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Submitted online to: <https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechanism>

Dear Mr Kelly,

Wholesale Demand Response Mechanisms
Reference: ERC0247

The Australian Energy Council (the “**Energy Council**”) welcomes the opportunity to make a submission in response to the Australian Energy Market Commission’s (“**AEMC**’s”) *Wholesale Demand Response Mechanisms Consultation Paper*.

The Energy Council is the industry body representing 23 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia, sell gas and electricity to over ten million homes and businesses, and are major investors in renewable energy generation.

Introduction

Demand response is attracting increased focus as a valuable part of the power system, and a means by which electricity users of all sizes can participate in the wholesale electricity market. This is evidenced by the AEMC contemplating three related rule changes simultaneously, one of which is from the Energy Council. The complexity of the different issues being considered suggests that the AEMC will need to embark upon a multi-stage process to evaluate the different proposals and contemplate the related issues, such as the outcome from technology trials presently being conducted by the Australian Energy Market Operator (“**AEMO**”) and the Australian Renewable Energy Agency.

While the attraction of demand response is self-evident, measurement is considerably more complex. In effect the activation of demand response seeks to measure the absence of consumption, rather than its presence.

Measuring an absence is, by its nature, complicated, and the implications for using assumed quantities such as baseline volumes exposes parties all the way along the supply and settlement chain to risks of inaccuracies, inappropriate treatment of quantities, and possible gaming.

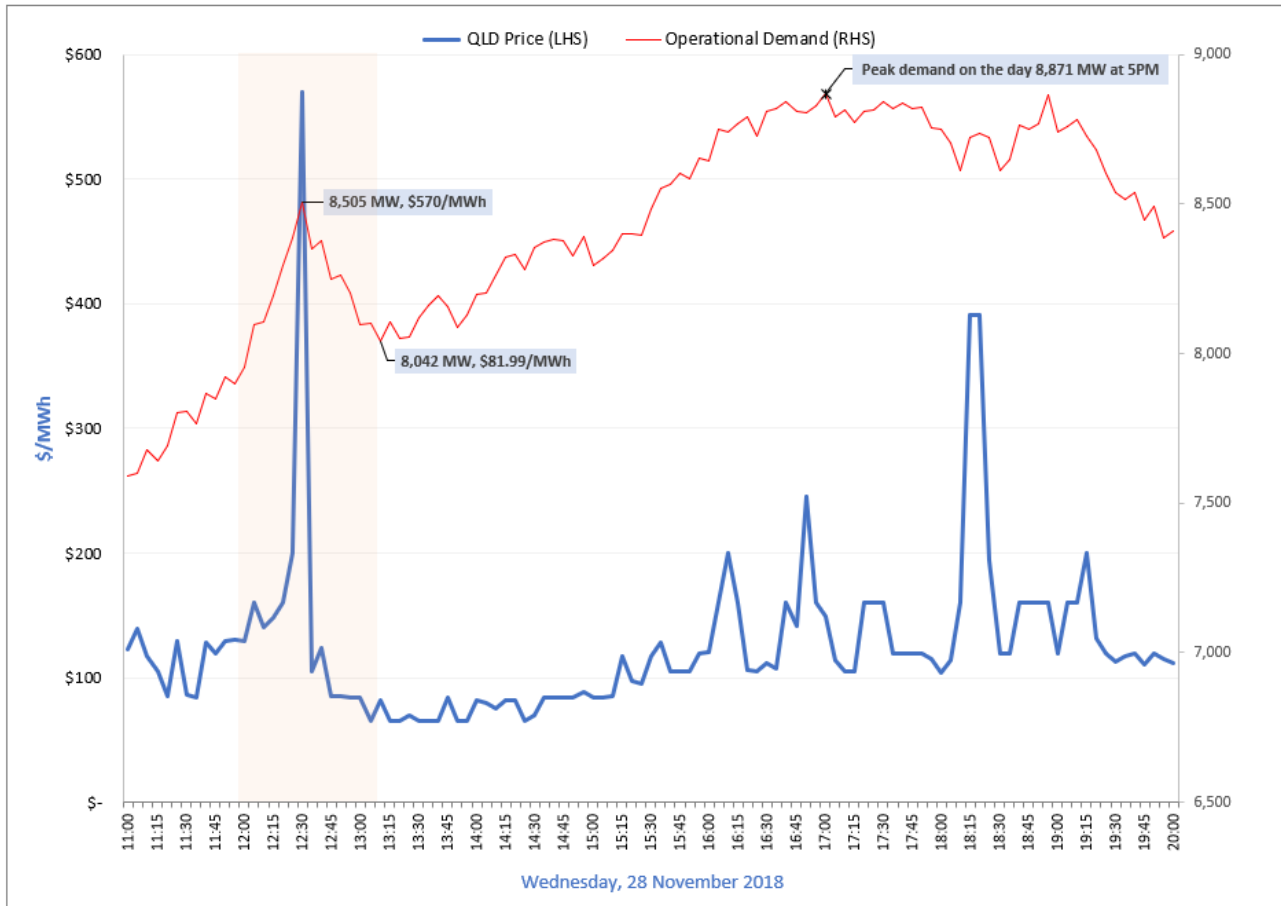
In contrast, the existing market settlement construct charges customers, or their representatives, for their gross consumption at the time they consume. This approach can rely entirely on undisputable physical measurement, requiring no behavioural estimations. At the same time, as AEMO is settling on actual usage at the real-time price, a customer with interval metering which employs demand response is able to achieve exactly the correct economic benefit for its use.

