



Jashan Singh
Australian Energy Market Commission
Sydney NSW 1235

10 September 2020

RE: AEMC – DER Integration Consultation Paper: Updating Regulatory Changes (ref: ERC0309, ERC0310, ERC0311, RRC0039)

Dear Jashan,

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide a response to the AEMC's Distributed Energy Resources (DER) Integration Consultation Paper (Consultation Paper) consolidating the three rule change proposals currently under consideration.

Tesla's mission is to accelerate the transition to sustainable energy. Within this objective, Tesla is committed to working with all market bodies to facilitate the integration of DER into the National Electricity Market (NEM) in a manner that benefits all energy users through improvements in system security, reliability and customer choice. We support the recognition of the important role that DER should be playing in contributing to Australian energy markets and energy services. Energy exports are, and continue to be, a critical component in assessing the value of DER. Systems are increasingly looking to optimise the value of exports and actively participate in energy and frequency markets.

Tesla believes that the key elements that need to be considered through this Rule Change process are:

1. **Optimising DER** to mitigate network capacity concerns – and being incentivised to do so through tariff structures or network payments;
1. **Ensuring customer impacts are considered**, including both DER customers and non-DER customers, including concerns around equity; and
2. **Ensuring a level-playing field** between DER assets and utility scale assets in accessing export services to the grid.

DER Optimisation

Tesla supports work underway by AEMC to firm DER exports and we recognise that appropriate network capacity will be critical to achieving this. We also understand that reform is needed and we're very happy to work with the AEMC on the best way to structure a rule change that has the least impact on consumers.

Incentivising controllable DER has the potential to deliver significant benefits to consumers through improvements in power system reliability and security, while also lowering emissions and costs. Tesla is committed to exploring these capabilities through collaboration with various market bodies and participants, including through the Australian Energy Market Operator's (AEMO) Virtual Power Plant (VPP) Demonstrations program and SA Power Networks (SAPN) and CSIRO's Advanced VPP Grid Integration project with funding from the Australian Renewable Energy Agency (ARENA). Many of these capabilities are being demonstrated as part of these demonstration programs.

DER users stand to benefit from this reform through the formalisation of investment signals to boost DER hosting capacity. Similarly, networks also stand to benefit from incentive frameworks and tariff structures that encourage positive consumer behaviour through reduced network strain and efficient investment. Tesla is supportive of an incentive framework that encourages networks to harness DER

resources and non-network solutions whenever possible to augment network capacity, as well as tariffs that are as cost reflective as possible to drive optimal, low-cost outcomes for all energy users.

As part of the Rule Change process, it would be good for the AEMC to articulate how this reform interacts with various other reforms currently under development, including the current South Australian Government's inverter standard requirements, AEMO's DER Standard and associated rule change, and the recent AS4777.2 draft standard – all of which are also targeting improved network capacity.

In addition it would be good to understand how this rule change will work with the Energy Security Board's (ESB) Two-Sided Markets work, the ESB's DER Integration Workplan and state specific priorities such as Western Australia's DER Roadmap regarding how the review of the incentive structures proposed in this Rule Change may interact with the development of future distribution level markets.

We broadly support the suggestion that improved cost-benefit assessments of the role and intergration of DER in the market would be beneficial. We believe this would be strengthened by data indicating the areas on low-voltage networks most at risk and how each of these interrelated priorities will improve hosting capacity and customer outcomes.

Customer Impacts

It will be important for the AEMC to consider how this rule change is deployed in a way that introduces the greatest benefits for existing and future DER asset holders as well as energy consumers without their own DER.

Tesla recommends AEMC's network access and pricing review be informed by an evidence-based approach that draws on available DER field data to assess the impacts and benefits of any future tariff structures. We recognise that the devil will be in the detail in respect of the potential customer impacts of this rule change, and careful consideration should be given to ensure that the customer costs do not outweigh the benefits of any new tariff or cost structure.

Attempts to introduce cost-reflective pricing to encourage efficient price signals for investment and consumer behaviour should be balanced against the likely risk that new export charges could limit new investment in DER if not structured appropriately.

The Consultation Paper, and associated rule change requests, consider that increased DER uptake in the NEM has led to considerable cross-subsidies to those without access to DER through increased network costs. Tesla would argue that there is also evidence available to support the opposite argument. DER, particularly orchestrated DER, can create a beneficial effect for all energy users through the dampening of wholesale prices and its benefits to system reliability, emissions reduction and system security.

