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Sent via email: TIRreview@aer.gov.au

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RE: AER draft guidance note on regulation of actionable ISP projects

Dear Mark,

Tesla provides this short note as part of broader feedback to the AER on the potential challenges with the regulatory framework as it currently applies to non-network solutions. We note the draft guidance being consulted on is focused on the CPA stage, whilst the assessment and consideration of different options is conducted at the preceding RIT-T stage. However, we believe including specific provisions for non-network options is still aligned with the overarching objectives of this guidance, namely to support the efficient and timely delivery of projects, and to ensure consumers pay no more than necessary for them.

It is clear from an absence of network-led projects that there are still barriers preventing non-network solutions achieving 'preferred option' status under the NEM's regulatory framework for transmission investment. We understand some barriers may relate directly to the framework itself, whilst others arise due to misinterpretation and unfamiliarity that network service providers (NSPs) may have with the assessment of non-traditional solutions such as battery storage. We believe the AER has an important role to help address both. The market is rapidly transitioning to far higher penetrations of renewable energy and NSPs will need to spend around $20 billion on network infrastructure to support this transition over the coming decades as outlined in the Integrated System Plan[1]. It is important that this is spent in the most economically efficient manner, and having the right policy and regulatory framework to appropriately assess non-network solutions will ensure efficient expenditure.

Numerous studies have outlined the preferences for NSPs to focus on 'traditional' network-based capital investments, noting capital expenditure biases, lack of contestability, information asymmetries, misaligned incentives, cultural inertia, and institutional risk-aversion as possible explanations[2]. Our experience in navigating several RIT processes over recent years supports the validity of all these issues.

[1] See AEMO 2020 Integrated System Plan, Section E2, Table 14 (pg 8)
[2] See HoustonKemp Report: Regulatory treatment of large, discrete electricity transmission investments, August 2020

For battery storage proposals in particular, we have observed additional complexities that appear to stymie the ability for NSPs to successfully procure these assets under the RIT, even when they are being widely recognised as a valuable and efficient investment (and in the long-term interest of consumers) by market bodies, governments, and regulated networks across many jurisdictions[3]. We acknowledge that non-network options such as storage may not always be the most suitable or cost-effective solution to address identified network needs. However, additional clarity and transparency on how the framework is applied will at least ensure their potential is assessed against network options on an equal footing, supporting the economic efficiency principles underpinning the RIT and CPA processes.

Key Barriers

To date, Tesla's non-network proposals have typically encountered one or more of the following categories of barriers through the RIT process:

Barrier	Example of NSP treatment	Tesla comment
1. Cost	NSPs using outdated assumptions often view battery technology as more expensive than alternatives and rule out their consideration upfront Risk-aversion / unfamiliarity also drives additional costs (e.g. inclusion of syncons)	*This is becoming harder to justify as the price of new technologies rapidly falls and AEMO's Integrated System Plan provides standard technology cost input assumptions*
2. Technical Feasibility	NSPs have excluded battery systems "on the basis they were not technically feasible", and often cite that "batteries don't have technical capability to support network strength, inertia…"	*Increasing storage deployments, (many supported by ARENA grants) will yield real network and system performance data. Several knowledge sharing reports focusing on the suite of services provided by battery storage (e.g. HPRX, Wallgrove) will also clearly demonstrate feasibility of network services*
3. Regulatory treatment	NSPs are unfamiliar with the treatment of battery storage under the RIT cost/benefit framework – undervaluing the benefits and overinflating the costs	*Ongoing confusion on application of RIT framework. Requires consistent and accurate interpretation of what costs and benefits to include to prevent ongoing irrational outcomes*

AER support will be critical in ensuring each of these barriers is addressed as quickly as possible. More specifically, there are several NSP-led modelling issues that appear to be driving the RIT results that undervalue battery storage.

Modelling Assessment Issues

In our experience, the RIT assessment framework still presents as a 'black-box' to non-network proponents, with NSPs (and their economic consultants) modelling complex cost-benefit assessments based on a limited set of input assumptions (e.g. capital cost, asset lifetime, round-trip-efficiency). As an outsider to this process, Tesla has observed the following issues:

- **Optionality**: whilst part of the framework, we are yet to see this value captured. This forms a key part of the value proposition for non-network solutions relative to network assets (e.g. rapid deployment of battery storage that can

[3] See Western Power distributed storage plan for WA; Victorian SIPS Big Battery (that derogated from RIT) with underlying cost-benefit modelling; and strong pipeline of network procured battery storage across US markets (e.g. PJM)

be deployed in months not years). It would also exclude the modularity value of batteries that can be scaled up or down as uncertain load and generation forecasts are realised (or not). We note that this uncertainty appears to be increasing with the rapid transformation of the energy sector

