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21 December 2018

Mr John Pierce
Chairman
Australian Energy Market Commission
Level 6, 201 Elizabeth St
Sydney NSW 2000

Dear Mr Pierce,

RE: ERC0247 Wholesale Demand Response Mechanisms

Flow Power welcomes the opportunity to provide this submission regarding the proposed wholesale demand response mechanisms rule change. Flow Power strongly believes that an appropriate rule change is both timely and necessary. Current arrangements do not properly facilitate nor incentivise demand response. We firmly believe that more appropriate arrangements would better facilitate the realisation of this demand response.

Demand response is more than just a binary resource. This rule change needs to consider the value proposition to both the market and the customer.

A key aspect of Flow Power's business model is assisting customers to obtain better value through their electricity purchase arrangements, and demand response is a crucial component for many customers. Through our work, we fully understand and appreciate the issues any rule change would need to address if demand response is to be more fully and efficiently realised. These issues are as follows:

- Provide visibility of demand side participation to all market participants;
- Incentivise the growth of demand side participation in the market;
- Increase competition in the products and services offered to customers, and the market generally.

Flow Power believes these outcomes can be achieved in the most efficient and timely manner through a version of the proposed wholesale demand response register as proposed by the Australian Energy Council.

Furthermore, we strongly oppose any models that would involve the creation of another market or would involve the use of a baseline for payments.

The reasons for this are as follows:

- On a fundamental basis, the current spot market provides the correct value signals to incentivise demand response and provides a pathway for the permanent integration of a

demand response mechanism into the spot market. Moving away from this is distortionary and has high risk of gaming and inefficient outcomes;

- The creation of a separate market to manage demand response is an inefficient and costly approach:
  - There would be a high risk of inefficient outcomes
  - It would require significant investment of time and money, and these costs would be imposed on all market participants
  - It would be a transitional market only, which would be abolished when a permanent demand response mechanism is integrated into the spot market;
- Much has been written on baselines and the issues of gaming and complexity. These are clearly problematic to demand response and are to be avoided.

In developing any new arrangements, Flow Power would like to emphasise the need to properly appreciate what demand response is and how value is obtained. In relation to this the following are noted:

- We strongly object to the premise behind the discussion points raised in Appendix D – the load shedding compensation mechanism. By treating load shedding as a viable proposal to the demand response mechanism, the proposal fails to recognise the clear distinctions between demand response and load shedding. This proposal fails to appreciate the nuances and potential for demand response in the wholesale market. Instead, it reduces demand response to a brute force instrument of last resort. The purpose of this proposed rule change is to facilitate and encourage demand response in the wholesale market. Involuntary load shedding is already provisioned in the National Electricity Rules, and simply paying customers for its activation does not increase the appeal or desirability of loading shedding in the NEM;
- The arrangements for demand response and its proper value will need to fit into potential future arrangements such as a reliability obligation under the National Energy Guarantee.

The remainder of the submission presents:

- Issues fundamental to this discussion; and
- Details of a modified wholesale demand response register being a far preferred solution to the others forwarded in the consultation paper.

We believe our proposed solution would be a positive addition to the NEG framework currently under debate. We would also suggest that the modifications need to consider the changing market rather than what has happened in the past.

If you have further questions, please contact Liz Fletcher on 0417 080 535 or email liz.fletcher@flowpower.com.au

Yours sincerely

Matthew van der Linden

Managing Director

Demand Response Fundamentals

While there are many issues important to this discussion the following are central:

- Current character of demand response (DR);
- Capacity - demand response and generation;
- Scheduled loads.

These are discussed in turn below.

Current character of demand response

Current implementations of DR in the market are unsophisticated. They are generally binary – responding to hard set price point (i.e. >$1,000/MWh) or to a clear signal (e.g. RERT).

