consultation paper, Unlocking CER benefits*, December 2022, page 15

20 Assuming these consumer protection obligations are set at efficient levels (i.e., the incremental benefit stemming from imposing the obligation exceeds or is at least equal to the incremental cost).

21 To compare and contrast this, if VPPs were *forced to* become retailers in order to provide their services to market (i.e., they were not allowed to operate via a retailer), then this *would* be a barrier to entry, and potentially lead to inefficient outcomes. And if they were forced to be retailers their costs of operation would go up, which would presumably reduce the proportion of benefit they could share with CER customers.

- A cost impost on retailers, then it is self-evident that these costs will be (and should be) recovered from the party causing those costs to be incurred (in this case, the customer). It is not clear how the AEMC has automatically drawn the conclusion that there is "*less value to share with end customers*", without considering whether or not this may be an appropriate sharing of the costs to serve across the two parties that are providing services to that customer. For example, if Retailers partly recover 'customer protection costs' from customers by way of the variable charges[22] that they levy, then any change in a customer's load profile might compromise their ability to recover those costs in full, absent some reallocation of the recovery of those costs across the multiple parties that provide services to that customer. Possibly, it is the AEMC's perception regarding the level of market competition (discussed below) that underpins their view as to the efficiency of any payment made from aggregator to retailer.

22 Noting that in theory, most of these costs should be recovered via fixed charges, yet in practice, this is unlikely to be the case.

- **Market competition**: The efficient use of third party VPPs by retailers is premised on there being effective retail competition. In a competitive retail market, the amount retailers charge to aggregators reflects the efficient (risk-adjusted) opportunity cost of providing those services to the aggregator at that location. In this context, we note the AEMC's reference to "*challenges due to existing retailers acting as customer gatekeepers*" and that "*there is currently only a very small number of existing retailers partnering with third-party VPP service providers*". Firstly, whilst the AEMC's premise that retailers act as 'customer gatekeepers' might be correct, in our opinion, it is not portrayed correctly. Retailers *should* be there to maximise the value they provide to their customers, and in that context, they should act as a 'gatekeeper', only utilising the products and/or services that align with that objective function. This appears to underpin Origin Energy's VPP strategy, where it states, in the context of its in-house VPP (Loop) that it *"creates lower churn, deeper engagement and seeks to fulfil customers' expectations for lower costs, decarbonisation and energy autonomy"*[23]. To the extent that customers perceive that their retailer is not fulfilling this role (i.e., they are not acting in their best interests), those customers are able to switch energy providers (with high switching rates evidence of this). This then brings us to the AEMC's comment that there is "*currently only a very small number of existing retailers partnering with third-party VPP service providers*". Firstly, it is not clear what evidence the AEMC has relied upon to make this statement, as, whilst possibly being true up until ~18months ago, it is our understanding that there is now a much more active market (see next section). Secondly, even if this was correct, it fails to consider whether the lack of partnering is a barrier, *per se*, or whether it simply reflects the fact that the economics underpinning third-party VPP service provider approaches to retailers have been lacking (including in comparison to retailers providing these services in-house, noting that any assessment of the market should relate to whether products and services that customers value – and which in turn would maximise the economic benefits of their CER - are being offered to them, not how the market has arranged itself in order to make those offers). Finally, even if this was correct, it fails to account for how the market is *likely* to naturally evolve under the BaU case, given the broader factors affecting the market. As outlined in the previous section, we of the view that the retail electricity market (absent any intervention) is likely to naturally evolve such that retailers focus more of their product and service offerings to customers with EVs and batteries, seeking to harness the potential of those resources, as to not do so would inevitably result in a loss of market share and in the end (when a large portion of the market has either or both a battery and EV), a potentially uneconomic business model.
- **Risks to investment**: The AEMC states that "*there are risks of stranding those assets if the customer chooses to engage a different retailer*". Rather than this risk being framed in the context of a "*challenge relating to partnering with a retailer*", the reality is that the nature of the service is likely to require some form of upfront investment, creating a risk if that customer churns in the future. This risk is similar no matter how the market arranges itself to provide these services to end customers (e.g., VPP who becomes a retailer; a VPP who provides its service to an end customer via a retailer; or a retailer who provides the same services as a VPP offers). The natural counterpoint to the AEMC's comment that this is '*a challenge relating to partnering with a retailer'*, is: what does the AEMC expect retailers to do in this situation – simply bear this risk themselves? So yes, this is a "*challenge relating to partnering with a retailer*", however it is a challenge no matter what business model is adopted (including those that would occur if FTA were introduced), hence it is a real risk that an efficient operator in the market would seek to recover the cost of bearing.

