



ERM Power Limited
Level 3, 90 Collins Street
Melbourne VIC 3000
ABN 28 122 259 223

+61 3 9214 9333
ermpower.com.au

Friday, 21 December 2018

Declan Kelly
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Mr Kelly

RE: Demand Response Mechanisms rule change (ERC 0247)

ERM Power Limited (ERM Power) welcomes the opportunity to respond to the Australian Energy Market Commission's (AEMC) consultation paper on the Wholesale Demand Response Mechanisms rule change.

About ERM Power

ERM Power is an Australian energy company operating electricity sales, generation and energy solutions businesses. The Company has grown to become the second largest electricity provider to commercial businesses and industrials in Australia by load¹, with operations in every state and the Australian Capital Territory. A growing range of energy solutions products and services are being delivered, including lighting and energy efficiency software and data analytics, to the Company's existing and new customer base. The Company operates 662 megawatts of low emission, gas-fired peaking power stations in Western Australia and Queensland.
www.ermpower.com.au

General comments

ERM Power, along with many other market participants and other demand response providers, is keenly interested in the development of this rule change process. As Australia's second largest retailer by load to commercial and industrial customers, and as a retailer which has operated a long-term portfolio of demand response, we are well-placed to comment on the current conditions for demand response in the market. We were actively involved in the previous demand response mechanism (DRM) rule change process.

The three rule change requests that the AEMC is considering differ in significant ways despite each seeking, at its core, to improve the visibility of wholesale demand response in the market. By way of summarising them succinctly, ERM Power sees the joint Total Environment Centre (TEC), Public Interest Advocacy Centre (PIAC) and the Australia Institute's (TAI) rule change as seeking to establish a demand response mechanism sitting within the wholesale energy market, the South Australian (SA) Government's rule change as creating a separate demand response market co-optimised with the existing wholesale market and the Australian Energy Council's (AEC) rule change request as establishing a register of wholesale demand response capability.

We believe that each rule change has its own advantages and disadvantages and can be discussed separately. At a high level though we believe there are some key points to be made about all three rule changes.

¹ Based on ERM Power analysis of latest published financial information.



Firstly, the AEMC notes that the rule changes are designed to address the following issues:

- *“the interaction between most consumers and the wholesale market is managed directly by a retailer, and so if the retailer doesn’t offer a demand response product then consumers have no incentive to change their consumption*
- *difficulties for third party demand response providers to provide demand response products to consumers, either because of commercial barriers to enter the retail market, or difficulties gaining and maintaining the value of wholesale demand response.”²*

We challenge the assertion that there are difficulties in providing demand response to consumers either because consumers are reliant a retailer offering a demand response service or that third parties face barriers in providing these services to consumers. ERM Power is not alone in being a retailer that offers demand response to its customers. The AEMC’s consultation paper notes that along with ERM Power, Powershop, Flow Power and Amber Electric are all offering demand response products to their customers.³ Zen Energy also claims to offer demand management capabilities to their customers.⁴ We are aware that other retailers, including the large incumbents, also offer demand response products. It is clear the demand response market is active and growing. There would not, therefore, appear to be any barriers relating finding demand response offers in the market.

Additionally, the AEMC identified the following claim from the AEC in its rule change request:

“a key concern of demand response providers is that their investments (for example, in equipment to [facilitate] demand response) are at risk of becoming stranded should their customers change retailers, as a subsequent retailer may decide not to continue with the previous retailer’s existing demand response arrangement.”⁵

ERM Power believes that this is not indicative of a risk of stranded assets so much as one of information asymmetry. Large customers and their brokers (or advisers) need to be aware of how retailers treat demand response and factor this in as part of any negotiations when changing retailers. To the extent that they are considering demand response as separate to energy costs rather than as a comprehensive offering, then educating consumers about this is what is needed.

