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EnergyAustralia

LIGHT THE WAY

Ms Nicola Falcon
Group Manager - Victorian Planning and Connections
AEMO Victoria Planning
GPO Box 2008
Melbourne VIC 3001

EnergyAustralia Pty Ltd
ABN 99 086 014 968

Level 19
Two Melbourne Quarter
697 Collins Street
Docklands Victoria 3008

Phone +61 3 8628 1000
Facsimile +61 3 8628 1050

enq@energyaustralia.com.au
energyaustralia.com.au

Lodged electronically: SystemStrengthVIC@aemo.com.au

Victorian System Strength Requirement – RIT-T Project Specification Consultation Report – 14 July 2023

EnergyAustralia is one of Australia's largest energy companies with around 1.6 million electricity and gas customers in NSW, Victoria, Queensland, South Australia, and the Australian Capital Territory. EnergyAustralia owns, contracts, and operates a diversified energy generation portfolio that includes coal, gas, battery storage, demand response, solar, and wind assets. Combined, these assets comprise more than 5,000MW of generation capacity.

We appreciate the opportunity to provide feedback on AEMO Victoria Planning's (AVP) Project Specification Consultation Report (PSCR). AVP is undertaking this Regulatory Investment Test for Transmission (RIT-T) concurrently with Powerlink and TransGrid who are also assessing system strength needs in their respective jurisdictions. Issues arising under the new regulatory arrangements for system strength, including identifying investment needs and the solutions that might be required, are largely generic across jurisdictions. Our comments below on AVP's PSCR therefore mirror those we submitted recently to TransGrid¹ and Powerlink². Overall, we urge AVP to engage with these other system strength service providers to develop a consistent and transparent approach to dealing with system needs under changing market and regulatory frameworks. This should give stakeholders confidence on the prudence and efficiency of the proposed solutions on a NEM-wide basis, including via enabling market development of non-network solutions.

¹ [EnergyAustralia Transgrid NSW System Strength Requirements - Project Specification Consultation Report 30 March 2023.pdf](#)

² [Queensland System Strength Requirements RIT-T consultation report 21 July 2023.pdf \(energyaustralia.com.au\)](#)

Real time data and broader issues in procuring system strength

We see a critical need for AEMO and jurisdictional planners to publish real time data on system strength, and purpose designed and quality-controlled models that allow participants to evaluate their portfolio assets impact on system strength nodes across a range of operating conditions and scenarios. This will accord with principles of AEMO's Engineering Framework body of work and demonstrate ongoing value for money and provide future investment signals irrespective of the technical solutions or procurement models that are adopted.

As noted in AVP's PSCR, the unbundling and procurement of other essential system services is evolving. The ability of technologies and service providers to satisfy different system needs requires sufficiently granular datasets to understand how the existing mix of resources contributes to inertia, system strength, reactive support etc in operational timeframes and over different regional and subregional boundaries.

Furthermore, the AEMC made assumptions about the pace of technical change when establishing the new system strength framework and undertook to validate this, along with monitoring of how the standard is implemented.³ Again this would require the publication of actual data on system strength relative to forecast requirements to identify the extent of any under or over procurement.

Further clarity on the investment need for system strength

Similar to TransGrid's and Powerlink's recent PSCRs, AVP quantifies the minimum and efficient levels of system strength on the basis of AEMO's 2022 System Strength Report. In the case of efficient levels, AVP highlights that its calculation of fault level requirements is intended to be a guide on emerging system strength risks rather than a firm requirement given AEMO's IBR forecasts.⁴

We encourage AVP to provide more transparency and explanation for stakeholders engaging in understanding the new system strength framework, particularly how AEMO's forecasts, which will be updated during the RIT-T process, translate into investment needs and the selection of candidate options. The following are some uncertainties and nuances that AVP should explain in its Project Assessment Draft Report (PADR):

- AEMO's specification of the system strength standard for each year is on the basis of a three-year rolling forecast under NER clause S5.1.14(a). It is unclear how AVP will deal with progressive changes to the specification in AEMO's upcoming 2023 System Strength report and in subsequent reports that are published after the PACR. At a minimum we expect the declaration of a new node at Mortlake and other nodes may occur in the coming years that may affect AVP's planning and procurement.

³ AEMC, *Efficient management of system strength on the power system*, Rule determination, 21 October 2021, pp. viii, 98.

⁴ AEMO Victoria Planning, *Victorian System Strength Requirement - Project Specification Consultation Report*, July 2023, p. 15.