23 Origin Energy, *Strategy Presentation*, 9 March 2022, slide 17

- **Diluted incentive for existing retailers to participate:** The AEMC states that "*some existing retailers may not have strong incentives to partner with CER aggregators as their incentives and motives may not be well aligned with the interests/preferences of consumers*". Firstly, it is not clear what evidence the AEMC has relied upon in making this statement. Secondly, this goes against much of the evidence that suggests that the market is highly competitive[24], which, would be suggestive of the need for retailers to in fact be highly cognisant and responsive to their customers' needs and preferences, for not doing so would risk losing that customer to a competitor. Thirdly, if this were the case (particularly in relation to what are likely to be high value customers, being those with behind-the-meter batteries and EVs), then this calls into question retail competition more broadly. Finally, it is important to consider these historical market outcomes in the context of the types of CER devices that have sought to be aggregated. As we explained earlier, whilst there are many CER devices, the two key drivers of value are behind-the-meter batteries and EVs. Their take up has been immaterial up until very recent times, which, everything else being equal, will have affected the "*incentive to partner with CER aggregators".* Or put another way, the lack of partnering with CER aggregators historically may have had nothing to do with misaligned incentives between the retailer and their end consumers, and more to do with the underlying economics (aggregate opportunity) of aggregating the types of CER that were available at the time the opportunity arose.

More generally, we note that similar reasoning was used in creating the role of the DRSP in the WDRM. The DRSP was defined as a new category of market participant whose relationship with the customer could be separated from the customer's relationship with the FRMP. The creation of the FRMP role seems to follow the same approach. However, the CER of most residential customers will be a much larger proportion of the customer's total load than DR is for most of the customers participating in the WDRM. This makes the value of CER to the original FRMP very different from that of DR and is therefore likely to have a much more powerful effect on the development of competitive offers for CER. This effect is already in evidence, as discussed in section 3.4 below. This difference between the relative magnitude of CER and DR to the customer's total load and the activity taking place in the market suggests that there may not be a problem that warrants the effort and cost that would be required to establish and administer the FTA.

3.4. What does recent evidence indicate with regards to the level of competition?

In recent times, we have seen various types of business models evolve to target CER and allow CER providers to monetise the value of their resource. Not surprisingly, these have taken off as behind-the-meter battery and EV penetration have started to increase, as this is where much of the value of orchestrating CER is.

Interesting, we have seen various business models evolve, and some parties have moved from supplying a discrete set of products and services, to providing a more comprehensive suite of products and services. Both outcomes are typical of a developing market.

The following table summarises the types of business models that have evolved in recent times to target CER and allow CER owners to monetise the value of their CER via VPPs, along with example of the market participants that operating in each category.

24 For example, based on AEMO's *National Electricity Market Monthly Retail Transfer Statistics* (December 2022), the annualised transfer rate was 18% in Victoria and 17% in NSW, with SA at 14% and QLD at 9%. In the June 2022 version of this report, these rates were 34% for Victoria, and 27% for both NSW and SA. The annualised transfer rates are calculated by projecting the previous months transfer volumes over the full year, and calculating the percentage churn that would occur if the transfer rate was maintained over the year, rounded to the nearest percentage.

Table 2: Examples of the types of business models that have evolved in recent times that allow customers to monetise the value of their CER via VPPs

Business model	Examples
VPPs (via a retailer)	Reposit Power; Members Energy[25]; ShineHub[26]; Sonnen, Tesla
Small retailer offering VPPs	Discover Energy[27]; EnergyLocals[28]; ArcStream[29];
Aggregators, providing services into the Wholesale Demand Response Mechanisms (WDRM)	ENEL
Established Retailers, who have entered into VPPs	AGL[30], Energy Australia[31]; Origin Energy[32]; Powershop[33]; Simply Energy[34]
Specialised retailers targeting CER[35]	Pooled Energy.
Retailers that provide pool price pass through	Amber, Flow Power
Retailers providing large customers with the opportunity to monetise their CER devices	Shell, AGL, many retailers contract for DR from large customers

