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

Dear Declan

Re: Wholesale Demand Response (WDR) Mechanism Rule Change (ref: ERC0247)

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide the Australian Energy Market Commission (AEMC) with our comments on the Wholesale Demand Response (WDR) Rule Change Consultation Paper (the Consultation Paper).

Tesla supports the work that the AEMC is undertaking in this space. The focus on increasing customer participation in existing energy markets is an important evolution in the energy market – and recognises the role that controllable distributed energy resources (DER) can play as active energy market participants. This work complements the work that the Australian Energy Market Operator (AEMO) is undertaking in respect of the NEM Virtual Power Plant (VPP) Demonstrations. It also complements the AEMO and Energy Networks Australia (ENA) work program on Open Energy Networks (OEN).

Of the three rule changes put forward by different proponents and summarised in the Consultation Paper, Tesla is most supportive of the rule change submitted by the Total Environment Centre (TEC), the Australia Institute (TAI), and the Public Interest Advocacy Centre (PIAC). Specifically we support the establishment of a wholesale demand response (WDR) mechanism and the creation of a demand response service provider (DRSP) classification which would allow third parties to offer demand response bids directly into the wholesale energy market.

A full overview of our preferred position is below. Our preference for the WDR mechanism should also be read in conjunction with our comments on export – and opportunities to expand the WDR mechanism beyond what is currently proposed.

A summary overview of our position in respect of the proposed WDR mechanism is below:

- Tesla supports market openness and the future ability of aggregators or operators of demand response assets to be able to participate directly in the existing wholesale energy market.
- We also believe that the WDR mechanism would be more efficient if it allowed for optimisation of services. The key risk associated with this Rule Change and the issues explored in the Consultation Paper is that it focuses only on energy, and only on load reduction.
- We encourage an approach that allows DRSPs to provide both energy (generation and load side) and frequency services (generation and load side) under a single market classification. For the purposes of the Consultation Paper:
 - We believe that the AEMC would achieve more efficient market outcomes if the WDR mechanism also allowed for price and demand responsive exports into the wholesale energy market. The current treatment of “negawatts” should be reviewed.

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- This Rule Change should consider co-optimisation and all lessons from the AEMO VPP Demonstrations work program, so DRSPs are able to provide FCAS as well as energy.
 - Tesla does not believe a new demand response market needs to be set up. As much as is practicable, aggregators of demand response should comply with the existing national electricity rules (NER) in respect of bidding and dispatch arrangements. Creating a separate market specifically for demand response may result in higher costs for consumers. Allowing for increased competition in the market will improve the ability of least cost assets to participate in the markets and reduce costs.
 - There is more work to be done in respect of treating aggregated assets as a scheduled load. AEMC should first look to trial how assets are aggregated for dispatch, the level of data that is provided, and then consider the need to treat participants as scheduled loads.

Preferred approach

Of the three rule changes received by the AEMC in respect of better integration of demand response into the wholesale energy market, Tesla's preferred approach is the WDR mechanism proposed by TAI, TEC and PIAC.

We believe this approach is most likely to increase competition in the markets and provide new commercial opportunities for end-use consumers. We note the point made by the AEMC in the Consultation Paper regarding the mismatch between the way most retailers purchase electricity and how they recover costs from consumers, and the impact that this has on the ability of a small customer to reduce their consumption in response to price signals. This proposed Rule Change seems best placed to address this issue.

Response to AEMC Consultation Questions

Question 2: Nature of the issue raised and competition for demand response under existing arrangements?

Historically, as noted by the AEMC in this Consultation Paper and the previous Reliability Frameworks Review, a number of customer demand response programs have been based on dispatch of instruction to customers to manually change their energy consumption patterns and receive compensation on this basis.

This approach does not take into account the evolving distributed energy resource (DER) technology space that allows for remote and instantaneous charge and discharge of customers assets, without the consumer needing to manually switch off loads. For example, a retailer, or a third party operator of DER including residential battery energy storage system (BESS) assets could remotely discharge an individual BESS asset in respond to a market price signal. This would reduce the customers draw from the grid providing effective demand response.

