Ashwin Raj

Australian Energy Market Commission

Submission made online at www.aemc.gov.au

18 July 2024

Dear Mr Raj,

Subject: ERC0396 Consultation Paper - Improving consideration of demand-side factors in the Integrated System Plan (Electricity) Rule

SA Power Networks welcomes the opportunity to provide feedback on the AEMC's Consultation Paper on the *Improving consideration of demand-side factors in the Integrated System Plan (Electricity)* rule change (the Rule Change).

We strongly support the principles of the Rule Change and feel that better consideration of CER and the distribution network in the Integrated System Plan (ISP) will deliver benefits to customers through a lower "whole-of-system" cost pathway to the energy transition. SA Power Networks has already been engaging with AEMO on the provision of distribution network inputs to inform the ISP, as part of AEMO's ISP Review initiative.

Despite supporting the principles, we *do not* support the Rule Change proposal, on the basis that in its current form, it does not best promote outcomes consistent with the National Electricity Objective (NEO) in the National Electricity Law (NEL). Our view is that a more preferred rule change, should ensure that investment in distribution network capacity is not excluded from the Optimal Development Path (ODP). This is to ensure that a truly whole of system approach is taken to identifying the least cost / most efficient energy system investments to support the ISP.

Our key points of feedback are set out below and detailed throughout the submission:

1. We strongly support the inclusion of distribution network constraints as inputs to the ISP. Data collected from DNSPs should be outputs of our modelling, in the form of total constrained energy at the transmission bulk supply point along with network augmentation costs to host CER, aggregated to the transmission bulk supply point. Doing so will materially increase the accuracy of the ISP and provide new opportunities to support increasing levels of CER on the distribution network.

2. While noting that *"(the Rule Change) does not suggest that the optimal development path (ODP) should be expanded or 'co-optimised' to incorporate investments in CER or distributed resources capacity"*, we strongly recommend that the rule change / a more preferred rule change, should include expansion of the scope of the ODP to incorporate:

    a. recommendations of investments in distribution network capacity at the transmission bulk supply point, allowing the ISP to produce a truly "lowest system cost" path to enabling the energy transition; and

    b. investments in distributed generation *capacity* as an alternative to centralised, transmission connected generation capacity. This should be implemented by

considering the distribution network & connected generation as a generator at the transmission bulk supply point.

3. We do not support the introduction of any new responsibilities for AEMO in the distribution planning process beyond recommendations of net distribution network capacity at the transmission bulk supply point. Modelling impacts of CER on the distribution network is complex and requires significantly larger volumes of data than transmission planning, thus DNSPs are best placed to undertake detailed network planning activities as they do today.

Including distribution network constraints as an input to the ISP, coupled with an expansion of the scope of the ODP to incorporate investments in both distributed generation capacity and distribution network capacity will represent material progression in ensuring that the ISP and its recommendations truly represent the lowest total-system-cost pathway to enabling the energy transition.

We look forward to continuing to engage constructively with the AEMC, AEMO and other stakeholders to support enablement of the lowest cost whole-of-system approach to net zero. Should you have questions on any aspect of our submission, please contact Liam Mallamo, Future Networks Engineer, at liam.mallamo@sapowernetworks.com.au.

Jessica Morris

Chief Customer & Strategy Officer

Progressing the ISP towards a truly a lowest-system-cost path to the energy transition

SA Power Networks strongly supports improving considerations of both CER and distribution network constraints within the ISP. Today, CER uptake and associated levels of orchestration are considered within the ISP as an input only, and the distribution network is assumed to be able to host all forecast distribution-connected generation within the ISP at no marginal cost.

Two key areas of reform that will progress the ISP towards delivering a truly lowest-system-cost path to enabling the energy transition are:

1. considering the current constraints present on the distribution network within the ISP, and considering investments to remove these constraints; and

2. considering investments in increased levels of distributed generation and the associated distribution network capacity to host that generation, as a viable alternative to investments in large-scale generation and associated transmission capacity within the ISP.

Distribution constraints and the ODP

Whilst we strongly support including distribution network constraints within the ISP, provided as net constrained energy at the transmission bulk supply point, we note that doing so in the absence of parallel changes to the scope of the ODP may likely result in inefficient investments that are not aligned with the NEO.

The ISP currently assumes that the distribution network is unconstrained at all levels, and that all net exports from distributed generation installed on the low-voltage network can supply demand connected to other parts of the low-voltage network, as well as higher levels of the distribution network and the transmission network.

