Alex Oeser

Project Leader

Australian Energy Market Commission (AEMC)

Dear Alex

Re: ERC0301 - National Electricity Amendment (Technical Standards for Distributed Energy Resources) Rule 2020

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide feedback to the Australian Energy Market Commission (AEMC) on the National Electricity Amendment (Technical Standards for Distributed Energy Resources (DER) Rule 2020 – consultation process (AEMC Consultation Process).

Tesla supports an increased focus on governance of DER in Australia. This is an important recognition of the role that DER plays in the current energy mix and will increasingly play over the next decade. It also recognises a major gap that currently exists, as ownership of DER is spread across multiple regulatory and industry bodies at a state and federal level.

Ultimately we believe it makes sense for AEMO to take increased control of establishing DER technical requirements and setting a clear work-plan for industry to best suit system needs. There are clear benefits associated with having AEMO look at technical standards while concurrently continuing work on market integration of DER. AEMO also has the most visibility over whole of electricity system risks.

However, while we agree that reform of the DER governance approach in Australia is necessary, we believe that there are major risks associated with progressing this rule change ahead of the finalisation of the related Energy Security Board (ESB) work looking at governance of DER Standards.

We also do not support a subordinated legislative instrument as the best approach to implement this work. It may be preferable to include the technical standards in the National Electricity Rules (NER) to improve transparency and reduce fragmentation across jurisdictions. This option should be explored more fully through the DER Technical Standards Rule Change and the related ESB DER governance work.

Tesla recommends that the formal approval and introduction of this rule change is linked to a successful outcome of the ESB DER Standard Governance work, and that AEMO is provided with increased power as a broader rule change package that also establishes an appropriate approach for governance.

We do not support AEMO's proposed approach of concurrently developing a set of technical standards for release as soon as this rule change process is finalised. It is unclear how this first technical standard would progress in an ungoverned manner and there are clear governance issues that need to be resolved before AEMO takes greater control over setting DER technical standards.

It is also unclear as to how the proposed AEMO initial standard interacts with the updated AS4777.2 which is currently out for comment. In the absence of a clear governance framework, it is not clear how the AEMO standard would be called up or enforced, and there's a risk of redundancy in the testing and compliance expectations put onto industry. At the time of writing this submission, AEMO had not yet released the Technical Standard so it was not possible to compare the suggested DER requirements against AS4777.2.

The AEMC needs to be very careful to not create multiple, overlapping compliance requirements for the DER sector. It is clear that before this rule change is implemented there needs to be greater

consideration given to the ongoing roles of all relevant parties in respect of the regulation of DER. This should be done through the DER governance work program.

Relationship between technical standards, tariff reform and market development

As a specific point related to the ongoing focus of DER reform, Tesla believes there needs to be greater coordination between work undertaken on DER Technical requirements and the market integration of DER (i.e. if new voltage response requirements are progressed will this negate the need for future dynamic voltage response markets?)

There often appears to be multiple work programs underway at the same time to address the same issues. The problem statement put forward by AEMO is that "limitations have begun to be reached in in distribution systems related to managing voltages, thermal capacity and protection coordination".

Similarly in their rule change request on "Proposal for Access and Pricing of DER" SA Power Networks note:

> *As customers continue connecting DER, networks will need to invest to support increasing reverse power flows, expenditure that would not otherwise have been required. The most immediate constraint in most areas is voltage management at customers' premises. Networks were designed only to accommodate the drop in voltage that occurs as load increases, and hence have little headroom to absorb the rise in voltage that now occurs when customers' inverters feed energy back into the grid.*

This highlights that the DER industry is dealing with multiple overlapping processes and rule changes looking to address the same issues relevant to DER. Rushing through a new AEMO led DER standard in the absence of a governance framework will only serve to exacerbate this issue.

As a general observation, Tesla has noted that a disproportionate amount of the short-term DER priorities are on technical standards.

This work is being done at the expense of creating appropriate market incentive signals for DER, with the latter largely being picked up by the ESB Post-2025 work program[1]. This creates a timing issue as the near-term technical standards introduced may mandate services that would otherwise have been provided under market settings.

As such it is critical that a governance approach is introduced to ensure that the right bodies are focusing their time and energy on the right outcomes. Tesla also strongly supports continued work on creating the right cost and market incentives to encourage specific performance outcomes.

Current issues for DER standards and governance across Australia

As a general principle, Tesla supports reform of the way DER is governed across Australia.

