

Ashok Kaniyal  
Australian Energy Market Commission (AEMC)  
Submitted via online portal

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Dear Ashok

### **ERC0363: Enhancing Investment certainty in the R1 process – Consultation Paper**

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide a response to the Australian Energy Market Commission (AEMC) on the Consultation Paper on “Enhancing Investment Certainty in the R1 process”. We agree with the Clean Energy Council (CEC) position that this is a critical priority. As noted in the CEC Renewable Projects Quarterly Report – Q2 2023<sup>1</sup>, only five renewable energy projects reached financial close in the first half of 2023 – totalling 348MW of generation capacity well below the take-up rates that are needed to hit the 82% renewable energy goals by 2030.

We agree with the focus areas of the Rule Change, specifically that the following areas are unsustainable to support the clean energy transition:

1. The amount of time it takes to produce a valid R1 modelling package that provides AEMO and NSPs sufficient certainty that the plant is going to meet the agreed performance specifications
2. The amount of modelling rework that is needed to provide AEMO and NSPs sufficient certainty that all plausible contingency events have been captured
3. The final requirements that may be imposed on the generators including whether additional equipment (e.g. harmonic filters) may be required to ensure that the plant can deliver the appropriate response.

From a first principles perspective the issues raised by the CEC have arisen through gradual changes in processes that have emerged over a number of years. Cl. 2.2.1(e)(3) of the National Electricity Rules (NER) was written with AEMO as being solely responsible for connection approval. From a process perspective, this has evolved over recent years with an increased role for the NSPs to also provide input into the connection process. As mentioned by the CEC in their Rule Change proposal this is leading to multiple rounds of modelling.

Tesla has supported a number of utility scale battery energy storage systems (BESS) connections in Australia since 2016. The Consultation Paper notes that the AEMC is interested in understanding stakeholder views on the gaps in the regulatory framework that are making the efficient assessment of R1 modelling packages more difficult. In our experience we would comment that:

- The full range of studies and grid-modelling now required for successful connection can cost up to \$2-3m in total.
- The 420 hours per R1 process seems to be an underestimation of the amount of time required to get through additional R1 modelling. For a recent project, Tesla has been quoted 19 weeks of work for a single project.

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<sup>1</sup> <https://assets.cleanenergycouncil.org.au/documents/Renewable-Projects-Quarterly-Report-Q2-2023.pdf>



Based on these issues, Tesla is supportive of the AEMC definition of finding a solution to reduce costs and timeframes while still ensuring robust outcomes for the grid.

We also acknowledge the consideration given by the AEMC to the extent that human resourcing issues is impacting on the timelines for grid modelling and connection. It is undoubtedly true that the rapid scaling up of the sector has resulted in resourcing crunches. This is exacerbated, however, by the level of discretion that is currently created by the lack of detail in the NER.

### **Introduction of new self-assessment requirement**

The CEC proposes that NSPs be required to approve the R1 model and allow AEMO to proceed with approving registration. The CEC also proposes that generation project proponents should be allowed to receive conditional approval without the resolution of all issues. This would be subject to the generation proponent satisfying both AEMO and NSPs that they have a clear plan for satisfactory resolution of issues identified in the conditional approval.

The Type categories that a connecting generator would be required to self-assess under, and that NSPs would need to approve, are:

- Type 0: R1 modelling identifies no issues
- Type 1: Applicant has non-material differences from the requirements of the negotiated access standard
- Type 2: Applicant has material differences which are due to changes in the external network conditions
- Type 3: Applicant to resolve minor issues as part of a conditional registration that specifies issues need to be remediated within a defined timeframe (e.g. commissioning or operation)
- Type 4: Applicant commits to resolve major issues with the plant design before registration is approved.

Tesla supports, in principle, what the CEC is trying to do with the introduction of new Type categories. In particular we are supportive of Type 2 which creates an explicit regulatory pathway to ensure that project developers and OEMs are not responsible for additional modelling based on external network changes.