As indicated by the information above, there is a plethora of players seeking to provide products and services that are designed to leverage the latent economic value of high-value DER devices. They range from individual VPPs, such as Reposit Power and Tesla, partnering with retailers, to small registered retailers such as Discover Energy and EnergyLocals who also offer VPPs, to all of the large retailers, who offer VPPs as part of their overall product offerings.. Based on public statements, there is significant ambition driving these business models, for example:

- Origin Energy is “targeting significant growth” in its in-house VPP (Loop), with a view to getting to 2GW of assets connected to Loop[36]; and

25 https://membersenergy.com.au/about/

26 https://shinehub.com.au/virtual-power-plant/

27 https://www.discoverenergy.com.au/vpp

28 https://membersenergy.com.au/vpp/

29 https://arcstream.solutions/virtual-power-plant/

30 https://www.agl.com.au/residential/energy/solar-and-batteries/solar-batteries/bring-your-own-solar-battery?zcf97o=vlx3ap

31 https://www.energyaustralia.com.au/home/electricity-and-gas/solar-power/virtual-power-plant

32 https://www.originenergy.com.au/solar/panels-batteries/virtual-power-plant/

33 https://www.powershop.com.au/better-energy/virtual-power-plant/

34 https://www.simplyenergy.com.au/residential/energy-efficiency/simply-vpp/existing-battery

35 Specialised retailer Pooled Energy, which was a digital pool management and monitoring business that was placed into administration in May 2022, has been acquired by the Intellihub Group (https://pooled.au/intellihub-acquires-pool-monitoring-and-management-business/)

36 Origin Energy, *Strategy Presentation*, 9 March 2022, slide 17

- Tesla plans to install a total of 50,000 rooftop solar systems and Powerwall batteries in South Australia to be part of a VPP[37].

If a large customer wants to use their CER to manage their wholesale market exposure, they can move to a retailer like Flow Power, which offers pool price pass through, or they can offer their demand response capability via a registered Demand Response Service Provider (DRSP) or to their existing retailer. They can also leverage the latent capacity and control that exists at their site (refrigeration, HVAC and lighting) to offer demand flexibility under programs such as those offered by Shell Energy[38] to both its own C&I customers, as well as C&I customers served by other retailers. Other reforms can also assist certain types of (predominately) large customers in monetising their behind-the-meter resources, for example, the Small Generator Aggregator (SGA) reform allows a large customer with a small generating system to have that system aggregated by an SGA, for supply into the NEM[39].

In short, there appears to be no shortage of market participants adopting different business models, seeking to provide products and services to customers, particularly those with behind-the-meter batteries. And this is just what is happening in the market now, not what will happen in the future under a BaU case, if, as expected, behind-the-meter battery penetration increases significantly and EV penetration increases as forecast.

3.5. Summary of section findings

In our opinion:

- Many of the purported issues are either not economic barriers to entry or are likely to have resulted from the fact that there has been limited, high value CER (such as behind-the-meter battery and EVs), to orchestrate.
- The evidence presented is not suggestive of there being significant barriers to customers monetising their CER, in fact the evidence indicates that various business models have evolved (particularly recently), and there are numerous market participants across the breadth of those various business models.
- Moving forward, once higher value devices become even more prevalent, activating, engaging, and allowing customers to monetise the value of their CERs will be a cornerstone of the market in the future.

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37 https://www.aemc.gov.au/news-centre/data-portal/retail-energy-competition-review-2020/vpp-offers-available

38 https://shellenergy.com.au/energy-solutions/smart-energy-hubs/

39 Note that whilst this has certain features that make it analogous to FTA, it differs in a number of ways, not the least being because it requires that each small generating unit must have its own connection point.

4. How would the Rule change impact the market?

4.1. Objective of this section

The objective of this section is to explain how AEMO's proposed Rule change might impact the market, in terms of economic efficiency, retail competition and its impact on end customers.

4.2. How the proposed arrangements for recovering network charges could impact efficiency and the market

We have two key concerns related to the recovery of network costs from the FRMPs, namely, we are of the opinion that AEMO's proposed approach, which would involve all network charges being allocated to FRMP1, might:

- Lead to inefficient use of a customer's CER; and
- Impact the effective operation of the retail market.

4.2.1. Inefficient use of CER

In our opinion, AEMO's proposal that network charges flow directly through to FRMP1 (and then to the customer via FRMP1's retail bill) would lead to inefficient use of CER devices, particularly where 'network credits' are applied or where there is an opportunity to reduce a customer's network bill and that opportunity is time-differentiated[40], if their CERs was operated in a certain way (e.g., dispatched for export at certain times; consumed at certain times).