At the moment, multiple bodies are involved in specific pieces of work and there is no single body who is responsible for coordinating the broader DER work program to identify and manage overlap, and push for optimal outcomes. A non-exhaustive overview of how DER is currently managed is as follows:

- **Technical performance**: set by a combination of DNSPs, AEMO, Standards Australia and increasingly state governments.
- **DER product safety**: no real ownership. Combination of industry led work (BESS Battery Safety Best Practice Guide) and Clean Energy Council (CEC) listing requirements enforceable only through state subsidy schemes.

[1] The notable exceptions to this are the wholesale demand response mechanism (which does not apply to small or residential customers) and the AEMO VPP Trial (which is still yet to be formally extended)

- **Installation requirements:** managed through Standards Australia (i.e. AS3000 and AS5139) and state electrical safety regulators after being called up in state electrical safety legislation.
- **Interoperability and market integration requirements:** work underway by AEMO and state governments as part of the state subsidy schemes. No compliance mechanisms in place yet.

In the absence of a dedicated governance framework there are major flaws in each of the areas above. The ESB Consultation Paper notes the following issues:

- An overall lack of leadership and coordination and clear objective as to how DER technical standards should be governed.
- Weaknesses in the Standards Australia technical standards process in terms of speed, participation and decision making not being explicitly aligned with National Electricity Objective (NEO).
- Lack of harmonisation in network connection standards across DNSPs.
- Under-resourcing of compliance and enforcement activities, and gaps especially for non-safety related standards.

Tesla would add the following key issues to this list:

- Lack of engagement with the "new energy" sector. The majority of work and engagement is managed by incumbents. Companies offering new energy technology solutions are often left out of the decision making process because they're more thinly resourced and do not necessarily have the resources (financial or human) to spend large amounts of time engaging in multiple committees across multiple agencies, and responding to countless consultation processes.
- Lack of transparency. A number of processes undertaken above are non-transparent in their approach. For instance, Standards Australia committees are commercial-in-confidence so no discussions on the comments received or findings are made visible to industry. As a determining body, this lack of transparency is a critical issue. Similarly NSPs are under no regulatory obligation to provide updated connection standards to industry for comment. As a result there is a wide variance between NSPs as to the level of consultation that is taken, if any.
- Lack of coordination with market reforms – as noted above, a lot of the technical standards discussions appear to be happening in parallel to DER market development and integration. It is difficult to see how these two processes are complementary.

There is a clear need to consolidate requirements and establish a proper approach to setting and managing compliance with DER standards across the board. However this cannot be done in the absence of a governance framework.

While Tesla believes that AEMO should play an increased role in setting DER standards, it is difficult to see how fast-tracking an AEMO DER Standard at the same time as AS4777.2 is released for consultation, represents a step forward for the industry. Further, in the absence of a governance framework there is no guarantee that a new approach represents an improvement for industry (and subsequently energy consumers). If it results in increased compliance work and compliance costs, these will ultimately be passed back through to the end-use consumer.

Concern with AEMO taking ownership of DER Technical Standards in the absence of a governance framework

The recent AEMO approach to the development of the "Short-duration undervoltage disturbance ride-through test procedure[2]" for South Australia has also raised some process concerns with the approach that AEMO might take if given full control of developing technical DER standards in the absence of a formal governance process.

[2] https://aemo.com.au/en/consultations/current-and-closed-consultations/short-duration-undervoltage-disturbance-ride-through-test-procedure

Our specific concerns are:

- **Unrealistic compliance timeframes** – AEMO opened consultation on this topic in June 2020 with a proposed compliance timeframe of November 2020 (later amended to September 2020 through the South Australia Government consultation on this issue). The final test procedure is due for release in July 2020. This effectively provides industry with a <3 month lead time for internal approvals, undertaking the relevant tests and going through the Clean Energy Council (CEC) product re-listing approach. Noting that there are limited JAS-ANZ testing facilities in Australia and more than 300 inverters currently available in South Australia, it is practically impossible for industry to meet these timeframes. A minimum of 6 – 12 months is a more realistic period for the introduction and testing of new performance standards
- **Limited consultation -** on the draft test-procedure – it was presented to industry for consultation at the same time that a very rapid compliance turn-around was presented. This indicates that only very minor changes to the test procedure would be taken into account, rather than more detailed consideration of the AEMO problem statement and options to address.
- **Low transparency** – as of the time of writing this submission, AEMO had not published any responses they received to the consultation process which closed on the 26 June 2020. As per the above, the lack of transparency associated with the Standards Australia process is a major concern, and we would like to see an AEMO owned approach to be an improvement on the status quo.