Research from the Victorian Energy Policy Centre has shown rooftop solar uptake in Victoria led to network price increases of 1%, relative to the 8% reduction in wholesale prices caused by rooftop solar uptake, representing a net benefit to energy users of 7%¹. Insights from AEMO's VPP Demonstrations Trial have also demonstrated how orchestrated DER can respond to energy market prices, fostering increased competition in wholesale and frequency markets and potentially deferring the need for further utility scale generation assets.²

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['Rooftop photovoltaics and electricity distributors: who wins and who loses?' Working Paper, Victorian Energy Policy Centre](#)

² [AEMO's VPP Demonstration Trial Knowledge Sharing Report 1](#)

Figure 5 Energy response for SA VPP – 9-15 January 2020, behaviour over a week

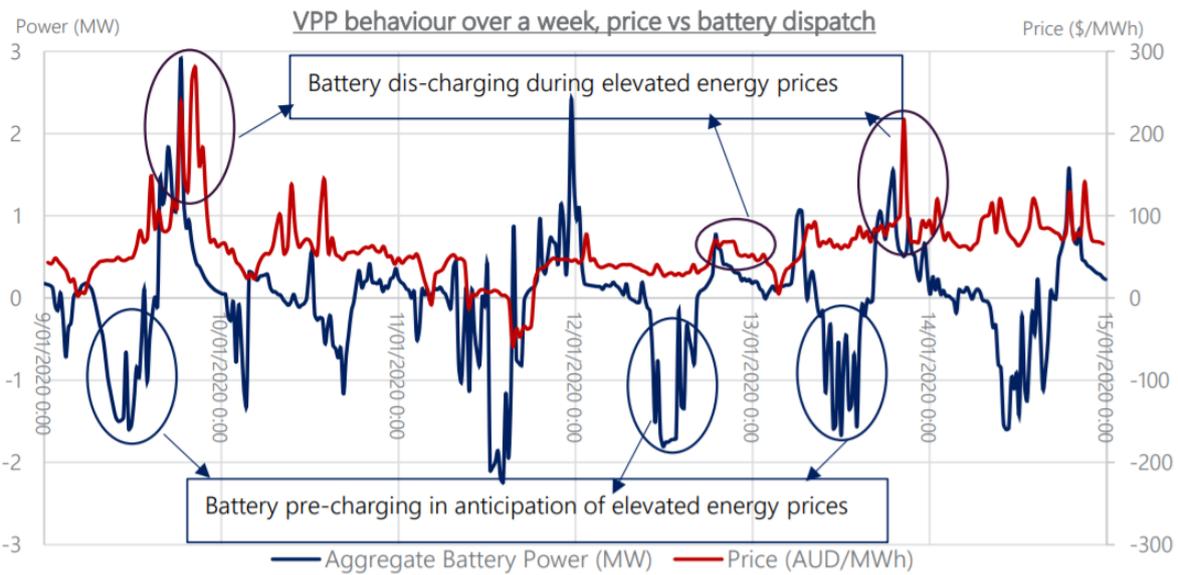


Figure 1: Example VPP FCAS response (sources: AEMO VPP Knowledge Sharing Report #1"

