31 August 2021

Dr Kris Funston
Executive General Manager, Network Regulation
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001

Sent via email: AERinquiry@aer.gov.au

Dear Dr Funston

Submission on Distributed Energy Resources integration expenditure guidance

SA Power Networks welcomes the opportunity to comment on the AER's Draft Distributed Energy Resources (DER) integration expenditure guidance note (the Guidance Note) and explanatory statement (the Explanatory Statement).

Overall, our overarching comments on this work are that:

- the ultimate goal of DER integration expenditure proposals and the AER's assessment of these, should be to align network expenditures with levels of service performance that customers desire and are willing to pay for. In some aspects, we consider the Guidance Note focuses too narrowly on wholesale market analysis rather than this broader objective;
- there are important interactions between this work and the subsequently published AEMC DER access, pricing and incentive arrangements rule change determination (AEMC Rule Changes), which will need to be incorporated.[1] These relate to the Guidance Note's expectations on distributors and AER assessments, as well as additional work that the AER is tasked with producing, such as the Customer Export Curtailment Value (CECV). As such, an additional round of consultation may be required to examine this package of work in its totality; and
- we support the Guidance Note being largely principles-based, given the fluid changes occurring in terms of the nature of DER connecting to networks, the impacts on network hosting capacity being experienced, and the available solutions.

Our specific comments are discussed in our submission, attached to this letter. Our key views are that:

- we agree that a consolidated description of distributors' long-term DER integration strategy can benefit a range of stakeholders, including the AER in its expenditure assessments;
- the AEMC Rule Changes will now drive the identified need in a distributor's expenditure proposal to be more centrally framed in the context of the export service, and in achieving levels of service performance that customers value and support;
- flexibility is needed in how distributors assess network hosting capacity;

[1] AEMC, *Rule Determination: national electricity amendment and national energy retail amendment (access, pricing and incentive arrangements for distributed energy resources) rule 2021*, 12 August 2021.

- distributors' access to advanced metering data on fair and reasonable terms will be a key enabler of hosting capacity visibility, and the costs of data access need to continue to be assessed on an operating expenditure step-change basis, as the nature and volume of data required by distributors will change over time;
- base-case scenarios must be credible, and reliance on inverter trip settings will not constitute a prudent option consistent with good industry practice;
- in assessing proposed improvements in network hosting capacity, a greater role is needed for considering the value to customers, noting the broader approach to the CECV described in the AEMC Rule Changes, and a greater role for engagement to determine the support from customers. This is in order to efficiently align network spends with customers' expectations; and
- we recognise the need to consider the costs of customers investing in DER, where a distributor's DER adoption forecast differs between a base-case and a network investment case. However, in such situations, the direct benefits to these customers would also need to be considered to avoid creating imbalanced cost / benefit analyses in business cases.

If you have any queries or require further information in relation to our submission, please contact Bruno Coelho on [redacted] or [redacted].

Yours sincerely

[redacted]

Mark Vincent
General Manager Strategy and Transformation

1. DER integration strategy

We agree on the merit of a distributor setting out how its proposed DER integration expenditures and activities fit within its long-term strategy for enabling DER, noting that:

- there are likely to be a range of options / solutions for managing network hosting capacity, including through the use of network or non-network solutions, pricing / tariff signals combined with Dynamic Operating Envelopes (DOEs), connection policies, and other measures such as improving compliance to relevant technical standards;
- it may be useful for stakeholders, and certainly the AER in reviewing proposed expenditures, to understand the combination and complementarity of options and solutions that the distributor is pursuing to manage DER hosting capacity and to minimise the costs of doing so; and
- these explanations are consistent with the approach we took to our DER integration proposal in our last regulatory proposal, and the approach we envisage applying to our next proposal.

However, we encourage the AER to be flexible on the exact document in which the DER integration strategy needs to be set out. This is noting the potential duplication between what is required to be contained in the 'Overview Document', the 'Export Tariff Transition Strategy', the 'DER integration strategy' and the business cases for the relevant expenditure. [2]

2. Describing the identified need

We welcome the Guidance Note not prescribing how to describe the 'identified need' underpinning a DER integration expenditure proposal. Flexibility is needed, given the fluidity of the changes occurring in terms of the composition of DER connecting to networks (with battery storage and electric vehicles emerging at scale), the nature of the implications for network hosting capacity, and the available solutions.

It is worth acknowledging that the AEMC Rule Changes will have important interactions with the 'identified need' which will need to be accounted for, as these will:

- allow the identified need to be more centrally framed in the context of the 'export service' and what customers value and want from that service;[3] and
- more specifically, require distributors to be guided to:
    - meet or manage demand for the export service;
    - maintain the performance of the export service, with the specifics here pending the outcome of the AER's review of options for designing a Service Target Performance Incentive Scheme (STPIS) for export services;[4] and
    - comply with the new requirement to offer non-zero export limits to all customers, subject to some justified exceptions.