In addition to the above, our primary concern to AEMO taking control of the development of DER technical standards in an ungoverned environment is the potential for a piecemeal approach to testing standards.

Using the Low-Voltage Disturbance Ride-through work as an example – AEMO has developed a test procedure for a single test in a single state. In an ungoverned environment, AEMO would have the power to be introducing new-tests for different states at will in an uncoordinated manner to address issues. AEMO is asking for the ability to introduce new technical standards “over time” and “on an as needed basis in response to technology or, for example, new cyber threats”.

This ad-hoc approach for setting new technical standards can make it very expensive and risky for DER providers to maintain operations in Australia. We want to avoid a situation where equipment manufacturers are potentially required to test to multiple new test procedures each year. This will add “green-tape” costs that are ultimately passed to the consumer.

Based on these concerns, there would need to be more work done in respect of governance to provide industry with confidence that AEMO taking ownership of technical DER standards represents an improvement on the status quo. There would also need to be more work done in respect of the circumstances in which new standards could be set by AEMO to allow industry to properly plan and manage local operations.

Key gaps in what is proposed:

In order for Tesla to be fully supportive of the rule change, there are some critical gaps that should be addressed throughout the AEMC consultation process. These all tie back to the need for clear governance, but will also help industry fully understand the cost and compliance implications of AEMO taking control of setting technical DER standards.

A non-exhaustive list of the key gaps to resolve are:

- If this is introduced as a subordinated legislative instrument, what are the obligations of network service providers (NSPs) to accept these requirements as the point of truth? Will NSPs be prevented from suggesting alternative settings?
- Related to the above will there be a single national standard or will they be minimum standards with NSPs or state governments all adopting a separate version of the requirements?

- How will compliance be governed? Will it be through device level testing – if so will the CEC need to establish a separate listing process?
- How does this interact with AS4777.2? Will industry be expected to comply with both AS4777.2 and the subordinated legislative instrument of the NER?
- What if there is an initial conflict between the DER technical requirements in the NER and AS4777.2. Which requirements take precedence?
- What if there are subsequent amendments to the DER technical requirements that puts them in conflict with AS4777.2?
- What is the ongoing role of Standards Australia in respect of DER?
- What are the consulting expectations – what framework does AEMO have to follow in respect of industry consultation and setting up industry working groups?
- What are the compliance timeline expectations – industry should be given ~6-12 month lead time for all new testing requests.
- Who is responsible for considering the cost-benefit analysis of the technical standards? As opposed to the treatment of utility scale asset where any changes to technical performance standards are managed through a transparent rule change process. This rule change would give AEMO derogated power to make the same changes for DER. As such we would expect a similar cost-benefit analysis approach to be undertaken to assess the impact of the proposed changes. That assessment should not be done by AEMO.
- AER monitoring and compliance framework – what does this look like?
- What are the dispute mechanisms? I.e. how frequently will AEMO be updating the standards and what rights do industry have to push for specific changes? Where there is no specific legislative undertaking AEMO documents tend to be updated on an ad-hoc basis and there's no formal process for industry to suggest amendments and know that these will be considered by AEMO.

It's not appropriate to progress this rule change as a stand-alone piece of work and manage these gaps through alternative processes that are running on alternative timelines, as addressing these questions are critical to the outcome of the rule change.

At a high-level we would like to see the following areas more progressed before we support AEMO ownership of DER technical performance standards:

- The approach to consultation, including AEMO committing to setting up industry working groups to guide the development of new technical standards, and commitment to publishing both stakeholder comments and an overview of the AEMO decision making approach.
- A clear review process – an overview of how industry can submit change requests or challenge outcomes.
- Demonstration of a coordinated long-term plan to give industry confidence in the Australian market requirements.
- A clear overview of compliance expectations:
    - Testing and listing requirements
    - Timelines for compliance with new standards after they're introduced.

Recommendations

Tesla believes that this rule change should be fully linked to the ESB DER Standards Governance review work to ensure that it is designed as part of a broader framework for DER. Rushing through this rule change and fast-tracking a new DER Technical Standard is unlikely to solve any problems, and it may create quite a few more new problems for the emerging DER industry in Australia.

For more information on any of the content included in this submission, please contact Emma Fagan (efagan@tesla.com).

Kind regards

Emma Fagan
Head of Energy Policy and Regulation

Answers to specific consultation questions:

Question 1: Assessment framework

Tesla agrees with the assessment framework and believes that for this rule change particular attention should be given the appropriate allocation of risk versus reward as well as the regulatory burden on manufacturers to navigate this new landscape in the absence of a governance framework.