The WDR mechanism proposed by TAI, TEC and PIAC would likely result in the most effective measure of increased competition for demand response services, and drive continued technological development in this space, and reduce the need for reliance on manual signals to reduce behind the meter demand. This could be managed through both third party aggregators and retailers under this model.

The unbundling of the customer financially responsible market participant (FRMP) and frequency control ancillary services (FCAS) through the introduction of a market ancillary services provider

(MASP) classification provides precedent for multi-party trading relationships behind a customer meter.

In respect of the South Australian Government suggestion of creating a separate transitional wholesale demand response market, Tesla believes this may not create the market outcomes that the Rule Change process is looking to achieve. The focus of this Rule Change is on increasing competition in the existing markets and better allowing customers to directly respond to market price signals. Creating a demand response market only, will not provide AEMO with an accurate representation of how assets will participate in the existing wholesale energy market. In addition it may result in additional costs being passed through to consumers, rather than increased competition and cost reduction.

Rather than introducing a separate transitional market, Tesla supports the work that is being undertaken by AEMO and the Australian Renewable Energy Agency (ARENA) in conducting initial out of market trials. While DRSPs should be required to meet the bid and dispatch requirements outlined in the NER, there are likely to be some areas that need recalibration to properly allow for market participation from WDR providers. A number of these areas are outlined below.

Question 3: Wholesale Demand Response currently in the NEM

N/A

Question 4: Approach for facilitating price responsive demand

As noted in the Consultation Paper – Tesla is in the process of delivering the second phase of a South Australian Virtual Power Plant (VPP). The second phase will focus on the deployment of 1000 5kW solar systems and 5kW/13.5kWh Tesla Powerwalls on South Australian Housing Trust homes.

In the longer term enabling DER full market participation through VPPs and other similar approaches to aggregation will be the best option for facilitating full price responsiveness. VPPs are the subject of a separate AEMO trial process at the moment, it will be critical that market rule changes arising from this Consultation Paper is complementary to the broader DER/ VPP work program as they all consider different areas:

- The AEMO VPP trial which looks to address limitations for VPPs under the existing rules regarding participation in FCAS markets (such as limiting participation to load side only).
- This WDR Rule Change consultation and associated trials from ARENA and AEMO, looking at how multi party trading relationships might be introduced for wholesale energy market participation.
- The AEMO and ENA OEN considering the introduction of an appropriate DSO model to facilitate operating envelopes for VPP market participation.

There is no one solution, or individual piece of work that will result in improved demand side access to wholesale market participation. It is the combination of all three of these work streams that will result in a more holistic reform of the current energy markets and approach to customer access.

Importantly, all reform in the DER space should focus on the following core principles:

- **Co-optimisation** – the best market outcomes will be achieved where assets are fully co-optimised. Ideally DRSPs should be able to provide both energy (generation and load side) and frequency services (generation and load side).

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- **Automation** - Focus on automation and minimal customer interference. The best way to enable demand side participation will be through third parties automating market access on behalf of aggregated customers without requiring customer behavioural change. This results in increased transparency, and certainty of bids, and better customer outcomes.
 - **Competition** – improving opportunity for retailers and third party aggregators to better use DER will create increased customer choice and improved market competition, and better use of least cost resources.

Tesla would like to see the results from all of the individual work streams underway, result in an energy market approach that is fully enabled for DER participation under a single market classification.

Question 5: Efficient consumption of electricity

Agree with the AEMC assessment that the introduction of an effective demand response mechanism will increase competition and should lead to a least cost combination of resources that will offset higher cost generation – particularly peaking generation.

To fully achieve this aim, the WDR mechanism should, however, allow for export. In the longer term, Tesla also believes that the most efficient market outcomes will arise where co-optimisation is encouraged and assets are enabled to provide multiple services within a single dispatch period.

As noted above, we would also like to see all services able to be provided under a single market classification.