For example, if DNSPs pay for the services[41] that customers can provide them (e.g., network support, via rebates for either export during peak demand periods or imports during export constrained periods), the customer could be earning revenue from the DNSP if its devices are operated in response to those price signals. However, AEMO's proposed Rule change would see the network revenue (or bill reduction) that is generated from the operation of FRMP2's (or FRMP 3, 4 etc) devices flow through to the bill that is presented to the customer by FRMP1. No financial benefit would be delivered to FRMP2 (or again, FRMP2, 3, 4 etc) from the operation of the resource under its control, despite FRMP2 being the primary provider of the services via the controllable devices it has under its operation at the secondary connection point.

The same outcome would occur if a DNSP imposed some form of critical peak demand tariff (e.g., AusNet's Critical Peak Demand tariff). The CER resources that are under the control of FRMP2 at a site could be used to reduce that customer's network bill, yet that bill reduction would flow through to FRMP1's bill, not FRMP2.

40 For example, if there is a time of use tariff, a critical peak demand tariff, or some other time-differentiated tariff.

41 To be clear, we do not expect network businesses to pay FRMP2 directly for every service they provide to the network (e.g., through a network support payment, or through some form of market clearing mechanism). In our opinion, this is administratively costly and not fit for purpose, given (a) the limited variability in network businesses' marginal costs (e.g., networks are not congested most of the time, meaning the SRMC is relatively small for flows both in both directions the majority of time, with congestion occurring only during a relatively small, and forecastable, window of time – e.g., hot summer days, for peak demand, and mild sunny spring days, for export). Instead, in the future (and this is already happening), we would expect that network businesses will start to develop and apply more dynamic, two-way pricing – that is, tariffs (charges) and rebates (credits) depending on whether a customer is consuming services from the network or providing services to the network. This means that the benefits that behind-the-meter devices can provide to the network will be signalled (and rewarded) through network tariffs, not via direct payments to intermediaries using a customer's resources to provide those services. This has material implications for the AEMO's Rule change proposal, given the proposed treatment of network costs.

It is logical to assume that in these circumstances, FRMP2 would pivot the use of the customer's controllable resources (that is has control of) towards providing wholesale market services only, as opposed to network services, even if this was:

- Not the most efficient use of those resources, and
- Even if it results in the customer generating less net revenue (and therefore a higher overall bill), as FRMP2 would not accrue any revenue from the provision services that support the network, yet it would accrue 100% of the gross revenue[42] derived from the provision of services in the wholesale market.

Everything else being equal, this is likely to distort the use of CER resource as it would almost certainly affect how FRMP2 chooses to utilise the controllable CER resources it has at its disposal at that site.

Whilst these concerns might lead some to conclude that network costs should therefore be somehow allocated[43] across the different FRMPs, on face value, any approach that is used to allocate network costs between FRMP1 and FRMP2 is likely to also create some issues, including, but not limited to:

- Increased administrative costs, particularly the more bespoke an allocation approach is (e.g., across different NMIs or different customer types);
- System changes (and therefore costs) being required to support the allocation of costs; and
- Estimation being required in any event, particularly under certain types of network tariff structures, for example, inclining or declining block tariffs.

All are likely to have implications for costs, competition, and overall economic efficiency.

4.2.2. Impact the effective operation of the retail market

If network costs are fully recovered from FRMP1:

- This is likely to make an already complex market, even more complex, as there would now no longer be a 1:1 relationship between energy and network charges. For example:
  - Whilst small customers do not currently see itemised network charges on their bill, they will, as a result of the Rule change, see bills from multiple FRMPs, in aggregate, covering the same time period. Comparing rates across the two (or more) bills across the same time period will be meaningless, and worse still, could potentially lead them to draw spurious conclusions as to the efficiency of their different retailers, given any comparison would not be a like-for-like comparison (one has network costs in it, the other doesn't).
  - If FRMP2 does, on the off chance, operate the customer's CER that they control in a way that maximises network benefits, then this benefit would impact FRMP1's bill for that period[44], potentially creating an outcome that might be intuitively difficult for a customer to understand, for example, if there are positive flows through the primary meter, yet a net negative bill (if the rebates exceed the FRMP1 costs).

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42 Obviously, some of this would be shared with the end customer.