Furthermore, the AEMC notes that TEC, PIAC and TAI argue that:

“there are [commercial] barriers to developing the required partnerships between retailers and demand response providers, which has contributed to a sub-optimal level of demand response in the NEM in comparison to other energy markets.”⁶

This claim warrants careful consideration. Firstly, it assumes that partnerships between retailers and demand response providers is a necessary part of any demand response initiative. In our experience we have seen no evidence that separate agreements with demand response service providers (DRSPs) will add or create value. ERM Power currently has commercial arrangements with several demand response aggregators to recruit and remotely control customer demand response. The arrangements have been meaningful and agreeable to all, including customers. We have seen no evidence of the alleged additional value that would come from providing a DRSP, or similar, with its own market status.

The second assertion that requires analysis is that there is a sub-optimal level of demand response in the NEM compared to other markets. Comparisons with other markets are difficult given that different market design choices (energy-only vs capacity, gate-closure times, market price caps, length of settlement intervals etc.) will influence

² AEMC, Wholesale Demand Response Mechanisms Consultation Paper, November 2018, p ii.

³ AEMC, op. cit. p 25.

⁴ Zen Energy, [Renewable Energy for large Businesses](#). Accessed 14 December 2018.

⁵ AEMC, op cit., p 10.

⁶ Ibid.



what the optimal value of demand response is. Market dynamics such as price volatility, the supply-demand balance and competition will further impact how demand response can compete against other forms of generation.

ERM Power disputes the claim that the level of demand response in the NEM is sub-optimal. The major challenge is determining how much demand response is active in the NEM. The range of figures available makes it difficult to provide a clear figure, nor is it possible to definitively say what the optimal amount of demand response is.

AEMO's modelling for the Integrated System Plan includes a perspective on the scale on demand response available in the market already. The assumptions book contains forecasts for demand side participation under a range of scenarios. The modelling for all scenarios assumes that there was 428 MW of demand response in summer 2017-18, and 371 MW in winter 2017 across the NEM at different price thresholds in the wholesale market.⁷ In contrast, AEMO's Electricity Forecasting Insights Update from March 2018 uses a figure of 278 MW in summer and 221 MW in winter.⁸ AEMO also has data available on available demand response through its demand side participation information portal, which is not publicly available at this time.

Of course, not all demand response is active based on wholesale prices. In 2017-18 AEMO procured 844 MW of off-market demand as part of the Reliability and Emergency Reserve Trader mechanism. Clearly, demand response is available and entering into arrangements now, absent a demand response mechanism. Whether this is the optimal amount of demand response is not the issue of this rule change.

Indeed, the economics of demand response are complex. To benefit, a customer generally (but not necessarily) needs to reduce demand at times of high wholesale prices with either the retailer or the customer having an exposure to the spot price. When prices volatility is high there is a strong case for demand response. Yet, as demand responds, volatility should decline, thereby reducing the incentive to engage in demand response.

Furthermore, retailers seek to minimise their exposure to high spot prices by entering into hedging contracts. Depending on the types and volumes of contracts they use, and the demand of their customers, the economic case for demand response may not exist for the retailer. For a third party to insert itself into the dynamic between retailers and customers, they would need to either have some exposure to the spot price (and take on the associated financial risk) and a way to manage this. That could be by taking a sizeable share of the value of any demand response. This would almost certainly erode the value proposition for the consumer providing the service.

Several of the NEM states have undergone long periods without market volatility, largely due to falling energy demand and an oversupply of generation. Naturally during these periods of oversupply, the economic reward able to be offered to customers will be lower – this is demonstration of market economics at play, not evidence that retailers are not offering commercially competitive demand response terms.

ERM Power's experience as a demand response aggregator is that customers tend to prefer to be called to curtail load less frequently and with high certainty regarding start and finish times; the ability to contract with fast-start at call demand response is not common and most demand response requires a time delay period in initiation. NEM pool prices can be difficult to predict, therefore a higher value is placed on demand response capability that can be initiated instantly via remotely controlled technology, relative to capability that requires manual intervention and advanced notification. Once five-minute settlement begins in 2021, fast-start demand response will face a natural advantage, with delayed-start demand response unlikely to be able to take advantage of five-minute price spikes.

The ability of demand response to assist retailers and large users comply with their obligations under the Retailer Reliability Obligation (RRO) will also provide an incentive for demand response. Given the likelihood of a gap period being a defined set of trading intervals over a short period it will also enable much of the delayed-start demand response discussed above to be rewarded for its schedulable nature, as opposed to the fast-start demand response which will benefit more from price spikes.