[2] The AEMC Rule Changes introduced new requirements on the information a distributor must include in its regulatory proposal 'overview document' and a new requirement on distributors to prepare an 'export tariff transition strategy'.

[3] In our last regulatory proposal, the identified need had to be framed in the context of managing the technical effects that DER adoption forecasts would have on the quality of supply of consumption services, and then identifying the option that maximised the benefits of doing so.

[4] This requirement was introduced as part of the AEMC Rule Changes. The introduction of service incentives, and consideration by distributors of the level of service performance that customers desire in their export services, will represent a fundamental and core component of the overall regulatory framework. This differs to the current framework, wherein there was no clear guidance on the level of service that distributors should provide customers of export services.

3. Assessing hosting capacity

We support the Guidance Note taking a non-prescriptive approach to how distributors should assess network hosting capacity, and instead setting out principles-based expectations on each distributor which vary according to their circumstances. This is noting that:

- a flexible approach will best recognise that each distributor will differ in their current level of visibility over their low-voltage networks in particular, and the capabilities, systems and information that they have access to. Therefore, there may be differing strategies that each distributor needs to pursue;[5] and
- it is reasonable that a distributor who has previously invested to obtain greater visibility of their network hosting capacity, and / or has access to smart meter data, should need to show a greater understanding of their network hosting capacity in supporting their expenditure proposals.

Over time, we anticipate that distributors will need to develop ever deeper visibility of network hosting capacity. This is given the continued penetration, and changing nature of, DER (increasingly batteries, electric vehicles, and larger generators), and the changing activities distributors perform in actively managing the grid (such as via DOEs). While there are various sources for obtaining technical network data, a key enabler for distributors will be their ability to access data from smart meters. This poses several regulatory implications:

- it is fundamental that distributors outside of Victoria can access relevant metering data from Metering Coordinators (MCs), on an ongoing basis[6], and, to the extent that distributors are required to purchase this data, on fair and reasonable terms and prices that reflect the efficient cost of providing the data. The AEMC is exploring these issues in its metering review.[7] It may be useful for the AER to reinforce, in that review, the importance of access to metering data in the context of DER enablement; and
- the AER should recognise that, for distributors outside of Victoria, understanding hosting capacity will likely require new expenditure to source network data from MCs and other third-parties. With the need for data and the opportunity to access new data sources such as smart meters growing over time, data procurement costs revealed in an operating expenditure base-year are unlikely to be a reasonable basis for forecasting costs for a regulatory control period. Data procurement will likely require operating expenditure step changes in one or more successive regulatory control periods, and an appropriate methodology will be required to forecast future costs.

4. Setting out a base-case scenario

Describing a base-case scenario is foundational to a cost / benefit analysis, and in particular, in being able to compare the net benefits of options involving investments that differ to a business-as-usual or do-nothing approach to addressing an identified need. In our view:

- it is appropriate that the Guidance Note has not prescribed what should comprise each distributor's base-case, as these will need to vary. This is particularly the case between distributors who are or are not currently implementing DOEs;

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5 For example, SA Power Networks has pursued a 'diverse data sources' strategy, which seeks to leverage information from network side monitors, inverters, smart meter data where available (noting the low penetration of these meters in South Australia), combined with modelling techniques to draw inferences between data sources.

6 Noting that at least on retailer does not allow their MCs to provide voltage data to distribution businesses from their customers' meters.

7 The AEMC is due to issue a draft report this year on its review of the regulatory framework for metering services. More information is available via the AEMC website: www.aemc.gov.au

- for distributors who are implementing DOEs, their base-case would need to account for increasing instances over time in which DOEs have been applied to limit the volume of exports from customers, under their DER adoption forecast;
- with the operation of DOEs, the instances in which DOEs have been applied will be relevant, as the export limit offered to customers, such as via connection agreements, might not change. We note the Guidance Note currently only refers to the 'export limit' that is selected for the base-case, not the proportion of time over which that export limit is available; and
- the base-case should be a credible option. A base-case relying on AS4777 inverter protections and inverter tripping to manage the impact of increasing levels of DER on the network does not constitute a credible option.[8]

5. Valuing the benefits of investment options

5.1 Considering customer value and support through engagement

The approaches described in the Guidance Note for identifying and calculating benefits (and negative benefits, or costs) shared by all customers appear reasonable. That is, benefits accruing via effects on the National Electricity Market wholesale market, and network benefits in cases were DER enablement impacts the need for investment in the distribution or transmission network.