43 AEMO's rule change proposal notes the possibility of such an allocation but rejects (at least in the near term) without any quantified assessment of the economic costs and benefits of its application.

44 FRMP1 would essentially be 'siphoning off' any credits produced by FRMP2's operation of the customer's controllable resources.

- All-in-all, any increase in the complexity of the market is likely to increase inquiries to either or both FRMPs resulting in increased costs to serve, and more generally, an increased level of uncertainty about engaging in the market leading to reduced competition.

- It is likely to reduce the financial returns that would accrue to FRMP2 retailers, as they would not be able to capture any returns from providing services to network businesses. This would have a flow on effect to the level of overall competition for a customers' CER resources, limiting the benefits that would ensue from the Rule change. The counterpoint to this, however, is that it is likely to increase the credit default risk associated with serving a customer as FRMP1, as FRMP1 bears the network-related credit default risk associated with the CER devices that are operated by FRMP 2 (e.g., if a customer fails to pay their bill to FRMP 1, part of that non-payment will be related to network charges that are in fact driven by the devices that are controlled by FRMP 2, yet FRMP1 bears this risk).

4.3. How the tariff arbitrage that would be enabled by proposed arrangements could impact FRMP1 and the implications of this for the market

Although FRMP2 will be responsible for settling the consumption and export at the secondary meter, this consumption may be highly variable based on a number of factors.

A number of these factors could potentially be mitigated by FRMP2, yet despite this, this variability will affect the consumption that FRMP1 will be responsible for settling in the wholesale market, adding uncertainty about FRMP1's volume and price exposure.

Having to bear these - in many cases unpredictable (and therefore unquantifiable), and in all cases, uncontrollable - risks, will in turn affect FRMP1's hedging costs, to the detriment of the long-term interests of consumers.

There are two primary factors that will increase the uncertainty that FRMP1 will face with regard to its wholesale volume and price exposure. They are the tariff arbitrage opportunities that are enabled by the proposed arrangements and certain operational factors. Both are discussed below, but the opportunity for FRMP2 (or the customer itself) to use the switch provided in the FTA to arbitrage different tariffs is by far the more serious.

4.3.1. Tariff arbitrage

The potential for the FTA to result in inefficient tariff arbitrage was recognised in the AEMC's consultation paper. They noted that, although end customers already have the potential to arbitrage tariffs under the current FRMP1-only market design by "switching from FRMPs offering spot prices during mild market conditions to FRMPs with fixed price tariffs when spot prices are higher"[45],:

> *if consumers have an additional settlement point at their premises, they could have a spot price contract at one and a fixed price contract at the other. If that consumer, or their representative, could easily switch their resources between settlement points, they could potentially consume electricity on spot prices when wholesale prices are low and export electricity at the other connection on a fixed price - and reverse that arrangement when spot prices are high (this could happen through wiring configurations that allow for simple fast switching, or remote management methods with apps that allow for turning off the data streams of additional market settlement points in real-time).*

45 Exactly this sort of rise in exposure to wholesale process by customers - both large and small - was evidenced in the market during the most recent period of low pool prices.

As an example, under these arrangements, on a day when wholesale prices are rising and expected to be high in the late afternoon, but there is low solar irradiance, FRMP2 (or the customer) could choose to charge the customer's BTM battery or EV through the FRMP1 meter and then discharge it when the prices are at their highest through the secondary meter.

This arbitrage provides no net economic benefit to the electricity supply chain but is instead simply a wealth transfer between the two FRMPs.

This strikes us as a fundamental and inherent flaw in the FTA design as proposed.

4.3.2. Operational factors

There are also operational factors that will create similar uncertainty, risk and costs for the FRMP1 retailer. These include operational issues associated with the secondary meter[46], the FRMP2's communications and control technology and the CER technology located 'behind' the FRMP2 meter itself.

While it will generally be in FRMP2's financial interest to mitigate these sources of variability, in any event in which any of these systems fails or is unavailable, all of the customer's import and export will revert to the FRMP1 meter, resulting in changes to the load that the FRMP1 is responsible for in the wholesale market. These sources of variation are quite dissimilar to those that retailers currently need to consider in their hedging arrangements and, importantly, are outside of their control and are likely to be significant when they occur, given the aggregate volume of import/export capacity of the devices likely to be located behind the FRMP2 meter.