In practice, significant volumes of exported energy from distributed generation connected to the low-voltage distribution network are not able to supply demand at higher levels of the system, instead being curtailed actively or passively due to network constraints. Some level of curtailment from larger distribution-connected generators also exists from constraints in the high-voltage distribution network. Across both the low-voltage and high-voltage distribution network, constraints arise largely due to voltage issues, although thermal constraints are forecast to increase on the network, alongside continued CER uptake.

Consideration of constraints on the distribution network within AEMO's modelling will lead to curtailment of a proportion of the CER or distribution connected generation, resulting in additional 'unserved energy'. To meet this unserved energy, AEMO must recommend additional investments.

There are three potential options for these investments:

1. Large-scale generation and associated transmission network capacity;
2. Resolving distribution network constraints; or
3. A combination of (1) and (2).

We note that the current scope of the ODP does not allow for investments in distribution network capacity to be considered, leading to (1) as the only outcome of considering distribution network constraints in the ISP under the current Rule Change.

Our view is that this is unlikely to be the most economically efficient option, and hence would not be aligned with the NEO. The costs to develop new large-scale generation and transmission network capacity to meet the energy curtailed via distribution network constraints are likely to significantly outweigh the costs to resolve those constraints via investments in distribution network capacity.

For this reason, we urge AEMO to expand the scope of the ODP to consider investments in distribution network capacity at the transmission bulk supply point, and the AEMC to consider whether any barriers currently exist within the National Electricity Rules in enabling AEMO to do so.

This new function of the ODP should not extend beyond recommendations of net distribution network capacity at the transmission bulk supply point. The optimisation of capacity allocation within the distribution network is an existing function performed by DNSPs and should remain so, with existing guidance provided by the AER via the Customer Export Curtailment Value Methodology[1].

CER generation as the lowest-cost form of generation

In addition to improving consideration of distribution network constraints within the ISP, the Rule Change also seeks to improve the treatment of CER within the ISP, namely *"undertaking improved analysis of CER based on the additional information collected on anticipated network constraints and electrification pathways,"* and *"to include a statement within the ISP on the expected development and operational behaviour of CER."*

Whilst we support these changes, we believe that further reform is required to ensure that CER is best considered within the ISP to truly reflect the lowest total-system-cost of enabling the energy transition. We suggest that the ODP be expanded to include consideration of investment in distributed generation. Consideration of such investments would be used to inform federal and state policies pertaining to the purchase and installation of CER by consumers.

Should the ODP include investments in both distributed generation and distribution network capacity, the ISP could then properly consider the most efficient way in which to meet future demand, by 'weighing up' the costs of large-scale generation and associated transmission network capacity against investments in CER generation and associated distribution network capacity.

This would represent a significant enhancement to the alignment of the ISP with the NEO, ensuring that the lowest-cost solution to meet additional demand is available within the ODP scope and considered as a viable option.

CSIRO's 2023 – 2024 GenCost report notes that rooftop PV is currently the cheapest form of generation on a levelised cost of energy basis, marginally cheaper than large-scale PV and significantly cheaper than onshore or offshore wind[2]. Additionally, unlike large-scale generation, the upfront costs associated with deploying rooftop PV are not recovered from the general customer base. As a customer owned asset, the upfront costs to install rooftop PV are borne by those installing it, with these investments bringing direct benefits to these households in the form of self-consumption of their generation and revenue from a retail feed-in-tariff.

Once a CER target at the transmission bulk supply point has been identified as part of the ODP, delivery of this capacity could be signalled through an 'actionable' project in the ISP. Responses to

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[1] Customer export curtailment value methodology | Australian Energy Regulator (AER)

[2] Graham, P., Hayward, J. and Foster, J. (2024). GenCost 2023-24 Final report, Figures 2-1, 4-9 and 4-10. [online] Available at: https://www.csiro.au/-/media/Energy/GenCost/GenCost2023-24Final_20240522.pdf.

this type of actionable project could be in the form of proposed policy settings or subsidies to encourage CER uptake, or direct investment in distribution connected CER. The cost of delivering these projects are likely to be less than the alternative costs of large-scale generation and transmission network capacity for a large portion of the identified generation need within the ISP, leading to a true lowest-system-cost plan and aligning with the NEO as the most efficient investment pathway in the long-term interests of consumers.