If an end-user wishes to receive a tangible specific payment for exercising demand response, this is entirely achievable in the current construct through negotiation with the customer’s representative, the retailer. The retailer will gain the benefit of reduced AEMO settlements, and can package this saving into a specifically itemised customer payment, should the customer desire it. Any errors in such a calculation will be contained to the two willing parties, and not passed onto others not party to the arrangement.

Discussion

Progress of demand response in the existing wholesale market

Demand response already exists in the market. Currently retailers have arrangements with customers obliging them to curtail their demand based on agreed market signals, and to an agreed extent. These arrangements are generally confidential to the parties, and obtaining specific data about them is much more difficult than, say, generation. However when the trends in demand are observed in the aggregate, it becomes clear that it is already quite widespread. An example of this is shown in the figure below, which demonstrates at least 400MW of unscheduled demand response reacting to a recent relatively moderate price event in Queensland.



Large industrial users such as smelters are readily able to contribute hundreds of megawatts of demand response to the power system and unsurprisingly such large users are the most mature sources of demand response.¹ In that regard the Energy Council recognises that its rule change is expected to be initially used mostly by these operations. It is suggested the same also applies to the other rule change proposals.

In contrast, small consumers such as residential properties can individually contribute kilowatts, and to have any effect on the power system their contributions must be aggregated, by either retailers or other parties such as demand response aggregators (“DRAs”).

Unfortunately the granular nature of smaller consumers means that there is a material risk that when called upon they will not respond as expected, unlike larger users which have more centralised control of their operations. However technology development is progressing, and it is expected that with the penetration of automated home management systems such as those of Redback Technologies, in the future DRAs will be able to call upon smaller consumers’ demand response with increased certainty. This was the basis for the suggestion in the Energy Council’s rule change request that any rule change be reviewed three years after it takes effect.

¹ <https://www.theherald.com.au/story/5456848/tomago-aluminium-hits-out-at-power-shortage/>

The problem of baselines

The uncertainty in demand response is embodied in the treatment of baselines. While all parties will attempt to set the most accurate baseline possible, trying to assess what would have happened had demand response not occur is inherently difficult. Consumers with regular processes such as manufacturing industries will have some ability to do this, although they will be affected by such considerations as weather and their order books, but smaller consumers will have significant more variation in their load, and baselines are less likely to be accurate.