However, the Guidance Note should explicitly acknowledge the importance of considering the service outcomes that customers want and value, in determining the network spend that should be supported. This goes to not only the techniques for quantitatively valuing the benefits of proposed expenditure, but also to the role of engagement in determining the spend that customers support. This is noting that:

- For DER integration expenditure proposals considered in the last distribution determination round, the costs of these proposals were borne by all customers, making it more important to identify benefits that are shared by all customers.
- In the next determination round, the AEMC Rule Changes allow distributors to consider, from 2025, using tariffs to recover the costs of export services from customers who receive these services, rather than all customers. While the Guidance Note and Explanatory Statement refer to the need to consider benefits to all customers, and while we agree these should be considered, it is fundamental that benefits to customers of export services more specifically, be considered.
- In quantitatively considering benefits / value to export service customers, there is an important role for the CECV, which the AEMC Rule Changes require the AER to produce. However, while the Explanatory Statement suggests that the AER intends the use the CECV to produce a figure on shared wholesale market benefits, AEMC policy direction pointed to the CECV having a broader function, which was to:

[8] This was on the basis that:
- it is imprudent and inconsistent with good industry practice, as it is an ineffective means to manage quality of supply;
- in most areas of the network, this approach would result in a progressive degradation in quality-of-supply with increasing solar uptake, as over-voltage conditions result in cyclic tripping / reconnection behaviour;
- some parts of the network experience minimal voltage rise even with very high penetrations of solar; in these areas, voltage-based self-curtailment may not prevent assets from becoming overloaded with reverse power flows;
- it results in a level of service performance that is unacceptable to solar customers; and
- it results in inequitable levels of service performance, where some customers experience much poorer quality of supply than others in the same area, simply as a result of their distance from the local transformer.

- be a means of determining more direct value to customers specifically as well as the market, in particular levels of service—more specifically, to determine the value to customers that would be foregone if exports were curtailed;[9] and
- perform a similar role to the Value of Customer Reliability (VCR) for consumption services, being an input to the design of service performance incentives for export services (i.e. in determining service levels valued by customers) and an input to cost / benefit analyses in business cases. For consumption services, direct customer value is considered in one of the categories of 'market benefits' specified under the RIT-D framework. That is, the benefit category of 'value of unserved energy', which is quantified using the VCR, seeks to determine how much customers value / would be willing to pay to avoid network outages.

- With respect to customer engagement, the focus of a regulatory proposal / determination process should be on aligning proposed network expenditures with customers' views on service outcomes that they support and value. That is, regulatory proposals for DER integration expenditure should be strongly shaped by engagement with customers on the network spend that they support, as required to achieve levels of export service that they value. This perspective appears to be shared by the AER, as reflected in various forums, and in particular, as underpinning its coming work on the Statement of Expectations for Energy Networks.

5.2 Quantifying the costs of customers' DER purchases

The Guidance Note sets the boundaries of cost / benefit analyses at the electricity system level, expecting that distributors consider the costs borne by DER customers in purchasing new / additional DER devices. This requirement appears to only apply to the situation where a distributor has used differing DER adoption forecasts between a base-case and an investment case, although this should be further clarified in the final Guidance Note. In our view:

- we agree that the Guidance Note should remain open to considering business cases where DER adoption forecasts differ between the base-case and the investment case;
- customers' DER costs should only be included in business cases in which different DER forecasts are used in the base-case and the investment case, on the basis that the distributor expects their investment in network hosting capacity to drive additional customer investments; and
- where DER forecasts do differ between a base-case and investment case, and the direct costs to customers of purchasing / investing in DER are to be included, the direct benefits to those customers also need to be considered to avoid imbalanced assessments. As we discussed earlier in this submission, benefits to customers should be more directly considered via the CECV.

[9] For example, the AEMC stated: *"…the values may need to capture not only the detriment of export curtailment to the customers using the export service but also the potential detriment to all customers from lower levels of customer exports…".* AEMC, *Rule Determination: national electricity amendment and national energy retail amendment (access, pricing and incentive arrangements for distributed energy resources) rule 2021,* 12 August 2021, p.63.

6. Other issues

The Guidance Note raises other issues, which we comment on below.

6.1 Format of business cases

We agree with the AER not seeking to prescribe / issue a template for the format of a distributor's business case, as this will allow distributors to develop and present their justifications as best suits their individual circumstances and needs of their customers.

6.2 Input assumptions

We agree with the principles specified in the Guidance Note with respect to the input assumptions to be used by distributors in forecasting DER penetration. However, it is important to recognise that information published by the Australian Energy Market Operator (AEMO), while likely to be foundational, should only be used as a starting point in forecasting. This is noting that:

- there may be information that is more granular, such as differing sizes of PV generators or particular locations where we see high take-up rates, which might allow for improvements to be made to the AEMO forecasts; and
- there may be a need to account for information on state-specific drivers, such as the impacts arising from government policies like DER incentives for customers, that are not reflected in AEMO's forecasts.