4.3.3. Overall impact of tariff arbitrage and operational factors

These sources of variation in the volume and timing of the total NMI load will necessarily add risk for FRMP1 in the wholesale electricity market, particularly where it is not also the FRMP2 at a site. Importantly, the drivers of these risks are outside the control of FRMP1 and there is no natural hedge, unless it is also acting as FRMP2.

Allocating risks that could potentially be controlled by FRMP2, to FRMP1 - a party that has no means of controlling those risks - is inconsistent with economic theory, which generally requires risks to be allocated to the party best able to mitigate those risks. As such, the Rule change will almost certainly lead to inefficient outcomes.

Moreover, allocating these, in many cases, unpredictable (and therefore unquantifiable), and in all cases, uncontrollable risks to FRMP1 will necessarily need to be reflected in FRMP1's pricing to the customer[47], which:

46 The connectivity of these meters is likely to be affected by the end customer's internet connection. When the internet connection is interrupted, the secondary meter will not function. Re-connection of the internet connection itself is unlikely (at least with present technology) to automatically re-start the secondary meter, leaving the FRMP1 responsible for all import and export associated with the NMI until such time the secondary meter is re-connected. It is not clear how the risk and actual cost of these events will be handled (i.e., whether it will be left to FRMP1s to reflect in their pricing to the customer, or some settlement rules will be put in place by AEMO, akin to the compensation provided to a retailer who serves customers participating in the WDRM – noting that AEMO has visibility of WDRM events but will not have visibility of the events being considered here).

47 Whether by way of its impact on its hedging costs, or by way of how it structures its prices to the end customer such that it can manage this risk. In saying this, theoretically, if FRMP1 did not seek to hedge against these risks, it could instead mitigate these risks by having some form of pool price pass-through to its end customers. This would mean that end customers' would bear the cost of any switching of load from CER devices to the primary metering point, by way of their exposure to pool prices (as opposed to via the hedging costs that are reflected in the market offer they receive from FRMP1). We assume that this would be a highly problematic outcome for policymakers, and an arrangement that would not be taken up by a significant number of customers.

- Is a competitive disadvantage for FRMP1s that are not acting as the FRMP2 at the site; but more importantly
- Will tend to increase the prices offered by all retailers acting as independent FRMP1s, and therefore costs to customers that enter into FTAs.

A by-product of the above is that it is likely to reduce the financial benefits that CER can provide to customers that engage a FRMP2 that is independent from its FRMP1 under the proposed flexible trading arrangements, particularly if the customer seeks to co-optimise the benefits from offers that are made available from both FRMP1 and FRMP2. This would reduce the uptake of independent FRMPs, and in turn reduce the benefits accruing from the Rule change.

4.4. How might the proposed arrangements impact IT and other systems and costs?

It is reasonable to expect that the proposed arrangements will impact costs in the following areas:

- Metering – The cost of the secondary meter will need to be borne presumably by FRMP2, the costs of which will need to be recovered from the customer.
- Metering data – Metering data (both import and export) will need to be differentiated as to whether it is associated with FRMP1 or FRMP2. Presumably this will need to be done by the metering data provider. It is reasonable to expect that this may increase the costs of this function and that the development of this functionality will be a fixed cost (i.e., its development will be required regardless of how many end customers take up FTAs).
- MSATS – Whatever changes are needed to MSATS for the functioning of FTA will presumably have some costs and this cost will be incurred regardless of how many end customers take up FTAs.
- FRMP1 billing systems – All retailers will need to ensure that their billing systems are capable of dealing with FTAs, specifically to allow for the subtraction of any electricity flowing through the secondary meter from that billed to the customer. These costs will be incurred by every FRMP1 and will be incurred regardless of how many end customers take up FTAs in their portfolio (or NEM-wide).

4.5. How might the proposed arrangements increase the complexity of customers interacting with the market?

Recent developments in the retail electricity market have led to the re-implementation of reference prices (i.e., the Default Market Offer and the Victorian Default Offer). These measures were put in place to provide a retail electricity price offer that provides a level of certainty and ease for customers that do not want to engage with the market.

The FTA raises two issues in this regard:

- Customers taking up FTAs can hardly be considered “customers that do not want to engage with the market”. This raises the question as to whether they should have access to these reference prices – particularly as several factors discussed in this paper are likely to have the effect of increasing the cost of retailers that serve these customers in the capacity of a FRMP1 as compared to a FRMP2.