- **Market benefits**: battery storage has consistently demonstrated its ability to reduce prices in wholesale energy and frequency control ancillary service markets. NSPs exclude these benefits on the basis of 'wealth transfers' between market participants, but this appears to negate the benefits from improved liquidity and/or the removal of price distortions in the market. There would also likely be reduced costs on other partiers (e.g. back-up plant).
- **Ancillary market benefits** – NSPs only model wholesale energy changes occurring in dispatch - considering FCAS a negligible class of market benefit. However this is backwards for battery storage projects that see most of their value realised in FCAS markets. More detailed modelling would ensure the true value of these benefits can also be captured
- **Capital Cost Asymmetry:** battery storage can provide multiple services to multiple parties. We understand the AER has recently updated guidelines to address asymmetries between capex and opex solutions (i.e. regardless of ownership the total economic cost of solutions should be captured), however recent discussions with NSPs suggest this will disadvantage battery storage even further – see example below.

Illustrative example of cost treatment for non-network proposal

Based on ongoing discussions, the following example highlights the irrational treatment we perceive for battery storage under one NSP's interpretation of the RIT-T framework – demonstrating the need for AER clarity:

Project assumptions (purely illustrative):

1. Identified network need for 50MW of capacity
2. Non-network solution proposed with oversized 100MW battery system (i.e. 50% portion providing network service, 50% participating in market – and for simplicity assume market operation has no impact on network performance)
3. Ownership and commercial model options proposed:
    a. If NSP owns battery, incurs 100% capital cost for 100MW battery, but receives lease payments from 3rd party to use 50MW portion
    b. If NSP leases battery, no upfront cost incurred, and pays 3rd party a network service (opex) lease payment for 50MW portion

It is unclear what the correct cost treatment would be under both 3a. and 3b.?

- From first principles, it would make sense to partition the battery into its network and market role – and assess the true costs and benefits according to the NPS's requirement (and noting precedent set by AER for ElectraNet ESCRI battery)
- However, discussion with NPS suggests the total capital costs for the oversized 100MW battery must be included under both ownership models, whilst any lease payments that 3rd parties provide are *excluded* (i.e. if 100MW battery costs $100m, and a 3rd party provides $50m NPV of lease payments, NSP must still book $100m cost under 3a and 3b)
- The NSP cites example 20 of RIT-T guidelines and considers the lease payments from the 3rd party as a 'wealth transfer'
- ***Is this view correct? Does it not ignore the market benefits of non-network solutions?***

Process Issues

A final area that presents a challenge to non-network proponents is the RIT process itself. There is a clear unevenness in the ability for prospective parties to engage in opportunities – requiring proponents to scan across RIT-D/T announcements, follow consultation reports through the initial, draft and final stages, and (based on our recent experiences) invest heavily in correcting outdated assumptions, ensure technology inputs are being factored into models correctly, dedicate significant engineering capacity to support NSP engineers integrate a non-network solution into existing models, and attempt to clarify and ensure appropriate treatment of the costs and benefits under the RIT framework.

We understand some of this burden will be alleviated by the AEMO centralizing the key assumptions and coordinating the initial element of the RIT-Ts for actionable Integrated System Plan projects. However, the intensive requirement on proponent's time and resourcing is still a key concern, particularly where the RIT-T may only be the first stage in determining a 'preferred option' before NSPs go to market and run additional competitive processes. Collectively, this may provide additional context for why non-network proponents are dissuaded from participating in the process, despite having an optimal solution. We welcome any further clarity the AER can provide on these points of process.

Proposed next steps and recommendations:

1. **Clarity on cost benefit modelling** - building on the examples above, we recommend the AER provide further clarity on how costs and benefits are treated for non-network options to ensure efficient and fair assessment. This will be particularly important for projects that partition assets across multiple network and market roles, and/or have innovative commercial models regarding ownership and operation.
2. **Release supplementary guidelines** - to ensure all appropriate market values are taken into account. For non-network proponents there can be a wide range of frequency and other system security services that provide significant benefits, typically not captured under current RIT assessments. The AER can provide additional insight and transparency on how these values should be included for non-network solutions, such as battery storage, through worked examples and additional guidance for NSPs where required.
3. **Process improvement** – to ensure the most efficient long-term solution is progressed, it will be important to encourage both network and non-network proponents to engage in a streamlined process. It may be valuable to further workshop points of improvement with the AER, NSPs and interested industry participants to ensure consistency in treatment across jurisdictions in the immediate term. Long-term, updating the application guidelines themselves would help to resolve inconsistencies and areas of ambiguity and ensure a consistent, transparent and predictable assessment process.

Tesla is highly motivated to support the AER in addressing these barriers and welcomes further discussions over the coming months.

Sincerely,

Emma Fagan

Head of Energy Policy and Regulation
Tesla Energy