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Sebastien Henry  
Australian Energy Market Commission  
PO Box A2449  
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3 October 2017

**Re: National Electricity Amendment (Inertia Ancillary Service Market) Rule 2017 – Consultation Paper (ref. code: ERC0208)**

Dear Sebastien,

Tesla Motors Australia Pty Ltd (Tesla) welcomes the opportunity to provide a submission to the Australian Energy Market Commission (AEMC) on the National Electricity Amendment (Inertia Ancillary Services Market) Rule 2017 – Consultation Paper (Consultation Paper).

## Introduction

Tesla is very supportive of the rule change work done by the AEMC to promote continued system security as we transition away from traditional synchronous generation. We are also supportive of the rule change request submitted by AEMO that inertial services should be procured on a competitive basis by AEMO.

We have been actively engaged in the AEMC and COAG on both the System Security Frameworks Review (AEMC ref. EPR0053) and the COAG Independent Review into the Future Security of the National Electricity Market. We're very supportive of creating an appropriate market for inertia and fast-frequency response in Australia, established to meet the requirements of the NEM.

Our previous feedback to the AEMC in respect of the System Security Frameworks Review was based on the following key points:

- It is critical for all mechanisms introduced to remain technology agnostic, with AEMO setting the technical requirements for both the provision of inertia and FFR. Tesla supports the idea of substitutability between two technologies, particularly as technical capabilities continue to be proven and evolve.
- Australian Energy Market Operator (AEMO) capability testing and drafting of FFR technical guidance should begin as soon as the draft rules are published. This will provide technology providers sufficient time to adjust systems and adapt interfaces as required.
- Tesla supports a procurement approach that creates the greatest net benefit for the electricity market for both inertia and FFR.

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We're happy to provide further context and detail, both building on these points, and specifically addressing each of the six questions explicitly asked in the Consultation Paper.

**Question 1: Do you consider a market sourcing approach to be preferable to a TNSP incentive scheme for providing inertia? If so, do you consider the use of IRSR funds accruing as a result of RoCoF constraints to be an appropriate mechanism for funding inertia payments?**

Tesla supports an approach based on the following principles:

- The mechanism is flexible enough to include the rapid advancement of technologies in the market.
- The mechanism supports a level of operating inertia that falls within the absolute minimum threshold of inertia – and the maximum level of inertia generating a market benefit.
- The mechanism minimises cost pass-through for end users.

Based on these core principles, Tesla prefers a market based mechanism, as we believe it will achieve more efficient outcomes that deliver the best results for end-use customers. Whilst we previously offered support for TNSP procurement of FFR, we had also offered support for the development of an effective market, and we feel that the market based mechanism presented by the AEMC, is the better of the two options.

We believe the market mechanism is the better option as it removes possible pitfalls from direct procurement such as the favouring of specific or known technology types, or lengthy processes that are not conducted in a timely fashion.

A market based mechanism will evolve to ensure that the most capable and cost-effective technologies are providing the required inertia. This approach provides a more flexible solution in the age of rapidly evolving energy storage and smart inverter technologies, and will ultimately minimise cost pass-through to consumers. Additionally this avoids any perceived or real conflict that the TNSPs may have.

A market based approach would allow wholesale market participants to provide the required level of inertia with appropriate electricity generation assets. In addition project developers are easily able to participate in energy and system security markets. As such, existing and emerging assets will not be dependent purely on inertial incentives, but have access to additional energy and frequency revenue streams, this will also contribute to a more efficient outcome for the market.

**Question 2: Do you consider any of these alternative methods of payment for inertia to be preferable to the proposed IRSR funding approach? Are there any alternative funding arrangements that are not discussed, which you would consider to be preferable?**

Tesla is supportive of the IRSR model prepared by the AEMC and included in the Consultation Paper as it appears to be an appropriate market based mechanism for inertia in Australia.

As outlined in our response to the System Security Frameworks Review work, we would anticipate that as a similar market for fast frequency response (FFR) is also explored further and developed, there would be a degree of substitutability between the two services provided. This was clearly indicated in the AEMC System Security Frameworks Review Directions Paper, but is not as clear in this Consultation Paper.