DR can be much more nuanced in the market – different customers have different price sensitivities, different physical characteristics (amount, rate and length of response) and seasonality. DR resources are ripe to offered in pricing and volume bands just as a generator is, with different response capabilities (i.e. fast start profiles)

Capacity - demand response and generation

Fundamentally a load is not equivalent to a generator, and any rule change must recognise this difference.

Although there are key differences between a load and a generator, this does not make demand response resources any less useful to market. It simply changes the considerations in implementing a demand response mechanism.

- DR resources will invariably be distributed and aggregated – this has several benefits compared to a generator:
  - DR resources can be brought into the market with no network augmentation required. Large DR portfolios equivalent to significant generation assets can be 'built' with extremely low capital investment
  - DR resources are capable of not only providing energy requirements but also relieve network congestion when dispatched;
- Ultimately, DR resources consist of loads owned by businesses, whose primary focus is not the energy market. Customers may choose to abstain from providing DR, even in times of forecast or actual LOR conditions, dependent upon business objectives. This needs to be factored into the considerations when operating DR in the market. Unlike a generator, operation does not solely depend on the spot price, processes and downstream customer demands are extremely important factors;
- Based on the above, issuing a direction against a DR resource (made of individual loads) may not be realistic. Currently scheduled loads can be issued directions by AEMO and can also be declared non-conforming;
- Long term forecasting and scheduling of loads in many cases is extremely difficult. This is at odds with the current requirements of AEMO and the relative ease of scheduling of generators;

- The physical parameters of a DR resource are more complex to define than for a generator. Customer demand is dependent on the number and intensity of processes being operated at the site, as well as weather and other factors that impact the demand. Defining precise ramp rates and minimum and maximum operation for a load is not as clear as for generators. It can be done, but the parameters may need to be broader;
- Installation of market grade metering capable of providing SCADA input to AEMO is not a realistic proposal for aggregated DR portfolios made of large numbers of smaller-sized customers. As such AEMO may need to relax requirements on the real-time data requirements. Settlement can still be done ex-post on market meters.

Scheduled loads

- The implementation of scheduled loads is currently very unattractive to customers; without significant change they are unlikely to increase in appeal;
- Propose that current definitions/rules around scheduled loads needs to change – too onerous, especially in the ST PASA and MT PASA timeframes;
- Challenges in dispatching loads though NEMDE – SCADA/telemetry, non-conformances, baseline issues (i.e. actual demand is different to historical or estimated), measurement of load;
- Causer pays applying to scheduled loads would be extremely unfair on customers who have high degrees of variability in unit behaviour (process, air-conditioning loads varying significantly throughout the day or year, baselining/measurement taken at a single point in time, loads don't have dedicated on site staff to energy/market matters).

Under the existing AEC proposal for the register, loads could be registered as dormant as an alternative to being always scheduled, only becoming active when desired in the market. However, these dormant loads are still able to be called upon by AEMO during lack of reserve (LOR) conditions. Firstly, it is unclear whether this would be forecast or actual LOR conditions – the difference is significant. Secondly, this is potentially an onerous requirement on customers, there are reasons customers choose not to be active participants in the market. Enacting demand response resources in response to LOR conditions is a blunt force method which could hinder the signals to shift rather than drop load.

Requirements during LOR conditions should potentially be maintained separately, as already managed with the RERT mechanism.

Detailed Response - Wholesale Demand Response Register

The follow responses are in relation to specific concerns noted above and throughout the consultation paper.

Proposed solution

Flow Power supports a mechanism based on the proposed wholesale demand response register in which retailers are required to offer a pricing plan reflective of the actual market, either through a spot pass through or other innovative products. This will ensure that there are sufficient incentives to customers to reduce their energy costs and provides greater insight into the market.

Additionally, Flow Power supports the provision of real time data by demand response aggregators to the market operator (AEMO) to facilitate greater transparency of the real time DR resources in play in the market and the overall responsiveness of demand side to the market. This could be

done through the installation of direct metering, utilising existing data streams at consumer sites (e.g. building management systems, process control systems) or through verified methods of estimation.