⁷ ERM Power analysis of AEMO 2018 Integrated Systems Plan Workbook.

⁸ AEMO, [Demand Side Participation](#). Accessed 14 December 2018.



While the rule changes largely focus on demand response for large customers, there is some discussion around demand response offering being extended to small customers over time. Aggregation could play a role in achieving this. Yet, we notice that the AEMC, TEC, PIAC, TAI and the SA Government have not discussed one of the existing opportunities for demand response for small customers: time of use tariffs. Time of use tariffs are already available to small customers, yet uptake has been small. Customers would be able to benefit by lowering demand during peak periods and shifting consumption to other times of the day. While it may be a fairly blunt tool to encourage demand shifting, a demand response mechanism is not needed for this to occur.

In summary, ERM Power does not believe that there are barriers to demand response participating in the NEM. To the extent that barriers do exist, we contend that they largely relate to information asymmetry, economics and competing uses for demand response. The joint TEC, PIAC and TAI rule change and the SA Government's rule change will not address these challenges.

Baselines

The development and assessment of load against baselines is one of the most challenging and enduring issues for any demand response mechanism. Indeed, in its final determination on the previous DRM rule change request, the AEMC found that:

*"baseline consumption methodologies, in which being able to establish a baseline that accurately reflects consumption absent demand response can be challenging and costly if inaccurate."*⁹

ERM Power does not consider that the development of baseline consumption methodologies has evolved significantly in the two years since the AEMC made this statement. We also note that none of the rule changes, and in particular, the TEC, PIAC, TAI and SA Government rule changes, contained very limited discussion of baselines in their proposals. If anything, the falling prices and growing market for battery storage has made baseline development more complex.

If batteries are charged prior to a demand response event and then dispatched, they could, depending on how baselines are established, claim to have reduced load by double the actual amount provided. For this reason, ERM Power contends that demand response of any variety, but especially behind the meter generation, be separately metered.

The key challenge in designing baselines remains understanding what a customer's intentions are and would have been. Some demand with relatively stable demand such as data centres or aluminium smelters could in theory have a baseline established with little risk. But the demand of other customers is inherently uncertain. There are myriad ways to game baselines depending on the way they are set: a baseline set by usage in the period immediately prior to a demand response notice can be gamed by running equipment harder, such as by turning on chillers or pre-cooling or heating areas, or increasing consumption in other ways; demand could be shifted from one NMI to another; behind the meter generation such as battery storage could be dispatched; or embedded solar could even be switched off to create an artificially higher baseline.

On the other hand, baselines established using longer term consumption data may not reflect the realities of current operations – demand may be generally lower due to investments in energy efficiency, new equipment or a business downturn. It is virtually impossible to know precisely what demand *would have* done in the absence of demand response.

One potential third party provider of demand response, EnerNOC made this clear in its submission to the AEMC's consultation paper on the demand side obligations to bid into central dispatch rule change arguing that demand-side bidding was impractical even for demand response type load:

⁹ AEMC, 2016, Demand Response Mechanism and Ancillary Services Unbundling Rule Change Final Determination.



“The loads that can be controlled (the ones that are possible to use for DR), can be difficult to predict, and have limitations such as notice period requirements, limited dispatch duration, consecutive dispatch etc.”¹⁰

Baselines are central to the development of any demand response mechanism. As such, it is crucial that the AEMC consider them at this juncture. The development of baselines also interacts with how demand response is scheduled.

Scheduling

ERM Power notes the intent of all three rule changes to require demand response to be scheduled. We consider this to be an important part of any demand response mechanism. Consumers as a whole will see greater benefits if demand response is able to contribute to the price-setting process rather than simply responding to price spikes that have already occurred.

The AEMC asks about how compliance with dispatch instructions should be considered as part of scheduling. This is an important and interesting issue. Compliance with dispatch instruction is essential to the secure operation of the power system, according to the AER’s 2016 compliance with dispatch instructions, offers and bids compliance bulletin. The AER goes on to say:

“Failure to accurately represent capability or follow dispatch instructions distorts market forecasts and outcomes and inevitably affects other market participants in the NEM.”