Question 2: Setting the initial standard and definition of DER

Should the technical standard be set by AEMO?

As noted above, Tesla has concerns in AEMO fast-tracking the developing of this initial DER Technical Standard. At this stage it's unclear what the consultation process is, how industry will be properly engaged (industry working groups are preferable to AEMO presenting to industry), and how the impacts will be assessed.

Tesla does not support AEMO making the initial technical standard in parallel to this rule change and the ESB work being undertaken. Following completion of those two processes, and improved clarity on where the Technical Standard fits into the mix of DER regulations, Tesla will likely support AEMO as an agency best able to develop the Technical Standard. This will be dependent on having the right industry consultation approaches in place.

Should the minimum standards be inserted into the minimum content requirements of connection contracts, negotiation frameworks and model standing offers or terms?

Again this will be highly dependent on the governance framework and what the minimum standards actually are. Minimum standards are also likely to give rise to each jurisdiction or NSP interpreting requirements slightly differently. This means that having a clear compliance framework in place early on will be critical for OEMs. It will also be important to mitigate cost implications of multiple grid-code expectations to comply with the new DER Standard.

What should the standard apply to and is a DER definition needed in the NER?

Either of the definitions proposed in the AEMC Consultation Paper appear to be appropriate definitions of DER. It is unclear how the definition will be used though.

- Is the intention that controllable loads (such as air-conditioners) would need to comply with the same technical performance standards as solar inverters or battery energy storage systems?
- We do not support a definition of DER being used to specifically include or exclude systems from different markets/ services. Any interaction with markets should be fully technology agnostic with a focus on removing barriers to entry for particular technology types.

If the sole purpose of defining DER is just to refer back to DER specific processes and powers, then Tesla would support the broader Farrier Swier definition.

Do stakeholders agree that the standard should only apply to new and replacement devices? Will this meet the objectives of the desired policy outcome of this rule change request?

Yes. It is difficult to see how a new standard could be retrospectively applied to existing DER. Many installed products will also not be capable of being remotely updated to a new standard. If retrospective changes are made to existing fleets there may also be breaches of customer connection NSP connection agreements or consumer law if the system performance is changed as a result.

If AEMO would like to see this change made across existing fleets, they should consider what an appropriate incentive framework is to enable this to happen, and also consider how consumer rights are protected.

Question 3: Content and duration of the initial minimum technical standard

Should the scope of the technical standard be limited by the NER?

As noted above, Tesla does not support AEMO progressing a technical standard in the timelines proposed above.

The AEMC consultation paper notes "*The COAG Energy Council requires the publication of an initial DER minimum technical standard (initial standard) on matters covered in AS/NZ 4777.2*" It is unclear how this initial standard will be different from the draft of AS4777.2 which is currently out for consultation over the exact same time period. And it is not different, it is very unclear as to why an additional standard is required?

If it is different then there are significant impacts for the industry in testing to AS4777.2 and a separate AEMO technical standard covering different DER technical elements, in the same time period. There is a clear need for coordination in this space at the moment – which requires a strong governance framework, and a clear delineation of roles and responsibilities across the many agencies that are engaged on DER requirements.

In the longer term, the NER should provide very clear guidance as to the scope of the AEMO Technical Standards setting authority, so it is clear to industry the areas that they will be taking leadership on.

If so, should there be arrangements to allow for a review of the scope at a future date?

See above answer.

Should the role of AEMO in setting DER minimum technical standards (the subordinate instrument) be limited in time, with the ESB's governance review outcomes to be introduced into the framework at a later date?

Tesla believes that AEMOs role in setting minimum technical standards should be an outcome of the ESB process, rather than limited in duration because of it.

Question 4: Applying the standard and monitoring compliance

Tesla does not have any particular views as to how compliance should be managed across the NEM, Western Australia and the Northern Territory. We do note that progressing the rule change while the compliance methodology is undefined raises risks.

Question 5: Cost of initial standard

Tesla will be able to provide the AEMC with more insight into the cost of compliance with the initial standard once AEMO has released the draft for consultation. At a high level, the costs of compliance for industry will be driven by:

- Whether it overlaps with AS4777.2 or whether DER OEMs are required to go through a separate testing process.
- Whether the minimum standards are applied in a different manner across different NSPs or jurisdictions, requiring NSP or state specific firmware to meet the relevant settings.

As noted by the AEMC these new standards will not be costless. While we acknowledge that DER needs to continuously evolve for best integration into the NEM, this process needs to be equally driven by industry, and backed by a strong governance framework.