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AEMO – NEM Virtual Power Plant (VPP) Demonstrations Program

General Comments

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide comments back to the Australian Energy Market Operator (AEMO) in respect of the proposed NEM Virtual Power Plant (VPP) Demonstrations Program – Consultation paper (the Consultation Paper). The VPP trial provides a great opportunity for VPP operators to demonstrate the broader benefits that distributed energy resources (DER) can provide to the market, and start to address some of the regulatory barriers which prevent the full participation of existing active DER in all current energy and frequency control ancillary services (FCAS) markets.

We look forward to working closely with AEMO throughout this process to develop the appropriate technical requirements and regulatory framework. This Trial represents an important step in recognising the value that can be provided from customer assets, and will lead to increased customer choice and new offerings.

The VPP trial also complements work underway by the Australian Energy Market Commission (AEMC) in respect of the development of a wholesale demand response mechanism, and the demonstration of multi-party trading relationships for behind the meter assets. The two reform pieces may collectively provide a pathway for both full utilisation of customer assets, as well as exploring new models for market participation – additional to the three models that are outlined in the Consultation Paper. Specifically we may see new models that allow for third party aggregators to directly participate in both the energy and FCAS markets on a fully optimised basis.

For more information on any of the responses contained in this submission, please contact Emma Fagan at efagan@tesla.com.

Response to Consultation Paper questions

Question 1.1: The primary focus of these trials is to demonstrate VPP aggregating battery storage systems. Do intending participants envisage incorporating demand response resources into your aggregated portfolios, and should this be incorporated into the VPP Demonstrations?

The AEMO VPP trial should be technology agnostic. Demand response technologies and smart controllable loads (such as electric vehicle charging infrastructure) should be eligible for trial participation provided they can meet the full compliance requirements of the program – including compliance with the market ancillary services specification (MASS); demonstrated ability for the VPP Operator or participating retailer to integrate with the AEMO VPP API; and meet any other specific requirements that will be detailed in the terms of reference for trial participation.

There will be benefits associated with incorporating different technology types, and it is likely that a number of VPP operators will want to manage multiple technology types.

This approach also recognises that there is some overlap between the VPP Demonstration program and the wholesale demand response mechanism reform work, as highlighted above.

Question 2.1: Are these objectives logical and achievable? Should any other objectives be considered for these VPP Demonstrations?

The objectives listed by AEMO in the Consultation Paper are all logical and achievable.

In respect of the points made regarding reforming the existing regulatory framework, the VPP trial is also helping to overcome some of the regulatory inconsistencies between services that are valued when provided at a large scale, compared with the valuation of the same services provided from DER. We support this objective, and the recognition that comparable treatment does not mean exactly the same treatment (e.g. tighter dead band requirements may result in the same outcomes as responding to AGC signals in respect of regulation FCAS services from DER).

Question 2.2: How can projects involved in the VPP Demonstrations better capture consumer insights and improve customer experience and outcomes?

The most valuable customer information to capture under the VPP Demonstration program will be customer satisfaction with participating in VPPs. For the most part DER assets that are utilised under VPP arrangements will be customer investments, so it will be important that they are appropriately compensated and/ or receive value for participating in VPPs.

Question 2.3: Is AEMO's high-level approach to the VPP Demonstrations appropriate? What other arrangements could be tested under the VPP Demonstrations framework?

Tesla is supportive of AEMO's proposed approach, which recognises a number of barriers to market participation currently limiting the value that can be recognised from DER participation in existing markets. Specifically the VPP addresses the current limitation of aggregated assets being only able to provide load side participation (rather than load side and generation side participation), and providing alternative metering requirements for fast contingency FCAS services, that do not require high speed meters on every individual site.

This enables small scale DER to demonstrate their ability to provide fast contingency FCAS services and provides an enhanced framework for slow and delayed contingency FCAS services.

Tesla also believes that this trial provides a good opportunity to test alternative regulation FCAS settings. Responding in aggregate to a single AGC signal is unlikely to be the best approach for delivery of regulation FCAS at a distributed scale. An alternative would be to enable tighter frequency watt dead band for five minute dispatch periods during which the VPP is enabled and awarded for regulation FCAS.

The exact settings will need to be agreed with AEMO as the trial Terms of Reference are developed. We suggest that the best approach is for AEMO to work with VPP trial participants to establish settings that are most likely to be accepted by AEMO, the AEMC and the Australian Energy Regulator (AER) as a sensible future rule change. The technical feasibility, market benefits and any additional implications can then be tested within the trial. This can take the form of a limited duration proof of concept test from VPP Operators across their aggregated asset base. The results of these test can form the basis of any future rule change to allow DER to provide regulation FCAS.

Based on this, it will be important to ensure that any additional trials undertaken to support the VPP Demonstrations work program, are outcomes focused and likely to result in market changes.

Question 4.1: AEMO would like the aggregated VPP dataset to be refreshed every five minutes to align with its operational forecasting function. Are VPP operators able to provide this data on a 5-minute refresh basis?

Tesla does not see an issue with refreshing the data on a five minute basis to meet the AEMO forecasting requirements.

The key considerations associated with the data collection function will be the size of the dataset – particularly where the VPP consists of thousands or tens of thousands of individual assets, and the costs associated with pushing that data through to AEMO. It will be valuable for potential project proponents and VPP operators to have the chance to comment on the exact data form that will be required to ensure it's appropriate. This will may also assist with creating a uniform approach for data capture.

Tesla's preferred approach is for AEMO to integrate directly with the VPP Operator or Retailer API and query the systems directly. This would remove the need for VPP Operators or retailers to push data directly to AEMO. The AEMO set up costs associated with this approach could be covered through VPP registration fees.

Question 4.2: Should the values be reported as an average value across the 5-minute interval, or an instantaneous value at the end of the 5-minute interval, or both?

The simplest option will be to provide average values at the end of each five minute interval. We would suggest that AEMO initially trials this approach – and considers future alternatives if average values are not suitable.

Question 4.3: What is the appropriate frequency for VPP operators to submit the device level dataset to AEMO? Is there a material difference in resources required to upload the data on a daily, weekly, or monthly basis?

As above in respect of datasets associated with individual assets, it will be a simpler process for AEMO to query the VPP API than for the VPP operator to push data back to AEMO. All APIs allow retrieval commands (GET) so that AEMO can query as required rather than VPP Operators sending (PUSH) all data continuously. This would be much simpler for proponents.

It will also be important to ensure that all data obtained from individual assets is kept secure and not provided to third parties. Unlike the aggregated datasets, this information will not necessarily be relevant for market bids, and it will be customer specific information.

Tesla also encourages the ongoing work through the Open Energy Networks (OEN) work stream which is considering the value associated with datasets from individual assets – particularly to distribution networks – and how the provision of site specific data may be monetized in the future. It will be important that the VPP trial is complementary to this work and does not inadvertently erode the future value associated with providing this data to distribution network service providers.

Question 4.4: Are there any regulatory or other obstacles to participants facilitating the data sharing arrangements contemplated in this section?

In addition to the above, AEMO will also need to consider any implications of the Consumer Data Right legislation as that is introduced.

AEMO will also need to ensure that the level of data that is published does not inadvertently infer the bidding strategies of market participants.

Conclusion

Tesla looks forward to continuing to work with AEMO throughout this process. Please get in touch directly with any questions arising from our response above.

Sincerely



Mark Twidell

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