While we agree with these statements, a strict compliance regime may place too great a burden on some demand response and in fact create a barrier to participation. We consider that any scheduling of demand response does need to allow for some variability in the demand of demand response providers.

Adopting the AEC’s registry rule change, with a review after several years would provide some data on the extent to which demand response providers have complied with dispatch instructions and whether a strict approach is even necessary. If demand response as an aggregate responded in a way that closely matched its scheduled instructions, then there may be no need for strict obligations. However, if demand response regularly failed to deliver what it was scheduled to, then there would be a good case to require closer adherence to dispatch instructions.

The AEMC has made a strong case around the nature of how demand response should bid into the market, by indicating it would prefer bidding as load rather than as “negawatts”. The AEMC’s arguments appear sound but may not work in all situations, particularly for behind-the-meter generation which acts as a generator rather than as load (though it could also be used to keep load at scheduled levels).

Should demand response be dispatched as load rather than “negawatts” then there is the question of how a DRSP or other participant would be rewarded with the spot price. Would it receive the spot price multiplied by the difference between the baseline value and scheduled demand, subject to actual demand meeting its scheduled demand? This scenario is marginally different from a situation where the provider receives the spot price multiplied by the difference between the baseline demand and the actual demand during the demand response event. This will influence settlement values in the NEM.

Decisions on scheduling will influence the allocation of risks in the market. If a DRSP or demand response aggregator is not exposed to the risks, such as high spot prices, of not delivering what was scheduled or bid, then those risks are simply transferred elsewhere in the market, such as existing retailers. This will inevitably lead to consumers facing higher prices in order to manage this risk.

¹⁰ Enernoc, Submission to AEMC’s Demand side obligations to bid into central dispatch rule change Consultation Paper, 2015



TEC, PIAC, TAI rule change

ERM Power considers that the key issues to discuss around the mechanism of this rule change are baselines and scheduling, which we have already done. We are pleased that TEC, PIAC and TAI have sought to address some of the concerns around the previous DRM rule change by proposing that demand response would bid into and be scheduled in the market. We believe this to be an important design choice. However, we are disappointed that they have included little, if any, discussion around baselines.

We have additional concerns around their proposed wholesale demand response mechanism rule change. Chiefly this relates to the mechanics of how customers would be billed, and the systems changes required to enable the DRM to take effect.

The three proponents have suggested that customers would be settled for their baseline consumption by their retailer and the actual consumption for their network costs. The main challenge with this design is that retail systems are designed to receive actual values from meter data and use this for billing purposes. It is unclear to us how retailers could receive a notice to tell them that consumption data for certain trading intervals is to be replaced by a baseline value. There is a further issue that customer's will then see two consumption datasets on their bill: actual consumption for network purposes and a separate consumption value for energy purposes. We believe that this runs the risk of disputes arising between customers and retailers over how they are billed.

Furthermore, our systems would have to change to allow this to occur. We would need to duplicate billing, forecasting and settlement systems to enable the baseline values to be incorporated. This is a complex and costly endeavour.

The rule change proponents also make several assertions on the costs of systems changes, asserting that they do not believe previous cost estimates from market participants and that retailers can manually adjust data until the cost-benefit of systems changes stack up. ERM Power's systems, and almost certainly those of other retailers, are not designed to be manually adjusted. They are designed to receive and use meter data. As such, to maintain the integrity of the system, we would need to make systems changes if this rule change is implemented. This will be costly.

We also firmly reject the suggestion from the rule change proponents that costs may be lower due to the changes required to implement systems changes for the five-minute settlement rule change. Simply because we are already making systems changes does not mean that any additional changes are relatively inexpensive. Adding in changes to cater to a wholesale demand response mechanism would alter the scope of existing changes resulting in more work as well as alterations to any work underway.

There are a huge number of changes taking place in the market at present, all of which are competing for time, skills and money to implement in a smooth and timely fashion. Adding another large change on top of this will not make it cheaper or easier.