Figure 3 Response of Energy Locals VPP to contingency event, 31 January 2020

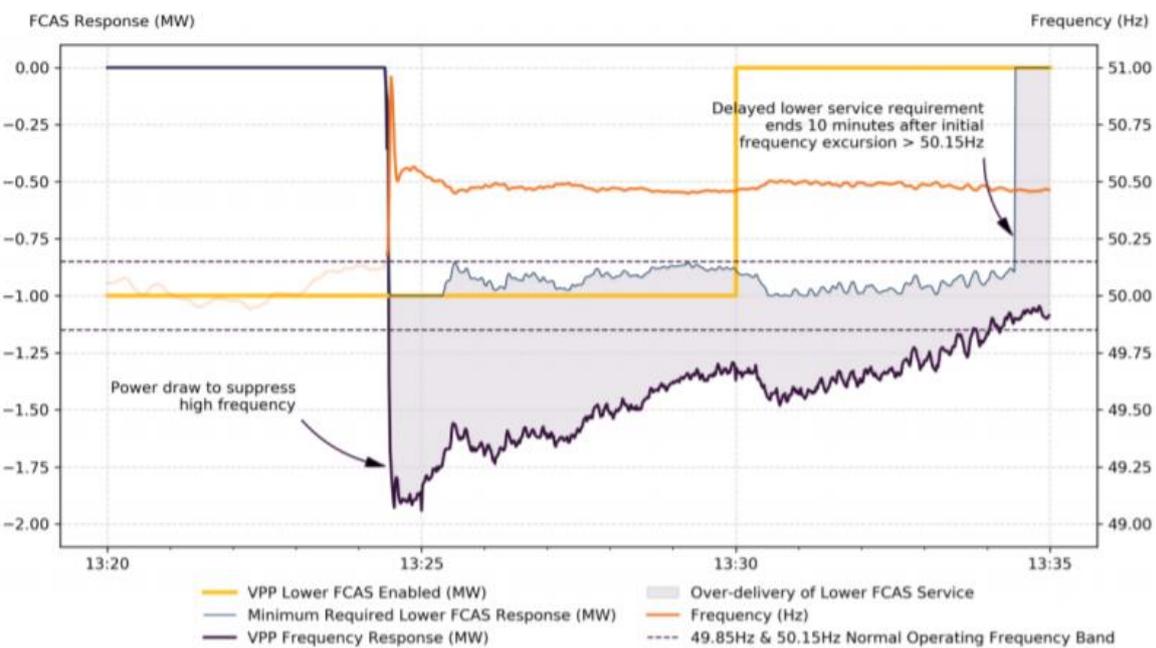


Figure 2: Example VPP FCAS response (sources: AEMO VPP Knowledge Sharing Report #2"

Tesla is also supportive of efforts to better coordinate and plan for the integration of DER into energy markets, whether it be through the Total Environment Centre (TEC) and Australian Council of Social Service’s (ACOSS) five-yearly DER integration strategy (DERIS) or a similar coordinated process. Tesla would welcome the opportunity to support the development of this strategy and would happily assist to provide field data from our fleet of batteries across the NEM to guide future DER integration planning.

Tesla does not support upfront capacity charges for export capabilities as proposed by TEC and ACOSS and noted on page four of the Consultation Paper, due to the outsized impact this will have on

low-income customers. As DER adoption grows, it is imperative that new customers who have historically lacked access to DER products are not treated unfairly through the provision of export capacity charges which would further increase the upfront costs of DER products such as home batteries and cheaper electric vehicles.

Additionally, consideration should be given to how capacity charges for export services may be counterproductive to the aims expressed on page 14 of the Consultation Paper, to incentivise consumers to “make optimal consumption choices” in a way that reduces total system costs. Appropriate tariff design and financial incentives for providing export services should be prioritised to incentivise the uptake of smart DER. This approach, in Tesla’s view would minimise risks of stymieing investment in DER and introducing equity and access issues which discriminate against newcomers to DER products.

Close consideration should also be given to the customer impacts of any export tariff structure. Tesla favours time-based and seasonal tariffs designed to provide clear signals to customers and third party DER aggregators or VPP operators to unlock the full potential of DER exports. Smart DER products will be capable of responding to both consumption and export tariffs to enable the most cost-efficient outcomes. For example, SAPN’s ‘solar sponge’ tariff has been successful in passing on notable savings to SAVPP customers with are able to control their energy consumption patterns accordingly.

Well-designed tariffs such as these will encourage efficient consumer behaviour, and will therefore play an integral role in high-DER futures. Tesla also supports dynamic export limits, such as those explored through SAPN and CSIRO’s Advanced VPP Integration project which enabled Tesla’s SAVPP to increase output when sufficient capacity was available on SAPN’s network.

Level-Playing field

Design of new tariffs will also need to consider the costs of DER participation to avoid creating an playing field whereby DER asset holders pay more to participate in energy markets over their asset life than utility scale assets. This will ensure that smart DER assets are not disadvantaged by the outsized network fees above what an equivalently sized utility scale generator would pay over the same period.

Managing these points will reduce inefficiencies, equity issues and costs to consumers of integrating DER, and ensure that the uptake of DER is able to play a valuable role in addressing the challenges of efficient investment, emissions reductions and consumer choice while considering the system security, reliability and challenges of integrated higher penetrations of asynchronous generation. Tesla welcomes further opportunity to progress these related work streams with the AEMC and all relevant stakeholders to ensure a fit for purpose regulatory framework that enables efficient investment in the decades to come.

For any further information in this submission please contact Emma Fagan (efagan@tesla.com).

Kind Regards



Emma Fagan

Head of Energy Policy and Regulation