Question 6: Competition for wholesale demand response services

N/A

Question 7: Demand Response participating as a scheduled load

Tesla agrees with the need for transparency and visibility of assets – however automatically classifying DRSPs as Scheduled Loads may not be the best approach.

In the first instance we would encourage the AEMC to follow a similar approach to the AEMO VPP Demonstration program, where asset data is collected in aggregate at five minute intervals. This will provide full transparency without the additional administrative implications arising from being treated as a Scheduled Load.

There are a number of areas that require further consideration and explanation from the AEMC and AEMO in this space, as further consideration is given to the design of the WDR mechanism. Specifically:

- At what size would the aggregated asset base need to be scheduled? The Consultation Paper points to two rule change requests from 2015 that would require price responsive loads with maximum demand of more than 30MW, and non-intermittent non-scheduled generators with nameplate generation capacity 5 MW or greater. The Consultation Paper does not suggest a size at which scheduling will be required under this process. This needs clarification.

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- Where would demand response forming the bid be measured – will the relevant performance requirements apply at an individual asset level? If so what are the metering requirements?
 - Causer pays risks – as above, the measurement of output forming the bid will also impact on causer pays liability. The ability of a market participant to absorb this risk will depend on a number of factors, including portfolio size and how the causer pays factor is applied.

When considering the treatment of aggregated demand response as a scheduled load, the Consultation Paper also touches on two other critical issues – the treatment of electricity exports and the use of baselines. These issues are considered in more detail below.

Treatment of electricity exports

As noted throughout this response, a major implication related to the treatment of aggregated assets as a scheduled load, is that it does not cover the export of excess generation into the market for a wholesale price.

The Consultation Paper notes the following “If demand response participates as a scheduled participant in the wholesale market, this should potentially occur as a load as opposed to a proxy generator submitting bids for ‘negative load’. For the reasons noted above, we believe this approach is inefficient.

As an example, under this approach if the members of a participating household were on holiday, thus using only minimal electricity from the grid, but also had an existing solar and BESS assets, these assets would sit idle, rather than be used for export back to the grid in response to price and peak demand signals, at a marginal cost. This approach seems counter to the AEMC’s aim of creating a combination of least cost resources, and does not create good market outcomes for either the customer or the DRSP.

While we support the work that the AEMC is undertaking in respect of considering the introduction of a WDR mechanism, it is important to note that the approach proposed does not recognise the full value that can be achieved from bi-directional resources.

In our previous response to the AEMC Reliability Frameworks Review, Tesla made the following comments in respect of the proposed demand response mechanism:

- The AEMC should, however, note the limitations associated with introducing a demand response mechanism. Any demand side mechanism introduced will limit the functionality of behind the meter assets to the load side.
- This is a particular issue in respect of behind the meter battery storage assets which are capable of providing both load and generation side services.
- This issue has recently arisen in respect of the current market ancillary service provider (MASP) mechanism which similarly limits frequency services from DER assets to the load side services; and which is subsequently being considered for expansion to generation side services through the AEMC Frequency Framework Review process. We would encourage AEMC to explore whether it is possible to create suggest a more comprehensive mechanism that also allows behind the meter storage assets to export excess energy not being used by to serve household load.

If this Rule Change process is looking to truly create efficient market outcomes it needs to allow for price responsive electricity exports as well as behind the meter load management.

In addition, as noted above, the AEMC should look to integrate the findings of the AEMO VPP trial to create a market classification that allows for full co-optimisation of assets in the energy and frequency markets.

Use of baselines

A further point relates to the use of baselines. These are likely going to be complicated to establish and will require the detailed consideration of the AEMC. Tesla is happy to support the AEMC through the baseline development process to establish an approach that fairly recognises performance and avoids market gaming.

Conclusion

Tesla supports the ongoing work undertaken by the AEMC in improving access for DER resources. We welcome the opportunity to engage further and provide any additional information on any of the points raised above. Please contact Emma Fagan at (efagan@tesla.com) for more information.

Kind regards



Mark Twidell

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