- It is not clear how regulators will be able to set a reference price for customers that enter FTAs, given the residual load profile (related to FRMP1) will be highly variable and difficult to forecast due to the ability to switch load from FRMP2 to FRMP1. As a result, there will be an uncertain level of risk that would need to be factored into the reference price (by way of additional hedging costs, which we have discussed earlier). The uncertainty of that level of risk and the level of cost associated it will pose a non-trivial complication in determining the reference price.

4.6. How the proposed arrangements might impact market costs, and the allocation of those costs

How the costs would be allocated if this Rule change is implemented is not clear and could be inefficient and/or inequitable. Those costs include both the costs incurred by AEMO in settlement (i.e., any costs incurred in enhancing and/or operating the settlement system) and the costs incurred by retailers in their billing systems to enable reconciliation with FRMP2 entities.

It is quite possible that a material portion of the benefits that result from this Rule change will in fact be wealth transfers (i.e., between FRMP1 and FRMP2 entities, or possibly between customers with CER and retailers or generators). At the extreme, where all benefits are wealth transfers there would be no net economic benefits, and costs (to be efficient and equitable) should be allocated to those that experience a financial benefit. Where there is some level of net benefit, that net benefit would comprise the maximum amount that could be efficiently allocated to customers not participating in a flexible trading arrangement (which would include all non-CER customers and those CER customers that do not engage a second FRMP).

The level of impact on net market costs simply cannot be known in the absence of a cost/benefit assessment, which would need to include an estimate of the costs required to establish flexible arrangements and some estimate of both the proportion of customers that would take up FTAs and the incremental impact of those arrangements on electricity supply system costs.

4.7. Other issues about which there is uncertainty

There is uncertainty as to how FTAs might affect other aspects of the market, for example:

- What happens if a FRMP1 ceases operations and a ROLR is appointed? Will ROLR pricing assume some level of FTA in its pricing or will ROLRs have two sets of prices – one for FRMP1 only customers and another for customers with an FTA?
- What happens if a FRMP2 ceases operation and has a debt to the wholesale market? How and from whom would this money to be recovered?
- How will DOEs (static or dynamic) be administered and allocated, particularly where there is more than one additional FRMP (e.g., FRMP2 and FRMP 3)? How will the DOE get allocated across FRMPs? Who will AEMO or the local distribution business communicate the DOE to? Who bears responsibility for compliance with the DOE?
- Will consumption/income at FRMP2 be included in eligibility for concessions / hardship arrangements?
- What happens if FRMP1 (legitimately) disconnects the customer? What rights if any does FRMP2 retain? Would they still be allowed to export? Would FRMP2 be liable for any network export charges associated with that export?
- How will FRMP2 net loads be accounted for if the Retail Reliability Obligation (RRO) is invoked? Will FRMP1s be required to assess this in their plan for complying with the RRO? What if FRMP2 loads in aggregate are responsible for a breach of a FRMP1 RRO?

4.8. Summary of section findings

The following table summarises the potential problems that we see with the proposed FTA.

Table 3: Summary of potential problems with the FTA

Potential Problem	Summary of potential problem
Recovery of network charges	Under the FTA, all network charges are assigned to FRMP1, which could lead to the inefficient deployment of CERs and increase complexity in the retail market, thereby potentially decreasing the effectiveness of competition.
Tariff arbitrage	The FTA will introduce arbitrage opportunities that may lead FRMP 1 to have to implement what are otherwise inefficient hedging arrangements for those customers, increasing the cost of supplying electricity services, to the detriment of the CER customer's financial interest.
Impact of the FTA on IT and other systems and costs	The FTA is likely to increase the costs of metering for FTA customers as well as the costs of metering data provision, MSATS and FRMP1 billing system costs. All but the first of these will be incurred at the system level - that is, regardless of the number of customers that enter into FTAs.
The FTA will increase the complexity of customers interacting with the market	The FTA will significantly complicate the setting and reduce the accuracy of reference prices such as the DMO and VDO.
Impact of the FTA on costs and their allocation	It is not clear how much of the impact of the FTA will be incremental and how much of its impact will constitute wealth transfers between FRMP1s and FRMP2 and CER customers.
Other uncertainties introduced by the proposed FTA	As noted, the FTA is likely to affect several other arrangements in the market, including but not limited to ROLR, RRO, and DOEs. There is no detail about how these issues would (or even could) be addressed if FTAs were to be introduced.