This compromises the value of demand response, since it is important for the demand response being sought to be relied upon. This reliance on demand response contributions is fundamental to ensuring it can consistently displace alternative generation when called upon to do so. It should be noted, however, that it is not necessary for the demand response to participate in the market. The Energy Council recommends that the rules offer the flexibility for customers to decide, based upon their own circumstances, whether to contract with DRAs or retailers to provide demand response services, or participate in the market more directly, but subject to relevant customer protections being maintained.

Market exposure is not necessarily the preferred outcome for many consumers, and the Energy Council does not believe that consumers need to be directly exposed to wholesale price. While some linkage to the market (or perhaps simply signalling from the market) is valuable for encouraging efficiency, the role of retailers is to mitigate a range of risks (including price and volume) for their customers. Demand response is a value exchange between a customer and its DRA or retailer, and while there is an economic efficiency in doing so, there is ultimately lost production (in the case of commercial organisations) or reduced utility (in the case of domestic consumers).

However the Energy Council does believe that competition needs to be encouraged between retailers, and also between DRAs and other demand response contractors. Any framework established should encourage innovation and incentivise these parties (and others) to seek the maximum value from customers' demand response and compensate them for their abilities, taking into account parameters such as activation time, availability, duration and firmness of response. The Energy Council believes that the current settlement construct can permit this.

Implementation costs

It is also important that the costs of the different rule change proposals are considered. The Energy Council offers no comment on its own proposal, but in relation to the alternative proposals notes that changing billing and settlement systems would be a significant impost on the industry. As an indication of the order of magnitude, Seed Advisory in its *The case for a Demand Response Mechanism in the NEM: an assessment* reported that over ten years AEMO's costs were likely to be in the order of \$8-14m (2013\$), while the low case of market participants' costs would be \$112m (2013\$).²

Besides the questionable benefits to be reaped from the significant changes necessary to dispatch and settlement systems, the Energy Council has serious concerns about the increased risk of customers disputing their bills due to issues between baselines, actual, and expected consumption. Despite rigidly defined baselines, the Energy Council expects there will be argument that on a particular day they do not reflect how the customer would have used energy, therefore the invoice is inappropriate. The potential for dispute and ill-will between parties is enormous.

Transitional wholesale demand response market

The proposal to establish a transitional wholesale demand response market is opposed on a number of practical grounds.

Firstly, the benefits of demand response would be distributed to parties at effectively double their economic value. Retailers would continue to receive a benefit from curtailed demand by not having to pay for the electricity which would have been consumed, i.e. being long to the market. In addition, parties supplying demand response services would receive the current wholesale price multiplied by the deemed reduction in consumption. If a retailer used an affiliate for providing demand response services, it would have the effect of doubling its benefit. There would be a clear incentive for retailers to undertake this on all their existing demand response activities.

² Seed Advisory, *The case for a Demand Response Mechanism in the NEM: an assessment*, 16th December 2013, pp.31-32, available at <https://www.energycouncil.com.au/media/14857/seed-report-demand-response-mechanism-review-final-161213.pdf>

Secondly, the SA Government proposes that the cost of the demand response benefit be smeared across electricity users. This poses serious questions about the most equitable allocation method. For example, if it is to be allocated to those users consuming at the time the demand response is called, there will be increased incentive for consumers to curtail, beyond the economic need for demand response at that moment. As more customers responded, the incentive on the remaining customers to follow suit would spiral ever higher. This would result in more and more customers curtailing their demand, and the cost of such demand response being allocated to increasingly fewer and fewer customers.

The allocation methodology also poses challenges from a process point of view. For example, demand response in one region could have benefits for an adjacent region. Therefore should a proportion of the cost of providing demand response be allocated between both regions? How should such an allocation be fairly established?