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Noting our feedback on Question 4 below, we recognise that this approach will not be appropriate for inter-regional inertia, however we would welcome the opportunity to provide additional feedback on how two separate mechanisms may work in a complementary fashion.

**Question 3: To what extent would the proposed IRSR funding approach diminish the effectiveness of SRAs as an inter-regional hedge? Do you agree that inertia hedges could be used to assist with inter-regional hedging and would this provide increased certainty to providers of inertia?**

As a technology company, Tesla is not in a position to provide detailed feedback on this question.

**Question 4: To what extent do you see there to be a need to address inter-regional RoCoF constraints versus intra-regional RoCoF constraints or other types of constraints?**

It is equally important to provide market incentives for inertia during inter-regional RoCoF constraints as well as inertia for intra-regional RoCoF constraints in the event of islanding.

We understand that this would require a complex optimisation of pricing and regional islanding security as indicated within the Consultation Paper.

We understand that an appropriate market mechanism to calculate the value of intra-regional constraints is likely to take a different form to the IRSR approach proposed for inter-regional constraints.

Where the AEMC notes that a potential option is to value each synchronous unit's contribution to alleviate a range of different constraints – we would again suggest that the provision of inertia remains technology agnostic, and non-synchronous generators capable of delivering synthetic inertia are provided the opportunity to participate – provided they can provide the requisite service.

Taking into account the value that can be provided from intra-regional inertia as well as inter-regional inertia, Tesla would suggest that the AEMC gives further consideration how two different market mechanisms might operate in a complementary fashion.

**Question 5: What do you see as the main concerns with TNSP participation in a market sourcing approach? How can these issues be resolved?**

Tesla notes the concerns raised by the AEMC regarding a TNSP incentive approach resulting in TNSPs earning revenue on a regulated asset basis as well as being paid an inertia spot price, could be seen as the asset being paid twice.

As noted in our response to Question 1 above, Tesla favours a market based mechanism as we believe that this approach favours the provision of inertia from the most efficient and cost-effective technologies in the market at a given point in time. This approach will also work to ensure that only residual revenues are received by the project proponent (i.e. actual revenue for the provision of inertia, over and above participation in wholesale energy and frequency markets), rather than the full cost of the asset being passed through to consumers.

We agree with the proposed approach of treating any synchronous condensers currently owned by TNSPs as regulated assets. We would caution against providing additional incentives to TNSPs for the provision of inertia which out-performs a break-even point. This approach would increase the risk of inefficient costs being passed through to consumers.

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**Question 6: To what extent do you see it is desirable to co-optimize inertia with energy and FCAS through the NEM dispatch process**

Tesla views this outcome as highly desirable.

Co-optimising inertial services with energy and system security services will be the most efficient market approach to incentivize inertia services in the NEM. Providing an additional market-based revenue stream for the provision of inertia will both maximise the run time of existing synchronous generators as well as take advantage of new technologies such as battery storage, and renewable generation. Battery storage has the added benefit of being available 24/7 for inertia services whilst participating in other energy and ancillary markets. The approach will allow new market entrants to better 'stack' battery value streams, as it opens up an additional revenue stream for the provision of inertia as a vital service.

**Question 7: Do you see a need to delay implementation of the proposed IRSR funding approach?**

Tesla would strongly advise against delaying the implementation of this mechanism. Maintaining appropriate levels of inertia is a critical issue now, and this new market mechanism should be introduced to recognise this service as soon as feasibly possible. As noted above, this approach will provide a valuable additional revenue stream to encourage the uptake of new technologies. As is being demonstrated in South Australia, battery energy storage can be deployed rapidly – and the introduction of a new revenue stream will provide additional investment certainty to project developers.

**Conclusions**

Tesla is supportive of opening up the existing energy and system security markets in Australia to also recognise revenue for the provision of inertia. This service will be fundamental to maintaining the system security of the NEM and will become more valuable as we transition to higher penetrations of renewable energy in the market.

Kind regards



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Mark Twidell

APAC Director – Energy Products