AEMO has already developed a register of active demand response participants in the market through the introduction of the Demand Side Participation Information Portal in March 2018. This system could easily underpin the development of the wholesale demand response register.

The register fundamentally puts the onus for developing attractive pricing and innovative delivery models on the aggregator. This is looking towards the future.

The Register

In relation to the register the following are noted:

- Demand response aggregators recruit customers, and submit capability and connection point details to AEMO;
- DRAs install metering, develop telemetry based on existing installations at consumer sites or develop models for estimating the real time load at consumer sites. This data is provided to AEMO for use in NEMDE and forecasting;
- Demand response aggregators could negotiate consumer contractual arrangements with retailers – this could take the form of spot price pass through, adjusted hedging arrangements or price penalties for customers during high price events. These arrangements will inform the pricing model between demand response aggregators and customers;
- Demand response aggregators develop portfolios of demand response resources and submit offers to AEMO for dispatch. DRAs are wholly responsible for managing and coordinating the offer and pricing process and the distribution of dispatch instructions to customers;
- During settlement retailers pay DRAs based on contractual arrangements. The DRAs make payments to customers;
- More sophisticated DRAs would be able to increase the value proposition of providing demand response by offering additional network and FCAS products to customers.

The role of the aggregator

In relation to the role of the aggregator the following are noted:

- Responsible for developing innovative pricing and implementation plans to recruit and maintain customers;
- Negotiating pricing models with retailers (FRMPs);
- Responsible for installing metering or alternative mechanisms of telemetry or estimation to provide real time visibility to the market operator;
- Bidding DR resources to the market;
- Aggregating DR resources into portfolios based on physical characteristics – price sensitivity, network location, speed of response, length of response;
- Potential for DRAs to develop and price a physical hedging product that could be offered on the ASX.

The role of the retailer

In relation to the role of the retailer the following are noted:

- The FRMP is accountable for the customers' energy costs;
- Negotiating pricing models with DRAs;
- Based on the size and profile of customers on the register re-hedging the portfolio or offering spot price pass through or fixed price payments.

Reasoning for supporting the register

There are number of reasons Flow Power supports the implementation of a demand response mechanism through the register, articulated below.

- Of the three proposed demand response mechanisms, the costs imposed to AEMO by the register are likely to be the lowest. AEMO has already implemented the demand side participation information portal which could serve as the basis for the development of the register. The register could be used to provide estimated demand profiles for planning purposes without significant investment in systems. Because the demand response aggregators participate using scheduled loads, very little changes are required of the NEM Dispatch Engine (NEMDE);
- Registration of demand response or behind the meter resources at a given connection point is not mandatory, allowing customers to continue existing price-responsive or on-site generation activities. This change would allow demand response aggregators to provide an increased incentive to register and unlock further value for customers. Demand response aggregators could provide this by stacking the value of demand response, FCAS and network support activities. These activities are currently difficult to provide by individual customers but would be readily achievable by DRAs;
- Does not put undue prudential requirements on customers or DRAs which serve as a current barrier to entry. Retailers still maintain the prudential requirements for customers in the market, continuing the existing arrangements in the market;
- The register removes the reliance on baselines and simplify the data streams. As identified in Section 5.2.3 of the consultation there are a range of issues around the design and implementation of baselines. Baselines have the potential to allow gaming in both directions (beneficial and detrimental to the consumer) which go against desired market outcomes. They also have the potential for negative pricing outcomes where the dispatch price based on baseline demand is higher than the actual dispatch price. This could eventuate in situations where an extremely high price in pre-dispatch encourages a range of responses from market participants (including demand response) leading to complex outcomes. This kind of situation will do little to encourage customers from adopting demand response;
- Costs to customers providing demand response through the register are likely to be significantly lower compared to be actively dispatched and paid according;
- The timeline for implementing the register is significantly shorter than creating a separate transitional market for demand response or implementing full market exposure to demand response service provides. The register could also be implemented and refined over time through iterations, with minimal disruption to the existing market.