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Wholesale Demand Response Mechanism – ERC0247

Alinta Energy (**Alinta**) welcomes the opportunity to provide a submission to the Australian Energy Market Commission's (**AEMC**) Wholesale Demand Response Mechanism Rule Change *consultation paper* (**the consultation paper**).

Alinta is an active investor in energy markets across Australia with an owned and contracted generation portfolio of nearly 3,000MW, including 1,700MW of gas-fired generation facilities and 1,070MW of thermal generation facilities, and in excess of 1.2 million electricity and gas customers including more than 600,000 in east coast markets.

Alinta is committed to contributing to energy market development, including demand response, across Australia and in all regions of the National Electricity Market (**NEM**) as it pursues its forward growth strategy.

Introduction

Alinta has long held the view that the current NEM design incentivises demand response programmes through existing price signals. It is worth noting that in the past decade of NEM price rises energy demand has consistently fallen and several demand response products are currently in existence with many businesses and consumers taking advantage of these. This shows the market is functioning correctly.

Customers in the NEM currently participate in the energy market on the demand side, by adjusting consumption in response to price. This participation is already significant in the NEM but is relatively "hidden" from the system operator, in that demand response is not submitting formal bids nor being dispatched in a typical wholesale sense. Nonetheless it does exist and plays an important role in the market. If anything, it could be argued that the significance of demand response has been underappreciated given the proliferation of solar PV systems at the residential and commercial level, the participation in energy efficiency schemes and improvements in energy efficiency of new housing stock and appliances.

Economic Value of Wholesale Demand Response

At its essence wholesale demand response is not increased wholesale energy supply in a physical sense, rather it is foregone consumption. Demand response is a reduction in the "output" of one facility to enable another facility to operate, where the opportunity costs of each facility are markedly different. During times of extreme market or network stress, demand response can be an economically efficient response to market conditions. However, the total "output" arising from the provision of demand response does not increase, unlike normal generation capacity which does increase or expand the total amount of "output" that is produced within the NEM.

The economically efficient value for Demand Response is the foregone costs of energy ie where the choice to not consume is better than the choice to consume. In the same respect, the costs of demand response are the foregone enjoyment or production "output" arising from consumption at the new price times quantity equilibrium. If additional demand response is facilitated through a new wholesale mechanism in the NEM, it will act to shift the demand curve to discover a new price band based on less consumption.

As such, Alinta would encourage consideration of the potential consequences of any new mechanism which may act to compensate demand response twice. Once through the value of the opportunity cost of choosing not to consume and second through a direct payment which may act to conflict with the NEM's normal Cournot equilibrium. Paying the difference between the opportunity costs of both options potentially conflicts with the expected outcomes of setting the demand-supply equilibrium in the NEM.

This question of the economic utility and subsequent compensation of demand response has also been faced in overseas jurisdiction. It is worth noting that in the initial integration of demand response's in the PJM in the United States that:

> *...demand response providers were paid the full wholesale price for the energy supplied (or not consumed). This payment was made without any adjustment for the fact that the underlying load customer and/or retailer also benefitted from a reduced energy bill consequent on having curtailed load. Over time PJM's mechanism was adjusted to reduce the payment to the demand response provider to take into account the parallel benefit (reduced energy bill) for the underlying load…*
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> AEMC, International Review of Demand Response Mechanisms, pg 77 (2015)

These experiences illustrate the complex challenges the AEMC faces in determining an appropriate economic valuation of demand response in the NEM and are worthy of close investigation.

In this respect, Alinta remains of the view that competitive markets are shown to evolve to capture innovation as retailers and other participants provide the demand response products and benefits most valued by consumers. Over time, competitive markets will uncover the economically efficient value of demand response programmes.

Baselines

The consultation paper correctly identifies several of the complexities and costs related to the treatment of baselines and their importance to a functioning wholesale demand response mechanism.

Many of the challenges relating to accurate baseline construction are that a customer's electricity consumption profile is "private" in the sense that it is only known and truly controlled by the customer, who has superior information about their baseline consumption than any market operator ever could. This risks creating both:

a) **moral hazards:** because demand response payments are directly linked to a baseline. Therefore, moral hazards exist for customers to inflate their baselines. Eg by turning off on-site generation to artificially inflate consumption immediately before a peak period; and
b) **Incentives for gaming:** demand response programmes have been known to disproportionately attract customers who may anticipate lower energy consumption in future periods for reasons unrelated to the demand response mechanism, eg they are scaling back production because of economic conditions. Therefore, there is a risk that these customers will attract payments for demand response which would have occurred anyway.

In addition, the development of consumption baselines comes with material corresponding costs in terms of both time and resources for AEMO relating to the ongoing monitoring, forecasting, and settlement dispute mechanisms for the setting and maintenance of baselines.

Alinta's preference remains for the construction of a wholesale demand response register disaggregated model, which moderates some of the more material baseline administration costs and associated hazards.

Nonetheless, should a decision for a centrally administered model be made, Alinta is encouraged by the consultation paper's identification of the attributes of the baseline model utilised in the Singapore National Electricity Market.

Alinta understands that the Singapore model avoids the need for an administratively-determined baseline, whereby demand response providers/aggregators themselves notify the quantity of energy that will be consumed if their demand response is not dispatched, as well as the quantity of energy that will be "supplied back" if the demand response is dispatched. Demand response providers and aggregators are then subject to strict financial penalties if actual consumption does not correspond to the notified quantities (AEMC, International Review of Demand Response Mechanisms, pg 78 (2015).

Alinta's preference remains for the construction of a wholesale demand response register, nonetheless, should a decision for a centrally administered model be made, the Singapore model is worthy of further consideration by the AEMC.