Our concern with the approach proposed, and associated changes to cl. 2.2.1(e)(3) proposed by the CEC, is that it may also be viewed as embedding additional NSP modelling requirements into a clause that does not currently mandate this requirement. While this level of prescription may remove some of the discretionary issues developers are currently seeing; it may also be read as giving increased social licence to the NSPs to create new R1 modelling requirements. We would suggest that the AEMC should also explore whether there are alternative models that might meet the intent of the CEC proposed Rule Change without embedding new NSP obligations into cl. 2.2.1(e)(3).

An alternative update might be to add more definition around the R1 process in cl. 2.2.1(e)(3), including limiting any requests for modelling to material changes, and to explicitly exclude modelling requests driven by external network conditions. This may achieve the same outcomes as the CEC proposed Rule Change, without creating inadvertent additional requirements.



## **Additional recommendations in the Rule Change Proposal**

In addition the CEC makes a number of other recommendations including on the following topics. Notwithstanding our comments on the new classification Types and the interrelationship with these other recommendations, our comments are below.

### Timeframes

Proposing that the timelines for the R1 process evaluation should be made consistent with those that apply to the evaluation of the GPS as part of the NER cl. 5.34A process. Specifically, this would require that AEMO advises NSPs on AEMO advisory matters within 20 business days of the submission of the R1 package, and at the same time, the NSP completes its review of the R1 model within 30 business days of the submission of the R1 package

Tesla is supportive of more detail around the timeframes being included in the Rules.

### Guidelines on materiality

One of the CEC's main concerns about the existing process is that connecting parties can form differing opinions on whether a deviation between performance agreed under the NER cl. 5.3.4A process and the R1 stage is likely to have a material impact on power system stability. To address this, the CEC is proposing that AEMO creates materiality guidelines.

Tesla is supportive of this suggestion, though it will be critical that the definition of materiality is developed in consultation with industry. To this end, we suggest that new Rules are clear on the consultation obligations, and AEMO should establish ongoing dialogue with industry to set clear expectations.

### New facilitated review mechanism to manage disagreements that could cause delays

The CEC also proposes that where disputes can not be resolved through, this should be taken through the independent engineer process, or through the arbitration or dispute resolution processes currently established in the NER.

Tesla is supportive of this recommendation.

## **Other changes to the NER referenced in the CEC Rule Change**

Tesla also notes that there are a number of additional proposed changes to the NER in the CEC Rule Change, some of which are slightly ancillary to the R1 process. It would be worth the AEMC considering an extended preferential Rule Change to incorporate some of these changes which were not explicitly called out in the Consultation Paper.

One proposed change was to delete the "no less onerous" language from cl. 5.3.4A(1A) which states:

*With respect to a submission by a Generator under clause 5.3.9(b)(3) or a Network User or Market Network Service Provider under clause 5.3.12(b)(3) be no less onerous than the performance standard that corresponds to the technical requirement that is affected by the alteration to the generating system or plant.*

Tesla is very supportive of this proposed change as the interpretation of the "no less onerous" requirement is making it challenging to transition grid following (GFL) inverters to grid-forming (GFM) inverters. Currently there is no special provisions or acknowledgment in the NER of the unique operating



characteristics of GFM assets. They are treated the same, and subject to the same connection requirements as all asynchronous plant. However, they have different technical performance characteristics.

In respect of cl. S5.2.5, the technical response from a GFL will fall within the Automatic Access Standard range. The technical response a GFM will fall within the Minimum Access Standards range. Both are allowed, however issues arise in respect of the interpretation of the “no less onerous phrase”.

Tesla has observed that due to GFM inverter response characteristics falling into the Minimum Access Standard range rather than the Automatic Access Standard characteristics, it is perceived to be “less onerous”.

While this may be resolved through explicit AEMO guidance material, we are also supportive of removing this language from the NER.

For more information on anything included in this submission, please contact Emma Fagan ([efagan@tesla.com](mailto:efagan@tesla.com)).

Kind regards

Emma Fagan

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