- efficient levels of system strength reflect AEMO’s IBR forecasts which will be subject to potentially large changes with each annual System Strength Report. Forecasts reflected in the PSCR come from the 2022 Integrated System Plan which will be superseded with the Draft 2024 ISP to be published in December. It is not clear if these will be reflected in the 2023 System Strength Report also due to be published around the same time. AVP should also clarify the extent of its discretion in relying on these IBR forecasts as AEMO appears to have provided System Strength Service Providers (SSSP) the flexibility to adjust near term forecasts as new information becomes available.⁵
- Even allowing for their adjustment, the NER appear to prescribe the 10 year IBR forecasts in the most recent System Strength report, yet AVP’s RIT assessment will extend to the earlier of 2050 or the end of the asset life⁶ (expected to be 2050 as synchronous condensers have at least a 30 year technical life). We would support cost benefit assessments based on a full set of IBR forecasts and associated system strength needs over the full modelling horizon however AVP’s obligations are unclear. AVP notes that it will adopt modelling parameters from the 2023 IASR⁷ which again creates a potential disjoint between the system strength requirements specified in the 2022 System Strength report and any updated projections from AEMO in line with the 2024 ISP.
- AVP’s presentation of IBR forecasts implies a largely mechanistic translation of these into efficient fault level requirements. The PADR should contain technical analysis on how it has translated AEMO’s four criteria relating to voltage waveforms into a single minimum MVA fault level metric. Our expectation is that it has adopted the same approach as AEMO when determining shortfalls. AVP should demonstrate that this approach is robust and that it has explored opportunities for innovation in the provision of solutions.⁸ Providing this detail will help understand how different technologies and services contribute to overall system strength requirements.
- AVP states that services must be provided at a high level of availability (97%) however further data on the profile of system strength needs should be provided to justify the resource capabilities it will plan towards and eventually procure. We encourage AVP to publish supply and demand of system strength needs as a time series, at each system strength node from the base case and alternative scenario market modelling exercise undertaken for the RIT-T analysis. This will be key to understanding and transparently explaining the consecutive duration and gaps in supply of system strength, and therefore the drivers behind variations, and allow for analysis of the prevailing operational conditions.
- AVP appears to apply the system strength standard as needing to be met “at all times of the year”⁹ implying 100% compliance. We encourage AVP to confer with

⁵ AEMO, *2022 System Strength Report*, December 2022, pp. 68-9.

⁶ AEMO Victoria Planning, p. 25.

⁷ *ibid.*, p. 26.

⁸ AEMC, p. 19.

⁹ AEMO Victoria Planning, p. 20.

other SSSPs on the interpretation of the planning standard and justify its approach, noting that the system strength specification in S5.1.14(a) applies “at any time in a relevant year” while subclause (b) provides for “reasonable endeavours” in meeting associated requirements. Delivering 100% compliance under very unusual circumstances may result in a very expensive system strength solution portfolio based on a ‘fix it at any cost’ approach.

Additional modelling complexities and assessment issues

As raised at the recent public forum, AVP’s approach to modelling unit commitment and hence the underlying level of system strength will be critical in its planning and procurement decisions.

In our view there may be a bias in using AEMO’s modelling parameters around thermal generation. AEMO’s methods and input parameters presume existing plant would be run inflexibly and without fuel limits, thus overstating the level of system strength present and understating the need for additional services. AEMO’s standard set of fuel cost and unit commitment assumptions may also affect the modelling of non-network services. Overall this could materially affect the ranking of network candidate options which will tend to have lower variable costs and AVP should explore these effects through input sensitivities. We expect there could be material option value in the procurement of flexible non-network solutions which are likely to be less capital-intensive and ready for immediate deployment. The cost trade-offs and risks of over or under-procurement of different solutions will also depend on how system strength needs are projected over a 2050 horizon, relative to AEMO’s 10 year forecasts of IBR.

EnergyAustralia would also like to offer our experience and assistance to AVP prior to and after any market modelling is undertaken, to review key inputs and results – notably regarding how Yallourn, Jeeralang, Newport and Wooreen assets may be dispatched. We offer this collaboration to support AVP with the genuine intention to assist the transition of the market and power system, and to provide efficient and effective solutions for system strength services in the interests of all consumers.

It may be prudent for AVP to conduct further sensitivity analyses on the location of IBR investment. Generally there is a presumption that generation will diversify away from the Latrobe Valley. To the extent the analysis follows the 2024 ISP (which will move from draft to final over the course of this RIT-T assessment) AEMO’s new approaches to accommodating social licence issues might favour developments that align to existing generation and transmission sites, with different implications on system strength needs. We expect the timing of VNI West will also be a key variable considered in the context of social licence issues. Like AVP has stated, the forecasts of efficient IBR and fault level requirements are taken as a guide in its assessment. It will be therefore important for providers of non-network solutions to have transparency on how AVP interprets AEMO’s forecasts, including as they are updated.

We encourage AVP to explain how services from neighbouring jurisdictions is accounted for. The PSCR states that this is not reflected in the determination of the investment need whereas providers located outside of Victoria (but within electrical proximity) will be

considered in the procurement of non-network options. It also highlights joint planning in the case of system strength needs at the Red Cliffs node and interactions with Project Energy Connect. As part of the concurrent assessment of system strength needs and solutions it may be worth conferring more broadly with TransGrid and ElectraNet on the materiality of inter-regional aspects as this might identify reduced investment needs and also coordinated solutions.

If you would like to discuss this submission, please contact me on 03 9060 0612 or Lawrence.irlam@energyaustralia.com.au.

Lawrence Irlam
Regulatory Affairs Lead