ERM Power does not consider that the TEC, PIAC and TAI rule change will meet the long-term interests of consumers due to the costs, limited benefits and risks surrounding baselines. Furthermore, we do not see that this rule change will address the actual barriers to demand response, which as we have established are largely due to information asymmetry and the need for more education.

SA Government rule change

We have discussed our views on baselines and scheduling which are two of the key issues we believe are relevant to the SA Government's rule change. The SA Government's rule change primarily differs from the TEC, PIAC and TAI rule change in that it seeks to establish a demand response market that is separate to, but co-optimised with, the NEM.



We acknowledge that the purpose behind a separate market is to enable a quicker implementation that avoids costly systems changes for retailers. The SA Government is right to consider these issues. However, the reality of the proposal is that it would spread the actual costs of the market onto all consumers. This would create a situation where all consumers are paying for a service from which only a small sub-section of consumers benefit. We do not consider that this would be in the long-term interest of consumers. As such, ERM Power opposes the South Australian Government's rule change for a separate Wholesale Demand Response Market.

AEC rule change

We believe that the only one of the three rule changes that may help address the actual barriers to demand response is the AEC's demand response registry rule change. A registry would help improve the market's wider knowledge about the scale and appetite for demand response as well as help existing demand response providers in negotiations with retailers. This can be done at a far lower cost than the other two rule change proposals.

The operation of the proposed registry will also provide a helpful learning stage for the market. ERM Power considers that the first few years of operations of the registry will provide much needed information around demand response in practice. In this light, we consider the AEC's proposal of a market review after three years to be a worthwhile and important part of the rule change proposal.

We do not agree with all of the points set out in the rule change. In particular, we contend that the requirement for any load registered with a DRA to be classified as a scheduled load at all times or during certain period needs further consideration. There is a risk that these requirements, along with the voluntary nature of registration could lead to a situation where little, if any, demand response is registered as the costs of registration in terms of scheduling, may exceed any benefit.

Alternative approaches

ERM Power believes that there is an alternative approach available for some consumers who wish to enter into demand response arrangement but find that their retailer may be unwilling to do so. Customers could, if they wish, establish an embedded network with loads split across multiple NMIs and find separate retailers for their demand responsive load and other load. This would not require changes to systems and would constrain costs to those seeking to benefit. Third party demand response aggregators or service providers could even choose to become retailers for these specific demand responsive NMIs. The changes made as part of the Power of Choice review have created this as an option. For large facilities, the costs of doing this are unlikely to be material.

Metering costs have dropped dramatically for residential and small business loads in recent years, and new advanced meters would be suitable for smaller demand response facilities. For larger demand response facilities that might require more accurate metering (e.g. type 3), the metering costs are still likely to be trivial compared to the benefits available to the customer.

Conclusion

ERM Power is a strong supporter of demand response but we do not believe that a clear case has been made that there is an inefficient volume of demand response in the market, that there are genuine barriers to accessing demand response arrangements or that the costs of a demand response mechanism as part of the broader market will bring adequate benefits. In reality, there are a range of demand response providers in the market providing ample choices to customers.

To the extent that there are in fact barriers these largely relate to the broader energy market or the need for consumers to be better educated around how they can provide demand response through existing channels. The TEC, PIAC, TAI and SA Government rule changes will not address these barriers. In our view, they would in fact impose costs more broadly on consumers for little benefit.



Finally, the proposals for a demand response mechanism do not address the challenge of establishing accurate baselines that do not run the risk of gaming. The possibility for a widespread rollout of battery storage will only exacerbate these risks.

The only approach that ERM Power can support at this stage is the AEC's proposed wholesale demand response registry. The AEC's proposal is a low-cost opportunity to enhance transparency of demand response, and better enable demand response providers to negotiate terms with retailers. A review of the registry's operations should then take place after several years to identify what it has taught the market and whether further work on demand response is justified.

Please contact me if you would like to discuss this submission further.

Yours sincerely,

[signed]

Ben Pryor
Regulatory Affairs Policy Adviser
03 9214 9316 - bpryor@ermpower.com.au