Thirdly, the major costs associated with the development of baselines, revising settlement mechanisms and scheduling demand response are common between the SA Government's transitional proposal (ERC0250) and the Public Interest Advocacy Centre proposal (ERC0247). The implementation difference between ERC0250 versus ERC0247, which relate to debiting the payment from a retailer, appear to be trivial, and unlikely to appreciably accelerate the provision of the services to the market. The Energy Council supports the observation that, "AEMO's preliminary view is that establishing this separate market may require a substantial amount of time and resources in order to be implemented."³ Instead imposing such transitional arrangements is likely to slow the development of the complete mechanism, and distract stakeholders from other more pressing matters, for no purpose.

Finally, the Energy Council challenges the open-ended nature of the transitional arrangement proposed. Additional uncapped costs should not be accepted for such a proposal until the benefit of the proposal has been assessed and an equitable allocation arrangement determined.

Load shedding compensation mechanism

The Energy Council notes the AEMC's suggested Load Shedding Compensation Mechanism, and thanks it for preparing an idea which contributes to the debate. The economic rationale for the mechanism is understood, however it seems an excessively complex proposal to reallocate financial exposure to an infinitesimal amount of energy – that part of a retail customer's settlements that have been reduced by reliability load shedding. According to the Reliability Panel, unserved energy in the National Electricity Market ("**NEM**") last occurred in 2016/17 (0.00036% in SA), but before that it was only in 2008/09 (0.0040% in Vic and 0.0032% in SA)⁴ when the Reliability Standard was breached, and according to the modelling conducted by Ernst & Young, it is not expected to occur during the forecast term of the report.⁵

While it could be argued that a retailer's reduced wholesale settlement during reliability load-shedding is an imperfect allocation, the retailer has no influence over the selection of which customers are shed, so the Energy Council does not consider it causes any allocational inefficiency.

With respect to contracting incentives, the Energy Council considers it unreasonable to suggest that any retailers would contemplate purchasing less contractual protection for their customers in anticipation of their being reliability load-shed during high prices. The length of time the NEM has experienced high prices is orders of magnitude greater than the periods of actual load shedding, and for those latter short periods, the amounts being actually shed are very small. No retailer could have confidence that any of their own load will be selected for shedding during such an event. Thus such action would be most imprudent.

Determining the energy volume to compensate would be very complex. Like the rule changes themselves, the quantities are not measurable, and a new form of baselining would be required specific to reliability load shedding. This results in an additional implementation with all its attendant costs and risks. In some ways this implementation may be even more complex, as systems would have to be created for all customers, not just those registering for demand response. This would include customers without interval metering, such as load-profiled customers and Type 7 meters.

³ Consultation Paper, p.66

⁴ AEMC Reliability Panel, *2017 Annual Market Performance Review 2017 Final Report*, 20th March 2018, Figure 4.1, p.49

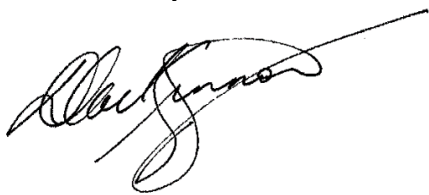
⁵ Ernst & Young, *Reliability Standard and Settings Review 2018 – Modelling Report*, 13th April 2018, Figure 5, p.29

Conclusion

In conclusion, the Energy Council believes the AEMC should conduct further consultation to consider the best framework for demand response, and how it should interact with the wholesale electricity market. In particular, the AEMC should consider carefully how baselines should be treated, and the significant ramifications for upheaving the existing dispatch and settlement systems at significant cost, in return for uncertain benefit. Instead the Energy Council recommends allowing flexibility in demand response arrangements, thereby fostering efficient, innovative solutions between parties keen to transact, and this should be explored with stakeholders further.

Any questions about this submission should be addressed to the writer, by e-mail to Duncan.MacKinnon@energycouncil.com.au or by telephone on (03) 9205 3103.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Duncan MacKinnon', with a long horizontal flourish extending to the right.

Duncan MacKinnon
Wholesale Policy Manager
Australian Energy Council