Implementation Costs

The AEC proposal for retailers being required to negotiate in good faith to enter into or maintain commercial demand response relationships with third parties places a number of administrative and compliance cost obligations on retailers, which should be considered in full by the AEMC.

In relation to the alternative proposed mechanisms, substantial implementation costs will be associated with changes to AEMO's settlement processes, billing systems, dispute mechanisms, baseline construction and metering and other associated infrastructure investments, on an ongoing basis to facilitate demand response.

Under these range of options to be considered by the AEMC, Alinta may be required to significantly alter settlement systems processes, IT systems, as well as manual processes to accommodate billing systems to house baseline estimation methodologies. For a growing retailer in the east coast who is attempting to increase competition, these costs represent a real cost of doing business[1].

In addition, Alinta would encourage the AEMC to consider the indirect costs and risks retailers may be exposed to. There is a potential scenario whereby original retail contract propositions made by a retailer to their customer could be undermined under a future wholesale demand response mechanism, by a third party who seeks to utilise and monetise that customers load. In doing so the original retailer, having offered a competitive price (at the original point in time) may find that their offer to the customer is no longer appropriate or is now distorted in some form. This forms an indirect cost on retailers which takes the form of rapidly changing risk profiles which may become unmanageable overtime.

These market costs require close consideration by the AEMC with the potential for being subject to a full cost benefit analysis at a later point in time.

Participating as Scheduled Load

Alinta considers that the model proposed under the wholesale demand response register model, appropriately provides for demand response to be classified as scheduled load or alternatively could remain "dormant" until activated by a market signal, eg LOR notice.

Having demand response scheduled (or dormant-ly scheduled) into the market improves the accuracy of AEMO's and participants forecasts in a manner which is transparent, subsequently creating significant operational efficiencies as participants can plan their operational running profiles and strategies according to the most accurate demand-supply window available.

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[1] *At this point it is also worth noting the current Five-Minute and Global Settlement workstreams which are currently requiring participants to undertake substantial wholesale systems upgrades and investments. The addition of a potentially new large systems upgrade requirement relating to a wholesale demand response mechanism, represents another impost for market participants.*

The equal treatment of scheduled loads has important dynamic efficiency implications for the market. Alinta is of the view that dynamic efficiencies are the driver of longer term sustainability in the market. Cost-reflective pricing, a level playing field for all generation plant type, coupled with light-handed regulation will drive dynamic efficiency over the longer term in the NEM and will ensure an efficient level of effective demand response makes itself available to the market in its various forms naturally. In practise, Alinta is of the view that this means demand response should participate and be subject to as equal terms and obligations, as other generation plant type wherever possible.

In relation to costs of participation, Alinta understands the majority of existing demand response aggregators as well as large mature industrial loads already closely monitor the market price in real-time and are thus well placed to participate in a scheduling process, as such the costs of participation are thought to be low.

Inclusion of embedded generation and energy storage

Alinta agrees that developing baselines for embedded generation and storage is challenging to undertake accurately. Numerous factors impact the patterns of consumption for customers with embedded generation and storage technology. Incentives to generate or discharge and store energy will be impacted by many factors and incentives to participate in any demand response mechanism will depend on an individual customers preferences, equipment and objectives to do so.

Under the proposed wholesale demand response register and separate wholesale demand response mechanisms, inclusion of embedded generation and storage accurately will be subject to significant margins of error and as discussed above, may be overcompensated given the benefits associated with the opportunity cost of avoided consumption and existing feed in tariffs (some of which are substantive and not reflective of the value of embedded generation in the wholesale market).

To address uncertainty associated with baselines and determining the benefit of demand response associated with embedded generation and storage, something akin to the Singapore model described above would assist to incentivise accurate baselines to establish the value of avoided energy during high price periods.

Furthermore, the market is already progressing the integration of such technologies through peer-to-peer trading trials, monitoring software, remote signalling and control systems for loads with embedded generation and batteries.

For these reasons, the inherent uncertainty involved to accurately calculate the volume of demand response where embedded generation and storage is installed, coupled with existing sources of benefits and subsidies available, the approach applied in Singapore could minimise errors in baseline estimates.

Other Considerations - Regulation and Codes of Conduct

Retailers currently have a regulated relationship with AEMO, the AER, and other Government bodies providing a standardised framework for the regulation, settlement and control of demand response. However, some of the alternative wholesale demand response mechanisms considered within the consultation paper propose changes to the settlement process and overall relationship between third parties and AEMO, in a way that differs from the traditional retailer led financially responsible market participant relationship.

Given the potential scope of such changes, Alinta would encourage the AEMC consider the issues relating to regulation and codes of conduct, which may potentially arise. For example, presently licensed retailers who provide demand response products are subject to regulation, compliance and codes of conduct which are designed to protect consumers from unscrupulous commercial behaviour and/or misrepresentations. Complying with these codes of conduct are a prerequisite condition of retail licensing evaluation processes, providing an ongoing incentive and obligation for retailers to provide fair products to their customers and which in doing so requires considerable resources in terms of systems, processes and personnel resources.

Alinta would encourage the AEMC to consider that under any potential structural changes to the AEMO, Retailer, FRMP relationship, that customers maintain these existing levels of protection.

Conclusion

Alinta looks forward to participating in the ongoing consultation process and would encourage consideration of the points raised above.

if you have any queries in relation to this submission please contact me via email: anders.sangkuhl@alintaenergy.com.au or by phone 02 9375 0992 or Mr David Calder via email: David.Calder@alintaenergy.com.au or phone 03 9675 5359.

Yours sincerely,

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